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SHARING TEXTUAL GRAPHIC TOOLS: early lessons in graphic language through practices in handwriting organisation by teachers and pupils in schools in Recife

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2018

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PhD thesis presented to the Post-Graduation Program in Design of the Federal University of Pernambuco as a partial requirement to obtain the degree of PhD.

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Supervisor: Prof. Dr. Solange Galvão Coutinho

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This work is dedicated to the memory of my grandmother, Maria José.

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ABSTRACT

By reflecting on the teaching and learning of the graphic language that occurs during the school trajectory of pupils, this thesis describes an investigation into teaching the visual organization of handwriting. Through the problematisation of the practices of literacy and 'alfabetização', we seek to understand the contents of and approaches to graphic language currently present in language education or in contemporary debates within this field. The field research was of an ethnographic nature, during which the activities of eight classes in the third year of elementary school in six public and private schools in the city of Recife were observed during ten days, each. During this period, the researcher conducted semi-structured and unstructured interviews and collected documents related to the school. The records (annotations, photos, videos) were structured in timelines describing and classifying the observed activities, which enabled us to identify recurrences. Thus, the analytical corpus was selected: records of handwritten texts produced by the polyvalent teachers and their respective copies by the pupils; as well as texts created and formatted by the pupils themselves. The activities were analysed observing the visual differentiations that occurred in the text - herein called textual graphical tools. They were identified, counted, and classified by their nature, function and application within the text, in a framework proposed through considerations from analytical models used by fields such as visual communication and rhetoric. Analysis of the graphical textual tools used by the teachers and pupils, of the practices observed and of the interviews indicates that the teaching of graphical variations in handwriting is chiefly conducted in an unsystematic manner, and that, pupils compose their repertoire of graphical information strategies from the writing practices of the teacher, although often combining, transforming or adapting them.

Keywords: Multiliteracies. Teaching of Writing. Handwriting Organisation. Design and Education.

RESUMO

Visando refletir sobre o ensino e a aprendizagem da linguagem gráfica que ocorre no decorrer da trajetória escolar dos alunos, esta tese descreve uma investigação do ensino da organização visual da escrita à mão. A partir da problematização das práticas de letramento e alfabetização, buscamos entender os conteúdos e as abordagens sobre linguagem gráfica já presentes na educação linguística ou nos debates contemporâneos desse campo. A pesquisa de campo teve um viés etnográfico, em que atividades de oito turmas do terceiro ano do Ensino Fundamental de seis escolas públicas e particulares recifenses foram observadas durante dez dias cada. Nesse período, a pesquisadora conduziu entrevistas semiestruturadas e não-estruturadas e recolheu documentos referentes à escola. Os registros (anotações, fotos, vídeos) foram estruturados em linhas do tempo descrevendo e classificando as atividades observadas, o que permitiu identificar recorrências. Assim, o corpus analítico foi selecionado: registros de textos escritos à mão elaborados pelas professoras polivalentes e suas respectivas cópias pelos estudantes, assim como textos criados e formatados pelos próprios estudantes. As atividades foram analisadas observando-se as diferenciações visuais realizadas no texto – aqui denominadas de ferramentas gráficas textuais – e que foram identificadas, contabilizadas, classificadas em sua natureza, função e aplicação dentro do texto, num *framework* proposto a partir da consideração de modelos analíticos dos campos da comunicação visual e da retórica. A análise das ferramentas textuais gráficas de professores e de alunos, das práticas acompanhadas e das entrevistas indica que o ensino das variações gráficas na escrita à mão se dá principalmente de maneira assistemática e que a partir das práticas de escrita da professora os alunos compõem seu repertório de estratégias informacionais gráficas, mas não sem frequentemente combiná-las, transformá-las ou adaptá-las.

Palavras-chave: Multiletramentos. Ensino da Escrita. Organização da Escrita à Mão. Design e Educação.

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1 INTRODUCTION

This thesis describes a trajectory that set out with the intention of studying the graphical¹ practices of teachers and pupils at school. However, the focus of the investigation was delimited on completion of the fieldwork. Contemporary discussions and regulations regarding the teaching of writing were theoretically accessed so as to gain an understanding of the way in which the literacy process develops in school, which in turn, led to reflections on several discursive genres and their multiple modes – in order to connect what is being done inside the school with the outside world. While these principles are being followed in the schools visited in the city of Recife, handwriting is still the most commonly used graphic means for depicting and organising information by the subjects in class – not machine-produced writing nor drawing or producing diagrams. This is what has driven our attention towards the visual organisation of handwriting through the concept of the textual graphic tools: information design solutions to enhance meaning, conduct reading and organise information in these early, ordinary pieces of writing.

The interest in studying the encounter between design and education is due to the belief that the insertion of design content in school brings several benefits for education. Some facets of this conjunction have already been explored worldwide, and among them, the study of graphic language, since design is one of the professional areas that deals with the visual articulation of information – and graphic matter is continuously used and produced to mediate access to information in educational environments. The benefits include gains related to developing skills and competences on the management and planning of projects, developing creativity and innovative practices, and also constructing knowledge regarding technical and technological aspects related to human activities (Fontoura, 2002; Coutinho et al, 2018; Moline, 1995). In addition to these, in terms of graphic language, a more diversified use of information arrangements is also considered to enhance cognition for readers (Waller, 1987) and even for writers. Twyman (1978) advocates that writing is ‘an extension of thought’ (1978:1), something he illustrates by stating how difficult he found it to organise his ideas because he had broken his writing arm, and could neither write down nor sketch his ideas (Twyman, 1995).

It was not until the turn of the nineteenth century that schools in Brazil started to teach writing to all pupils and not just to those considered the most advanced, following the deprofessionalisation of agents who were in charge of materialising

¹ The term graphic is much used during this work and relates to the description by Michael Twyman (1979) regarding graphic language as a form of communication made by intentional visible marks such as drawings, sketches and writing on any surface. He distinguishes visual language from graphic language because gestures can also be considered a visual form of communication (Twyman, 1982). Thus, to use the term ‘graphic language’ is to say that every use and production of graphic material in schools was interesting for this research – at least in a first moment.

verbal language (Vidal and Gvirtz, 1998; Razzini, 2008). The emergence and popularisation of technologies that facilitated writing, such as the metal tip pen, pencils, cheaper paper, and the slate drawing board, affected this process. Thus, the domain of writing, which nowadays may be considered a commonplace task, was reserved for specialists. This case may be associated, by analogy, with mastering forms of expression beyond verbal information – such as through images and schemas – that currently belong to specialists, but which, if popularised, could increase the possibilities of being expressed by non-specialists. As in writing, technological possibilities support new practices, hence, the missing element for more diverse and thoughtful graphic practices is the systematisation of its teaching/learning so that they are widely developed in school.

There are many ways in which this insertion may be undertaken in Brazilian schools, and Fontoura (2002) has suggested a number of models ranging from the creation of a new school subject, much like maths or science, to the establishment of a complementary programme of education, in the shape of an extra course with little integration into the other school subjects. One of his ideas – the consideration of design as a transversal theme across various subjects – seems to match the present state of the development of graphic knowledge in school. According to Rojo (2000), since 1998 national education regulations have required a linguistic education based on a diversity of genres, through which multiple experiences in reading and writing should be achieved – including visual, aural, filmic and digital languages. In addition to Portuguese classes, different graphic expressions should also be addressed in other subjects – graphs in maths, maps in history and geography, and so on. Towards a visual literacy – one of the literacies included in the concept of multiliteracies, Moline states:

Graphic design combines visual and verbal texts, and in the classroom, graphic design can be an important part of the writing process (which is also a thinking process and a visualizing process). (Moline, 1995: 119)

However, this Brazilian educational policy neglects specific formation. Despite the advance of studies into multiliteracies, which have advocated the consideration of multiple practices in meaning-making in linguistic education (Rojo et al, 2010), they nonetheless seem to be just a feature, which is superficially addressed. Teachers have no opportunity to study the features of graphic language when using or producing graphic material during their under-graduation courses (Coutinho, 2011; Lopes, 2009), nor during their initial teaching training courses (Cadena, Coutinho e Lopes, 2011). However, their professional activities mostly rely on the consumption and creation of graphic artefacts, as this work will demonstrate.

For teachers, graphic language is not just a means by which to present thoughts and information to their pupils, it is also an object for teaching the very language itself. In education, the teacher acts as a mediator, whose role is to challenge schoolchildren to explore themes, paths and approaches that they would not

necessarily explore outside the school environment. It is due to the dynamics of having to respond to the teacher's demands that pupils experience different visual constructions from those they would normally find for themes they are working on. Thus, for example, they create maps – not only treasure maps, like those seen in games – but of countries or cities. They create charts like those they see in newspapers. Studying different kinds of genres allows them to realise that there may be several ways to symbolise and represent the same information.

In accordance with Walker (2001) and Owens (2012), who credit importance and complexity to the lay practice of design, we too consider teachers as lay designers, who use and produce a great deal of relatively diverse genres of graphic documents. Ultimately, in the field of graphic practice, being 'organised' and 'methodical' are skills and qualities traditionally linked to teaching. Apparently, however, a deeper study of graphic communication is not easily available to them. Stöckl (2005) complements this position by stating that, with the proliferation of devices, many people now have to deal with typography in all its complexity, creating meaning and developing personal tastes, designs and rules that establish an entire domain of non-professional typography, although without developing any further knowledge and skills to do so.

The digital world may have intensified the possibilities of editing graphic documents and writing, but handwriting also displays many graphic differentiations in order to provide visual cues for reading. By arguing that researchers and designers should concentrate on the graphic communication of messages regardless of whether they are manuscripts or digital printed matter, Twyman (1982) commented that although technological developments have led to different ways of presenting, reproducing and sharing information, handwriting has not yet disappeared. People continue to make annotations, to sketch plans, to leave notes – especially in school, where handwriting is employed as a means of teaching reading and writing, and for developing cognitive skills. In addition, this adoption has a strong component of practicality: it is cheap and does not depend on electricity, it can be faster than typing and it is definitely faster than to boot up a device, and may easily be undertaken with the use of just one hand.

Placing this research

This present investigation was conducted as part of the activities undertaken by a research group called RIDE – International Design/Education Network – which aims to understand the artefacts and graphical processes that take place in schools, mainly from the viewpoint of information design. This discipline is approached herein as that concerned with 'the process of translating complex, disorganized, or unstructured data into accessible, useful, comprehensible information', as described by Erlhoff and Marshall (2008:218) – which signifies that it does not only address work by highly-skilled, trained professionals but also that of marginal graphic practices by non-designers, both being equally complex.

Along with the specialised activities of RIDE, first brought together through the project entitled *Teaching Design*, there has been an evolving interest in the study of school teachers as lay designers. This interest was first developed in an undergraduate research project, which investigated the use of the whiteboard by teachers, emphasising its function within class activities (Cadena, 2010). As it developed, it moved on to study the use of slideshows by pre-service teachers, and to testing a methodology for promoting design education with this group (Cadena, 2013) – which was an advance towards graphic practices with digital tools. This present work, therefore, represents a return to the school not only to study the graphic practices of teachers – but this time, their relationship with pupil practices.

It is also essential to outline that the present work, since it belongs to the design field of knowledge, relies on a multidisciplinary approach, although most links have been with the fields of linguistics, semiotics, applied linguistics and education. The first two were employed in the reflections on graphic language to constitute the analytical framework, and the others in the study on the teaching of writing. Studies in psychology, such as research into note-taking, have not been included in the scope of this research.

National studies were investigated due to their relationship with the particularities of education in Brazil – and to understand the cutting edge of research and programs in design and education. The viewpoint of design, with its discourse towards graphic education, was prioritised, in an effort to approximate it to studies on multiliteracies – as both seem to defend wider visual practices at school, as does Twyman (1986:190):

Literacy at all levels, whether at the level of the academic, administrator, industrialist, or businessperson, at one end of the spectrum, or of the young child or marginally literate adult, at the other, should surely be construed as more than an understanding of how to read and write continuous prose. In another work (Twyman, 1970) I described the range of configurations of graphic language we use and suggested that continuous prose (what I called rather clumsily, but I think accurately, the linear interrupted configuration) is just one of these. Although continuous prose can take a multiplicity of forms, we tend to neglect other configurations, though they have been put to good use for centuries in some specialist fields. Our conventional view of literacy also fails to take into account the much more subtle graphic methods of articulating language we commonly make use of when originating language (by writing, printing, and typing) and when reading it.

To conclude, this present work may contribute to the study of certain topics that have been insufficiently represented in the consulted literature: issues regarding the use of graphic language in Brazilian schools (as discussed in section 2.2), handwriting organisation and the teacher's influence on the graphic language used by schoolchildren.

1.1 RESEARCH QUESTIONS AND OBJECTIVES

Because an interpretivist theoretical approach was selected for this study, a hypothesis did not suit this research, and instead, a set of research questions was proposed. By assuming the teaching of graphic language as the research object in this investigation, the main research question would be: *To what extent does the teacher's visual organisation of handwriting influence the pupil's organisation of handwriting?*

This is accompanied by the following auxiliary questions:

- How do teachers approach graphic language?
- What kind of visual material do teachers develop and use in their teaching routine?
- What role do teachers feel they play in the graphic development of their pupils?

Therefore, the main goal of this research is to investigate *the process of teaching handwriting organisation at the beginning of the literacy process in different educational contexts.*

Departing from this, we may list some secondary objectives of this research:

- To understand the conceptual basis and discussions behind the literacy process in Brazilian education;
- To relate studies on multiliteracies, from the field of applied linguistics, to a graphic design education defended by researchers from the design field, thereby establishing convergences between both areas;
- To investigate what is being researched in Brazil on issues of graphic communication inside the school;
- To pursue the main activities in school and the main artefacts that teachers rely on in their professional performance; and
- To study analytical frameworks that may be applied to the investigation of handwriting organisation.

1.2 METHODOLOGICAL APPROACH

The methodology employed to achieve the objectives of this research, and to answer the questions posed, was an ethnographic-based fieldwork. This denomination was preferred – not simply ethnography – so as to avoid the misconception that it involved a long, intense fieldwork with one social grouping. Instead, we have conducted an observational study in 8 classes for 10 days each, aiming to discover what is produced, used and discussed in terms of graphic language. This approach was chosen because these issues are rarely discussed by teachers – there is even a lack of terminology with which to address what they do graphically – and, as Aldrich and Shepard (2000: 1, our emphasis) state ‘unlike literacy, *graphicacy* is rarely taught explicitly, despite being an important skill’. Therefore, observation was chosen, together with interviews and other methods, since attending classes would permit us to see at first-hand what actually takes place in the everyday life of a class.

The 8 classes were selected from 6 schools with different profiles, in order to understand the diversity of material and structural conditions tied to schooling practices. This is why half of the selected schools were private and half were public, located in different political-administrative regions of Recife (Brazil). The classes were all in the 3rd grade of primary school, when pupils are supposed to be aged around 8 years and are already able to write and read – but are still widening their graphic repertoire.

Data collection was undertaken through a research diary, where the researcher took notes on which activities were being carried out, together with some early thoughts on what was being observed. Also, photographs and videos were taken, mostly of the teachers engaged in graphic activities for the classroom, together with the pupils' productions. Most of the graphic material that both teachers and pupils used was photographed, as were notebooks and study books. Semi-structured interviews were conducted with school managers regarding the school itself, and with teachers about their careers, choices and their understanding of graphic tasks. During the observation, some questions were put to the children involved.

The data collected was organised into timelines that graphically categorised and depicted the sequence and length of the observed activities. Such a system was fundamental in order to understand the main and most common practices amongst the eight classes. Afterwards, activities handwritten by the teachers and reproduced by the schoolchildren were selected, just like texts freely written by the pupils – composing the analytical *corpus* of this research.

In the analysis of the images in the analytical *corpus*, the concept of textual graphic tools was delineated to represent the graphic differentiations made in texts in order to fulfil organisational needs. The term is associated to something which the schoolchildren learned how to use and collect, thereby building their toolboxes. Thus, the analytical framework was mainly the study of these toolboxes: which particular tools they possessed, the frequency with which the tools were used, the type of tools, the function the tools had and where in the text the tools were used. The comparison between the teacher and pupil toolboxes was the main analytical line, demonstrating convergences and differences.

1.3 AN OUTLINE OF THE THESIS

This work is organised into three parts, defined in relation to the fieldwork, almost in a chronological manner: the prior consideration of the field, the description of the fieldwork and its posterior analysis.

After this first part (Introduction), the second part is entitled **Studying the school**, in sections 2.1 and 2.2, and regards the prior understanding of the field and its practices, together with the available approaches on how to study such an environment.

In section 2.1, the teaching of writing is discussed mainly from the viewpoint of regulating institutions, educators and researchers in Brazil. It begins with discussions on how the literacy process is understood – and how such an understanding has evolved – through to specific issues on the teaching of handwriting, and its visual organisation. Notwithstanding, two contemporary approaches in the promotion of literacy seem to enhance the consideration of graphic features: the adoption of varied genres and the multiliteracies studies.

Section 2.2 introduces the methodological approach, i.e., it is dedicated to a discussion on planning the fieldwork. It begins by considering how the relationships between design and education are discussed in the field of design in Brazil, as this is the departure point of the research, and focusses on studies that investigate artefacts and practices by lay designers in school. The intention of this review is to examine the methods and to complement the discussion on graphic practices in school conducted in section 2.1, this time from the viewpoint of the design field. Following this, after reflecting upon the theoretical background of this research, the resolutions and procedures of the fieldwork are presented.

The third part, named **Visiting eight classrooms**, describes the fieldwork and the diversity of activities, realities and constrictions faced during this experience.

This is constituted by section 3, which begins with a description of how the wide variety of data from the fieldwork was systematised. Following this, each of the eight classrooms observed is described, considering the features of several domains, such as the school, the main teacher, the group of schoolchildren, the routine of that class and the period in which the observation took place. Their activities are then listed and briefly analysed, with the aid of timelines – diagrams that organise the activities chronologically and categorise them. The output from these eight analyses is discussed in the conclusion of the section.

In the fourth part, entitled **Reflecting upon handwriting organisation**, the means used to analyse the collected data are described followed by the presentation and discussion of the results. This is composed of sections 4.1 to 4.4 plus the section dedicated to the final remarks.

Section 4.1 is dedicated to discussing the methodology of analysis. This begins by defining the analytical corpus and the criteria adopted in the selection of some of the relevant data – for everything that was collected during the fieldwork. It then introduces the idea of what textual graphic tools are, the metaphor employed to describe the graphic differentiations used to create visual meaning in text. Issues from the analysis of such tools are then discussed, resulting in an analytical framework, which considers aspects of the nature, function and level of textual impact of the tools.

While sections 4.2, 4.3 and 4.4 have a similar structure they address different aspects of textual graphic tools. They present the results of the analysis of each classroom visited, plus a discussion on the general practices.

Section 4.2 presents the collection of tools employed by both the teachers and the pupils. These were organised into toolboxes – diagrams presenting the tools that each of these two groups used, their frequency, and a comparison of what they have in common. In section 4.3, the tools used by the pupils and teacher are classified according to their function, what the person wants to indicate by employing that tool. Again, the classifications are compared in order to see what teachers and pupils did differently. Section 4.4 presents a discussion on the impact of the tools in terms of the level of textual structure, assuming that tools may be used to articulate parts of a text ranging from the very particular to more generic structural elements.

The last section is dedicated to the final remarks and it closes the discussions initiated in all the sections of this work by summarising the outcomes, presenting the limitations and proposing new approaches of this research. It is followed by appendices that are part printed and attached to this document and part presented digitally.

2

**Studying
the school**

2 STUDYING THE SCHOOL

2.1 TEACHING OF WRITING

In this section, we discuss some perspectives regarding the teaching of writing – and consequently, its learning, although this is not within our scope. We begin by discussing how Brazilian legislation conceives the teaching of reading and writing, followed by a discussion on how this process has changed over the decades. The section concludes with two topics from contemporary linguistic education, both of which aim to approach the world outside school: the need to study a diversity of textual genres in basic education and studies in multiliteracies.

2.1.1 Brazilian legislation on the teaching of writing

Education in Brazil is governed by the LDB¹ law, which regulates the provision of educational services by public and private institutions. There are two documents that regulate the curricula, the DCNs (the National Curricular Guidelines) and the PCNs (the National Curricular Parameters). They both have different scopes: as the PCNs were elaborated first and provide curricular parameters for each specific school subject, they have shifted from being a regulatory to a suggestive approach. This change in status indicated that the Ministry of Education was committed to elaborating the DCNs, which have a legal status and a broader approach than the PCNs. The DCNs define the basic skills and abilities that schools are expected to develop when planning their curricula in order to guarantee a common basic education (Macedo, 2014).

The National Common Curricular Base (BNCC) details the curricula towards the principles defined in the DCNs. It was issued at the end of 2017, and is still under revision by the state and municipal education authorities so as to develop regional interpretations of this shared base. Educational institutions have until 2020 to implement the BNCC (Brasil, 2017), which signifies that, thus far, the PCNs are still providing parameters for the educational content in schools.

The DCNs understand the first cycle of basic education as the literacy cycle, in which, by the end of its third year, children are expected to be able to read and write, thereby not only dominating the verbal code, but also being able to understand, interpret and create a diversity of texts. Due to bad test results in reading and writing, a federal programme called PNAIC (the National Pact for Literacy at the Right Age) has taken on the commitment (not fixed by law) to provide aids that guarantee conditions for institutions to achieve the desired goal of pupils being able to read and write until the age of 8 (Brazil, 2018). These first years became the focus of this research because it is during this period that

¹ LDB – which directly translated means Guidelines and Base Law, published in 1996 (Brasil, 1996).

the first lessons in organising graphic language appear alongside the very teaching of the verbal code.

The prescription for linguistic education instituted by the PCNs and issued in 1998, according to Rojo (2000), was very positive, since it did not determine the curriculum, although it proposed content that could and should be adapted according to regional specificities. It also had an upfront character, since it conceived linguistic education through texts and textual genres, which needed to be used and reflected upon. Such changes, Mortatti (2006) states, were the institutionalisation of a constructivist paradigm in education and in the conception of the literacy process. This national movement of reinterpreting educational practices began in the 1980s and caused several impacts on the methods and practices in the development of literacy. This theme is still under debate, and will be discussed in the following section, covering issues and details involved in writing education.

2.1.2 'Alfabetização' vs. literacy: setting the tone

Thus far we have used the term 'literacy cycle', but this was an optional approximate translation of the Portuguese term 'alfabetização', since the opportunity has not yet arisen to explain the conceptual difference between the two ideas. The word 'alfabetização' describes the acquisition of writing and reading skills and has no direct parallel in English. It may be understood by terms such as those listed by Soares (2004, p. 8) 'reading instruction, emergent literacy, beginning literacy', who also indicated a similar concept with the French 'alphabétisation'. This term, which came into use around the end of the 1910s (Mortatti, 2006), has become deeply crystallised in Brazil as being the process of learning how to read and write, so much so that it gave its name to the school year immediately prior to primary education, when such processes are expected to occur².

2.1.2.1 Questioning 'alfabetização' without literacy

The concepts and practices implied in the term 'alfabetização' have been questioned by several theorists and researchers due to its methodical character, because it implies the learning of the linguistic code through studying the relationship between phonetical and graphical elements. The term 'letramento', which in Portugal has been translated as 'literacia', was derived from the English word 'literacy', and has been adopted in a broader sense of learning to read and write rather than merely acquiring the linguistic code. It includes interpretative skills, the consideration of the many texts available within society, and developing the ability to create texts accordingly.

Mortatti (2006) states that during the era of 'alfabetização', many debates took place regarding the best methods for teaching reading. First, by the end of the nineteenth century, the most popular methods were synthetic, in which studying moved from smaller items, such as letters and syllables, through to the bigger items. Then, by 1910, analytical methods were being defended, which implied the use of bigger units, such as phrases and words, for an easier acquisition of reading skills. Afterwards, synthetic and analytical methods became mixed and were used according to the level of development displayed by the pupil, a perspective that continued through to the 1980s, when several debates flourished around learning processes, which thereby led to questioning not only the methods, but also the conceptions behind 'alfabetização'.

Mortatti also indicated that, while the teaching of reading underwent revisions according to different theoretical conceptions, the teaching of writing changed very little. Until the end of the 1970s, the teaching of writing was restricted to content regarding calligraphy and orthography and was taught through teaching practices that involved copying, dictation, and the creation of phrases.

² The 'alfabetização' year no longer exists and is currently referred to as the 'First year' and has been included in basic education, as we shall discuss later in this work.

What did vary, however, was the style of calligraphy adopted, which changed from vertical calligraphy, popularised at the beginning of the twentieth century, to the muscular movement writing of the 1930s. Vidal and Gvirtz (1998) explained that vertical calligraphy was the practice of straight letters instead of slanted cursive handwriting, which was popular at the end of the nineteenth century, and was replaced because it was believed to cause myopia and scoliosis in pupils. Muscular movement writing was one in which the forearm muscle moved, while the hand just followed, and was employed for ergonomic reasons rather than aesthetic factors. Another concern was the type of handwriting to be used, whether to use press or cursive letters, and the alphabet, whether to use upper or lower case (Mortatti, 2006).

Soares (2004) believed that while ‘alfabetização’ and literacy are deeply intertwined, they should not be confounded with one another. She consequently traced the chronology of the rise of literacy studies in Brazil, which occurred during the 1980s. She stated that during this decade, interest in further reading and writing practices that were more complex than the initial instruction occurred simultaneously in many countries – e.g. France, the US, the UK, Portugal. This came shortly after the announcement by UNESCO, at the end of the 1970s, that the concept of a ‘literate’ person would be adopted to describe someone who is able to read and write, while ‘functionally literate’ comprised the expected skills of reading and interpreting. However, while debates concerning literacy in France and the US remained on the reading and writing deficits of adults and teenagers, in Brazil there was a strong tendency to question the early instruction of reading (‘alfabetização’) so, consequently, it led to a certain overlap of the two concepts.

The concept of literacy started to spread across the educational field as an alternative to the traditional, more rigid methods of ‘alfabetização’, which focused on the systematic study of the linguistic code. This was driven by changes in the paradigms regarding learning³ and by the influential work of the Argentinian pedagogues Ferreiro and Teberosky (1986) – in which they developed a psychogenetic perspective on language learning, identifying schoolchildren as active subjects in their learning, who made inferences and hypothesis about language.

According to the authors, schoolchildren, when faced with verbal language, make hypotheses regarding the way it functions, that then become more complex and closer to how it actually functions. The first hypothesis was the pre-syllabic, in which the child associates the writing system to graphic marks, although she/he does not differentiate drawings from letters. When asked to

³ According to Soares (2004), the shift came from the behaviourist paradigm of the 1960s and 1970s, with its emphasis on repetition and teaching practices, towards the cognitivist paradigm in the 1980s of constructivism, with the dissemination of the work of theorists such as Jean Piaget, and then specialised to a socio-cultural paradigm in the 1990s of socio-constructivism. This is in line with the description of how the visited schools during the fieldwork conceive knowledge, as discussed in section 3.

write something, the child mixes drawings, lines and sketches. Were she/he to represent a printed alphabet, such marks would be separated from one another, but if it were cursive writing, it would assume the shape of a curly or wavy line. At this level, the child does not recognise the letters of the alphabet nor their respective sounds.

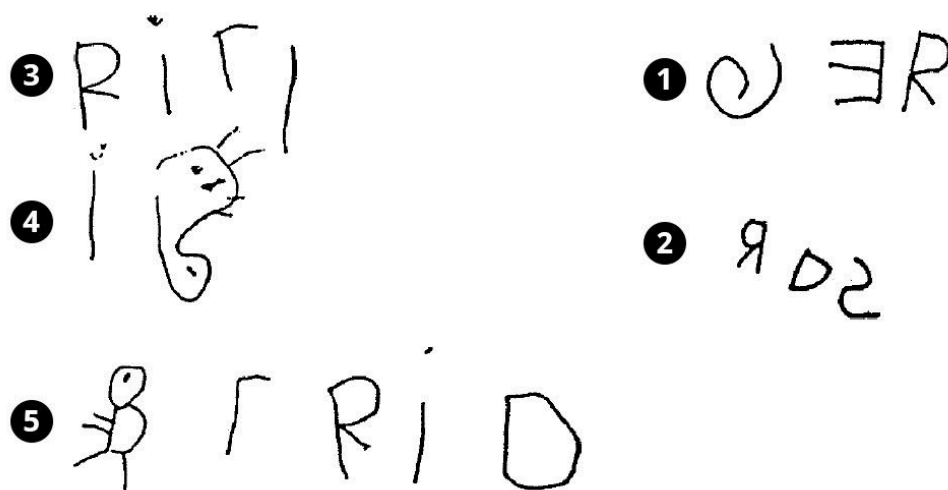


Figure 1. Production by a 6 year-old child at the first moments of the pre-syllabic level, when she/he does not distinguish letters from other symbols and does not attribute phonic value to each letter. The words the child was asked to represent were: 1) cat (gato); 2) butterfly (borboleta); 3) horse (cavalo); 4) bull (boi); and 5) the cat drinks milk (o gato bebe leite). Adapted from Weisz (1999).

The following hypothesis is still pre-syllabic, as the child has not yet linked letters to sounds, although some letters are already recognised, and are used randomly. The child correlates physical attributes of the elements she/he is representing to write, so when writing the name of bigger objects, more letters are used than if smaller ones were to be represented.

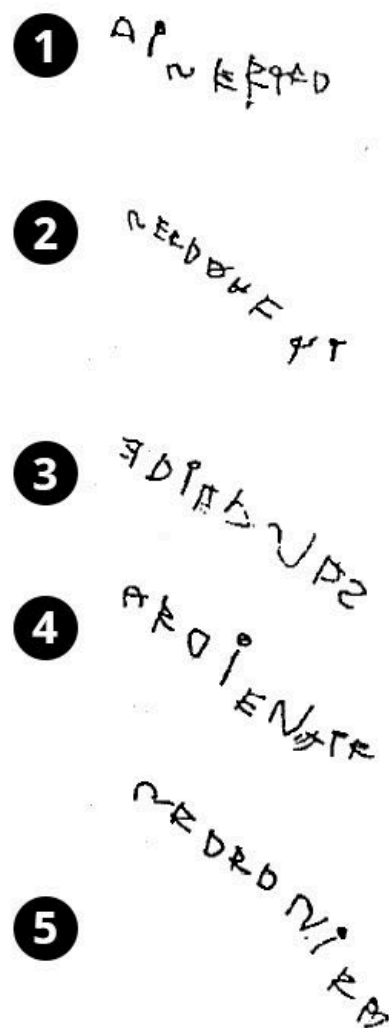


Figure 2. Production by a 7 year-old child at the second moment of the pre-syllabic level, when she understands that writing is made with letters, some of which, she even invents. As her name has 8 letters, she uses between 7 and 9 letters to represent names, but she does not yet attribute phonic value to each letter. The words the child was asked to represent were: 1) cat (gato); 2) butterfly (borboleta); 3) horse (cavalo); 4) bull (boi); and 5) the cat drinks milk (o gato bebe leite). Adapted from Weisz (1999).

The syllabic hypothesis signifies that children start to identify that letters have a phonetic value, and then begin to correlate pronunciation to the word, assuming that there is a quantitative correspondence between graphic signs and the spoken word. Thus, the used letters still do not correspond to the respective sound, but the child correlates every oral syllable to a written letter or, almost, a syllable.

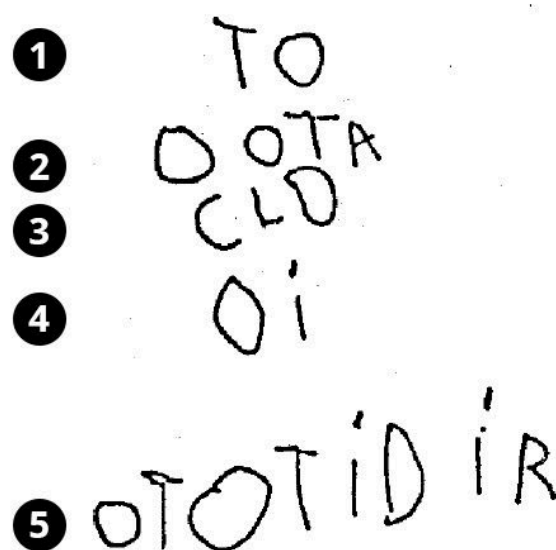


Figure 3. Production by a 7 year-old child at the syllabic level, when she starts to identify letters with their phonetic value, and then that bigger words (such as butterfly, in number 2) require more parts than smaller ones (like cat, at number 1). The words the child was asked to represent were: 1) cat (gato); 2) butterfly (borboleta); 3) horse (cavalo); 4) bull (boi); and 5) the cat drinks milk (o gato bebe leite). Adapted from Weisz (1999).

The child, still in a syllabic hypothesis, moves to a transitional phase called syllabic-alphabetic in which she/he alternates the use of complete with incomplete syllables. The child is exploring the writing system and becoming used to the fact that there are syllables with a varied quantity of letters, which the child finds confusing. As a result, letters are randomly added because the child realises that only one character does not represent a syllable, but the letters can also be suppressed, demonstrating the hesitation the child is facing at this moment.

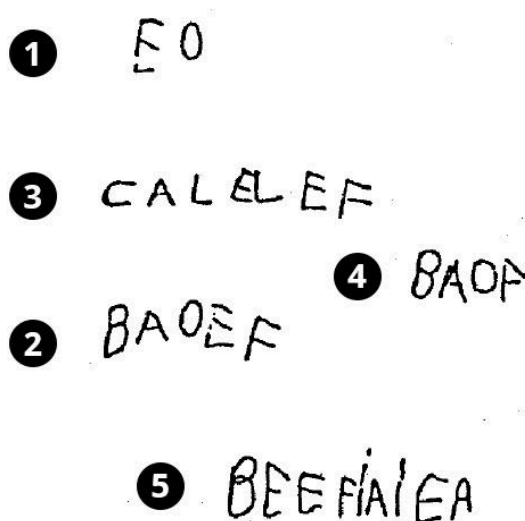


Figure 4. Production by an 8 year-old child at the syllabic-alphabetic level, when he understands the correlation between phonemes and letters but is still hesitant on how to produce syllables. In this case, most of the syllables do not correspond to what is expected: although the first syllable is correct in word 3 and the first letter was adequately employed for words 2 and 4. The words the child was asked to represent were: 1) cat (gato); 2) butterfly (borboleta); 3) horse (cavalo); 4) bull (boi); and 5) the cat drinks milk (o gato bebe leite). Adapted from Weisz (1999).

Afterwards, the child moves on to an alphabetic hypothesis, in which she/he makes a correlation between letters and the phonemes they represent. At first, the child writes representing speech, with little consideration of orthographic issues. Then, the recognition of linguistic units, such as letters and words and phrases start to be developed.

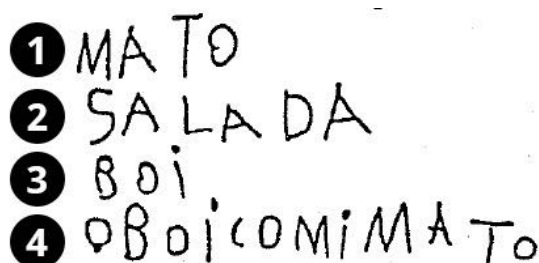


Figure 5. Production by an 8 year-old child at the alphabetic level, when words are written according to their pronunciation, so he replaces the 'e' in the word 'come' (number 4) by an 'i', as they are pronounced similarly. The words the child was asked to represent were: 1) grass (mato); 2) salad (salada); 3) bull (boi); and 4) the bull eats grass (o boi come mato). Adapted from Weisz (1999).

To consider that children made assumptions about the writing system represented a turning point in linguistic education, as learning was then seen as a result of the child's cognitive activity and not of the teaching methods. This understanding had several practical implications in schools in terms of abandoning traditional methods (Mortatti, 2006). The theory by Ferreiro and Teberosky implied: (a) the use of actual reading objects rather than anything artificial created just for the mere acquisition of the code; (b) the consideration of the child's previous knowledge, without hierarchising their abilities, seen as relevant to the construction of the knowledge; and (c) viewing misconceptions and mistakes during the learning process as elements to aid the child's development, rather than impediments (Soares, 2004).

This change of conception, along with the adoption of textual genres as the core of linguistic education, marked a rejection of 'alfabetização' in the vocabulary of teachers, schools and theorists with regard to promoting linguistic education. It was replaced by 'literacy', which also signified a concern with broader language practices. This change not only represented debates introduced by constructivist educators and their consideration of children's cognitive processes, but also the demands by theorists aligned to socio-interactionism, in which social issues and practices are used as objects of education – which, in this case, mostly involved using a variation of textual genres (Mortatti, 2006).

2.1.2.2 Questioning literacy without 'alfabetização'

However, adopting these new perspectives for approaching linguistic education did not resolve the reading and writing acquisition problems in Brazil – and the numbers of illiterate people were still disturbing. Soares (2004) and Mendonça and Mendonça (2011) argued that, apart from the advances that had been made, the misinterpretation and misconceptions in adopting this new approach

simply replaced the previous problems with new ones. Soares believed that the linguistic facet at the beginning of literacy had been neglected, and that methods, which could be useful for such a process, had been removed. She summarised this position by stating:

[...] in the previous practice of 'alfabetização', there used to be a method and no theory, and now, with a change in the concept of the process of learning the written language, there has started to be a theory with no method (Soares, 2004, p. 11; translated by the author)

Soares (2004), Mortatti (2006) and Mendonça and Mendonça (2011) advocated that the specificity of the linguistic code should again be considered in developing children's reading and writing skills - a certain revival of the 'alfabetização'. They argued that the alphabetic system, being arbitrary and ruled by conventions, could hardly be learned incidentally and inferred by schoolchildren, especially when it comes to learning how to write, which could not be developed just by copying letters. Another argument was that the sociocultural reality of children from poor realities needed to be considered, since they do not live in a literate environment at home, with experienced adults and available story books (Mendonça and Mendonça, 2011). Therefore, it was a case of understanding that the systematic study of the language ('alfabetização') should not be confounded, preceded or taken as being independent from the literacy process, but that they occur simultaneously, while pupils develop their experience through reading and writing a variety of texts.

Mendonça and Mendonça (2011) detailed how municipal institutions had made a number of misinterpretations regarding the work of Ferreiro and Teberosky (1986), and criticised the authoritarian manner in which these perspectives had been included and how teachers, who were more familiar with practices considered to be outdated, became confused when stripped of the methods they knew best. The first misconception was the common belief that children are able to learn how to write just by watching the teacher writing stories on the board – a practice, which is ineffective and frustrating for both teachers and pupils. Mendonça and Mendonça (2011) stated that this was neither sufficient for teaching the linguistic code, nor for furthering writing skills, so a methodical approach and careful assistance by the teacher were very necessary.

They also made mention of the misconception that children learn by themselves, and that the role of the teacher is to stimulate and provide answers when asked by the children. Mendonça and Mendonça (2011) insisted that such learning required a systematised approach with both goals and a timetable, due to the specific nature of language, otherwise no progression would ever be made through the literacy process. They believed that writing was more impaired than reading by the lack of method, because it is much easier to develop activities for reading and recognising syllables. The numerous,

disorganised writing activities confuse children, since writing is more difficult to develop than reading. This difficulty is also linked to a 'prejudice with the syllable', because considering and studying this particular unit was seen as a retrograde practice. Within these disorganised activities are those that the authors commented on with regard to jumping from the pre-syllabic level, in which the alphabet was presented, to the alphabetic level, in which pupils were expected to produce words and even texts. They added that while Ferreiro and Teberosky had not condemned the study of syllables, they had criticised the use of texts that were of no sense to pupils, and were only given to promote the practice of the phonemes.

A further misunderstanding concerned practices that involved correcting pupils, since teachers were not permitted to correct them nor to use the traditional red pen to mark the pupils' work. Ferreiro and Teberosky suggested that teachers should stimulate pupils to reflect on their answers, and should intervene when things were done inappropriately. Mendonça and Mendonça (2011) further complemented this by stating that this should be undertaken in front of them, with pupils seeing the analysis of their production, in order to stimulate them to problematise this issue.

In sum, the many decades spent denying the use of methods and systematisation for promoting reading and writing practices has also been a central factor in failing to achieve better literacy levels in Brazil. Soares (2004) discussed reinventing 'alfabetização', stating that it should be developed alongside the consideration of several discursive genres, so as to bring about the formation of citizens who are able to use the linguistic code appropriately, not only in terms of grammatical conventions, but also in terms of social requirements.

2.1.2.3 Teaching writing: From methods to the absence of methods

Mortatti (2006) and Mendonça and Mendonça (2011) discussed a system of teaching and practicing writing, which was dependent on the 'cartilhas', spelling books that guided teacher and pupil activities in terms of method and content, and which were severely criticised during the 1980s, when the viewpoint of literacy became established. Mortatti also added that before the 1980s, while concepts on reading had frequently been revised, often leading to other methods, the teaching of writing remained stationary, with lessons involving copying, dictation and the creation of phrases.

Vidal and Gvirtz (1998) and Razzini (2008) explained that in Brazil, it was only at the beginning of the nineteenth century that schools began to teach writing to all pupils⁴. They stated that, initially, while everybody learned how to read, only

⁴ According to Razzini (2008), in 1885 a prominent teacher from Rio de Janeiro published a spelling book in which he defended the simultaneous teaching of reading and writing. This book contained an improvement in terms of teaching handwriting, as it included cursive script along with printed letters, thereby establishing new standards for this genre of book.

the more advanced pupils learned how to write, which changed with the simplification of writing and the improvements that occurred in writing tools, easier access to paper, which became cheaper, and the invention of individual slate boards (Vidal and Gvirtz, 1998) and sandboxes⁵, used by younger pupils (Razzini, 2008).

The styles and methods of calligraphy developed in Brazil went from slanted letterforms (called English or Spencerian style) to ‘vertical’ or ‘round’ calligraphy, at the beginning of the nineteenth century (Vidal and Gvirtz, 1998; Fetter, 2012). Razzini (2008) complemented this by adding that the instruments, which evolved, such as the pencil and metal pens, allowed the initiation of practices that have continued until the present day: younger pupils use pencils, which are then replaced by pens when they become more experienced and ‘have familiarised themselves with the presentation norms of the activities’ (Braga, 2008, p. 118; translated by the author).

Muscular movement writing was publicised in and around the 1930s, and demanded clarity, legibility and speed, as the typewriter was seen as a threat to the interest in learning how to write for public documents, but these letterforms, that were inclined, did not replace the hegemony of vertical writing (Fetter, 2012).



Figure 6. Example of a Brazilian spelling book first published in 1944 and that promoted muscular movement writing. Source: Fetter (2012).

⁵ These were boxes painted in black with white sand inside, and letters were practiced by using the finger to trace them. Fernandes (2008) also documented this artefact, as it was also used in Portugal.

In a period stretching from the 1950s until the 1980s, discussions surrounding the appropriate type of calligraphy disappeared, but Fetter's analysis of spelling books from that period demonstrates that they alternated between print script, in which letters were separated, and cursive script. From the 1980s until the present day, methods and spelling books have no longer been used, but a certain consensus became established that upper case print script should be used at the beginning of the literacy process, when children are beginning to recognise letters, because of its simpler letterforms. Later on, cursive script is taught, thereby enabling the pupil to write more quickly (Fetter, 2012).

There is little information in the literature regarding methods and practicalities of teaching writing in Brazilian schools, and the publications considered herein have focussed on the anatomical aspects of handwriting (Mortatti, 2006; Fetter, 2012; Vidal and Gvirtz, 1998). They mention nothing regarding the existence of guidelines or prescriptions regarding the organisation of handwriting – filling the page, hierarchy, the use of space. In 2016, through personal contact with Sandro Fetter, who studied a collection of spelling books⁶, he confirmed that spelling books do not approach layout features, at least not directly. Most of the exercises involve copying words and phrases, and there are no texts with textual elements and graphic relationships.

In a text on the teaching of handwriting, Twyman (1978) discussed its organisation, which was not to be found in books on handwriting or in schools, where little was taught on its variations:

Though some attention has been paid to models to be used in schools and practical issues relating to the teaching of writing, the visual organisation of ideas and information in relation to meaning – what writing is all about – scarcely seems to be considered. (Twyman, 1978, p. II–III)

Twyman, who collects spelling books, especially English and French ones, from the eighteenth to the twentieth century, was questioned on this issue in 2017, and, with regard to his collection, he demonstrated a similar perception to that of Fetter. The organisation of handwriting was not approached in two specimens of a particular genre that are part of this collection, either: French school books published around 1840 that contain texts in different styles of handwriting in order to train children how to read a variety of types of manual letterforms that they would normally come across in their everyday lives (Twyman, 1996). These books are concerned with how difficult it can be to decipher letters, but not the issues involved in handwriting organisation.

⁶ This collection, entitled 'Memória da Cartilha' (Remembering Spelling Books) is part of the archive collection of documents related to the history of Brazilian literacy, at the Universidade Federal do Rio Grande do Sul.

Walker (2001) believes that the formal teaching of visual organisation often derives from adapting conventions for the production of formal documents by teachers, who, in their everyday lives, employ knowledge acquired in their formation for more formal genres. For example, conventions in the production of scientific articles are adapted for the production of textbooks, which have very different functions and qualities. Learning informal conventions from peer observation and teaching is very common in popular graphic messages, such as street signs and fanzines, as long as the samples follow the guiding principle in the production of any kind of artefact: a pact between the producer and the user of what is an acceptable practice (Walker, 2001). This principle may be observed in the work of one of the sign painters Finizola (2010) interviewed, as the letterforms he executes were adapted from letters in the catalogue of a course he followed at the 'Instituto Universal do Brasil' (an institution that has promoted distance education for over 70 years, having started with fascicles sent by post).

Walker (2001), citing an interview she conducted with teachers in 1983, commented that the conventions that teachers use and perpetuate in the classroom are of three types: (a) for specific learning purposes, as in the case of using full stops in abbreviations; (b) to preserve the clarity of a text, such as double quotation marks, because they are more visible in handwriting; and (c) those that were learned at school, and therefore are passed on. In this same research, the author identified that many teachers valued visual organisation – such as neatness and clarity in presentation – much more than its importance for expressing content or for articulating the text.

These studies indicate that the teaching of handwriting, with regard to methods, is mostly concerned with letterforms, the flow of writing and the posture/gestures involved during the task. The organisation of handwriting does not feature amongst the concerns, neither in spelling books, as Fetter and Twyman have identified, nor in handwriting manuals (Twyman, 1978; Walker, 2001), as in Sassoon's (1990) 'Handwriting: the way to teach it' – a genre of publication that is not common in Brazil, where spelling books have assumed that role. According to Walker, conventions, such as the use of capitals at the beginning of paragraphs and the teaching of space between lines and words, are only implicitly approached in handwriting manuals:

Some graphic and spatial features represented in handwriting manuals tend not to be mentioned explicitly, but are given a certain kind of authority by being incorporated in copy texts. (Walker, 2001:64)

Twyman (1978), discussing research conducted by Walker, also commented on the absence of this theme in education and teacher training. Both he and Walker (2001) have reflected that, with the popularisation of printing means of production, handwriting practices are frequently used for informal purposes. As writing produced in the school setting is usually for internal consumption,

they do not employ guidelines from house style manuals – where prescriptions on the visual organisation of writing are organised and publicised (Walker, 2001), like the Chicago manual of style and the ABNT standards, used in Brazil.

As the methods for teaching handwriting have lost their purpose in more recent conceptions of education, and have been put to one side, we may assume that all aspects of handwriting are developed in the same manner, through which the organisation of handwriting seems to have been learned throughout all these years: through the practice of consuming and producing a diversity of text types.

2.1.2.4 A brief parallel between history and the trajectory of children

Assessing ideas on the literacy process enables us to trace a parallel between the graphic development of writing throughout history and the sequence of stages in learning to write delineated by Ferreiro and Teberosky (1986), who believe that pupils begin by trying to represent things, and then afterwards understand that writing represents the names of things. This parallels the history of writing, in which figurative writing preceded phonetic writing – which includes many writing systems and, amongst them, alphabetic writing (Diringer, 1985).

In terms of the history of graphic organisation, initially, writing was a continuous, linear representation of speech, and words were not separated. However, the system became more complex over time with the use of features such as spatial control and punctuation. Other features were progressively incorporated into writing, such as a combination of uppercase and lowercase scripts, and the creation of a variety of styles, such as italic and bold letters (Kane, 2012; Bringhurst, 2005). This too seems to match the way children begin to write. After the alphabetic level described by Ferreiro and Teberosky (1986), in which children learn to handle letters to represent the phonemes, they appropriate other features of the writing system, such as the spatial arrangements of words and the use of other glyphs that accompany the script, e.g. punctuation – all of these aim to enrich meaning in verbal texts, in the absence of the characteristic intonation of spoken language. It is a current practice that they first learn to write using only one script – uppercase print letters – and then they learn to mix upper case and lowercase letters with cursive writing, which is another style.

Twyman (1986) discussed the progression of approaches towards the use of visual cues to enhance reading, not only involving attributes of letterforms, but also their disposition in the page. He stated that making lists is probably an older strategy or organisation of text than writing in prose, for example. This and other visual strategies date back to manuscripts, such as underlining segments of text to highlight them. Print culture had to create its own conventions and solutions to provide better reading experiences, such as the

use of bold to emphasise and highlight important parts (Twyman, 1986; Waller, 1987). In terms of children's learning, we observe that they create words and phrases, listing them, before starting to compose texts – even if they had not exactly planned them to be lists. The development of other visual strategies, or the acquisition of tools, as we have called it herein, continues throughout the pupils' education and will be further investigated in the third part of this thesis.

2.1.3 Genres in education

The proposal to develop linguistic skills and knowledge through the study of genres – as proposed by the PCNs in 1998 and defended by Antunes (2009) and Marchuschi (2010) – is a perspective that stands against the use of text as mere examples in the study of grammatical rules. Antunes (2009) states that the teaching of language used to be mainly through phrases, and that the texts used in education were literary, long and written – thereby excluding ordinary, oral texts. She defended a perspective aligned to what the PCNs introduced: a textuality that is not locked into traditional textual practices, but that contains the conception of language as an active social practice and a means of interaction.

Thereby, Antunes (2009) indicated that this wide range of textuality affects and is engendered by what people read, create, say and listen to, and that a consequence of this cycle is a broader sociocultural complexity. A brief glance at texts used on social networking services demonstrates her point: *memes*⁷ are continuously being produced to reflect upon social facts and are mentioned in interactions that, in order to be fully understood, require the contextualisation of what that *meme* was referring to. Therefore, with this broader conception of the linguistic object, attempts to define and classify genres are inviable, according to Marcuschi (2010), who mentioned a study by German researchers who listed more than 4,000 different types of texts. This case not only demonstrates the wide range of textual expressions in existence, but also how dynamic they are.

The consideration of so many types of statements as being genres emerges with a contribution from the philosopher Mikhail Bakhtin, who conceives every human discursive practice as being attained from a genre, not only from artistic or formal rhetorical productions (Rojo and Barbosa, 2015; Rojo, 2005). Thus, not only writing viewed as literary, such as poems, short stories and chronicles, or texts about public life, such as journalistic writing, reports or legal pieces may be seen as genres, but **every linguistic activity**, of an oral, written, printed or digital nature, such as jokes, e-mails, greetings and *tweets*⁸. Due to the valorisation of theme and meaning in statements by Bakhtin, instead of the formal attributes, Rojo and Barbosa state that Bakhtinian researchers have adopted the term ‘discursive genres’ and not ‘textual genres’, as, for example, has Marcuschi (2010). Thus, conceiving linguistic education through discursive genres requires the comprehension of processes and strategies used within their creation and interpretation, together with the way people use them. While

⁷ Memes are catchphrases and/or images that spread across the internet, and are usually of a humorous nature.

⁸ Tweets are texts posted on the social networking system *Twitter*, the main feature of which is the limitation of characters in every post. At first, posts were limited to texts of 140 characters, but then it permitted the inclusion of pictures and animated gifs and the number of characters was doubled in 2017.

formal attributes are also important, they are not however, definitive, as genres are continuously evolving.

In the present work, even though we believe (and defend) formal attributes to be an inseparable means with how people create and interpret messages, and that should, then, receive attention, we have opted to use the term ‘discursive genres’. We share the viewpoint contained in the reliant concepts behind ‘discursive genres’ regarding the importance of meanings and themes that exist within the context in which a statement has occurred (Rojo, 2005). In addition, the term ‘discursive genres, instead of ‘textual genres’, would appear to conceive the communication act from a broader viewpoint than just verbal language, even if the word ‘text’ currently involves a plurality of linguistic expressions in which verbal text is combined with other modes, as well as those that dispense with verbal language – like a pictoric comic strip, that may also be referred to as text.

With regard to the Bakhtin’s definition of discursive genre, Rojo and Barbosa state that:

[...] The definition of ‘genres’ is subordinate to the diversified social functioning of human institutions [...], for which communication or interaction between people is necessary, through the use of language. This is what genres stand for, in their variety and heterogeneity. Hence, the study of textual types (of ‘common traces for every discursive genre’) becomes ‘abstract and inoperative’. (Rojo and Barbosa, 2015, p. 44, translated by the author)

The authors argue that genres are neither texts nor types of texts. Texts or statements are single, concrete utterances created by using language and generating meaning. Even if this term is usually connected to verbal written productions, in the digital era it has a hybrid, multimodal nature, including images, videos and sounds. Types of text, in turn, are grammatical categories of texts, such as description, narration and some other conceptualisations (Rojo and Barbosa, 2015). Discursive genres may be understood as being in between these two conceptions: they are neither texts, as they are not single expressions, nor are they theoretical conceptualisations of textual practices. They are, in Rojo and Barbosa’s words: ‘entities of life’ (p. 27), a response to a variety of social activities that organise our communication.

Marcuschi (2010) traces a timeline of genre diversification into four moments. First, people were essentially oral, employing a varied range of oral genres in their communication. These genres multiplied into a second moment, with the invention of writing systems and the creation of genres that were specifically written. A third moment came with the development of the printing press culture and the consequent proliferation of new genres, which intensified throughout the eighteenth century. Lastly, the author indicated a contemporary moment as yet another proliferation period of new genres, with a massive use of digital devices.

In this digression, we may notice the close connection between communication and technology, which has been developed to answer human needs and at the same time has stimulated and enabled the creation of new means of expression and interaction through language. When it comes to the graphic aspect of written texts, this too has been impacted by technologies, which have enabled new possibilities in terms of making, printing, displaying and sharing them. On average, it has not only enabled and facilitated the combination of texts with other modes of symbolisation, but has also permitted the diversification of verbal practices, with broader options in typefaces and typographic composition⁹.

Another issue in the study of genres discussed by Marcuschi (2010) is the discursive domains, which provide a link for different human activities and their various meanings and communication requirements for different discursive genres. This signifies that some specific genres are associated to specific social activities and organisations, such as the domains of journalism, science, advertising and law. Each of these domains regulates the genres they generally employ, just like the school and its common genres such as tests, reports, seminars, dissertations and classes. Even if pupils come to school with a wide, previously acquired repertoire of discursive genres, at school they will be able to create, use and reflect upon those already acquired and also upon new discursive genres – a perspective, according to Rojo (2000), that was brought by the PCNs.

By means of graphic language, the study of written discursive genres broadens the repertoire of schoolchildren, as they become familiar with and practice different manners of displaying and organising information. For example, the content for the Portuguese Language in the 3rd year of basic education in the municipal schools of Recife includes the study of many genres, and some are intended to contain the graphic aspects discussed or considered in the production of schoolchildren (Recife, 2015, p. 271–272):

- Games and software, images: iconographic elements of digital genres;
- Posters, leaflets, labels and advertisements, dictionary entries: disposition of the text on paper according to the communicative objectives, meanings, meanings of words and spelling of words;
- Graphics, maps, tables, comic strips, comics: iconographic elements present in the genre, sequence of the facts, features of the artefact, purpose of the genre;
- Game rules, cooking recipes: graphic disposition and text organisation in the artefact;
- Reports of personal experiences, interview: structure of the genre and graphic conventions (orientation, alignment, segmentation);
- Electronic messages and / or social networks: constituent elements of the genre: recipient, sender, text purpose; and
- News, reports, structure and forms of news production.

⁹ However, as Norrish (1987) and Twyman (1986) indicate, a new technology does not always signify more visual possibilities. This is the case of the first digital text processors that contained fewer features than the traditional metal typesetting. Digital technologies have developed since then and it is no longer deficient in terms of typographic composition and variations.

This is without mentioning genres that are produced and used in other school subjects, such as the variety of graphs in math classes and the design of maps for geography and history. This signifies that in the everyday life of a school, different genres are continuously employed in the study of different types of information and content.

In accordance with this, Darras (2004) related subjects from the main school disciplines to expressions of graphic language, in a study realised in an international cooperative effort between France and Japan. The result may be viewed in the table below.

Disciplines	Subject	Use	Practise	Specific training	Types
Mathematics	Geometry	average	important	important	drawing
Geography/Geology	Cartography	important	average	average	drawing
History	Documentation	important	low	low	various
Biology	Anatomy etc.	important	average	low	drawing
Physics/Chemistry	Schematics	average	average	low	drawing
Economy	Statistics	important	average	average	graphs
Technology	Industrial Design	average	important	important	drawing
Languages	Documents	average	rare	no one	various
Visual Arts	History of Art, Studio Art etc	important	important	low	various

Figure 7. School disciplines and their relationships with visual communication. Source: Darras (2004, p. 107).

However, Darras argued that even if the role of the school in visual education is gaining more importance with the use of illustrated study books and access to digital media, it is still incomparable to the intensity of consumption and use of visual language outside the school, where children have access to media such as television, magazines and internet. The author also interprets the data in his table (Figure 7) as demonstrating that pupils consume more media than they design. Even if drawing is used in many subjects, Darras states that the skills to produce it are connected to innate talents and not to something connected to teaching and learning practices, even in art education (2004).

Assessing this table and the curriculum of municipal schools in Recife (planned in accordance with the PCNs) has demonstrated that variations of graphic language are traditionally part of education (maps, graphs, etc.). And by valorising a diversity of genres as didactic objects, graphic education appears as a consequence. Even if Darras (2004) estimates that schoolchildren consume more than they produce, school might be an environment where children are stimulated and oriented to produce a diversity of genres, which they would not deal with in other environments.

2.1.3.1 *School genres and the notebook*

Apart from the diversification of genres in education, the discursive genres that already exist in school are numerous and have also been tailored to promote the development of writing skills – although they might not be as appealing as genres found outside school. Nonetheless, Antunes believed that a good performance by pupils in school genres, such as resumes and exercises ‘is relevant to, little by little, creating and reinforcing their interest in regulating or monitoring themselves, their activities and behaviours towards language’ (Antunes, 2009, p. 7; translated by the author).

The notebook is one of the artefacts that unites many genres of ordinary writing, as Hébrard (2001) describes them. This has received attention from a number of specialists due to the historiographic and documental value of exposing the black box of school activities – what goes on inside the classroom, behind closed doors (Chartier, 2007; Viñao, 2008). Santos and Souza (2005) also consider the notebook as a source of psychological information regarding the child and school issues.

If we consider student annotations, especially in the notebook, Hébrard highlights the skills developed by the graphic techniques trained in this support: ‘to order, i.e., to classify, to compile, to index, etc’ (2001, p. 137, translated by the author). For the author, who investigated notebooks from the nineteenth and twentieth centuries, this artefact is a space where the pupil is initiated into the representation of knowledge. He also highlights some methods of representation often found in school texts, such as lists and tables, that help to select and organise information. Viñao agrees with his perspective, viewing the notebook as a repository of the conceptions of writing included in that educational institution: ‘In the notebook, successive generations, or at least a part of them, have assimilated and learned the rules governing the use of writing and, ultimately, graphic space’ (Viñao, 2008, p. 16, translated by the author).

With regard to school genres, particularly those that occur in the pupils’ notebooks, Santos and Souza (2005) emphasise the specificities of their use, and the set of rules and conventions implied within them. For example, children must understand that they should not write in the margins, that there is a need for sequentiality in the use of pages, corresponding to chronological time, as well as the signals used by teachers to indicate they have evaluated the work. The notebook is taken as the writing space where various types of learning takes place and ‘the pupil discovers not only how to order the two-dimensional space inherent to the graphic order, but also how, by writing, to master the duration of his works and his days’ (Hébrard, 2001, p. 115, translated by the author).

In other words, the notebook is probably one of the main school artefacts for pupils, in terms of its versatility and, consequently, in the diversity of genres it unites. Although it is simple, it nonetheless requires some learning on how to fill it in accordance with the expectations of that particular school group. It may then be understood as a site in which schoolchildren learn to represent, to care and to organise school knowledge, aided by the teacher.

2.1.4 Multiple conceptions of literacy: including graphic language for school content

In education, the issue of graphic language – along with other types of expression besides verbal language – is continuously approached by researchers and theorists from several emerging fields of linguistics and applied linguistics, who seek to discuss linguistic practices in a contemporary world.

The concept of multimodality is one example. According to Kress et al (2005:2), a multimodal approach includes all ‘culturally shaped resources for meaning making’: going from image, gesture, writing, speech to elements of fashion, furniture and architecture. The authors use the prefix multi to represent an understanding that a mode never occurs by itself, but with others. In their consideration of the educational sphere, the authors conceive that the event of a class is highly multimodal:

So usually, in any lesson, several modes are ‘in use’ at the same time: the layout of the classroom remains – more or less – fixed, as does the display on the walls; teachers take up certain, always meaningful, positions in the space of the classroom, textual objects are present and usually, but not always, all this is enveloped in talk. (Kress et al, 2005, p. 2)

This signifies that, for Kress et al (2005), multimodality refers to the use of various semiotic modes and not just to modes of verbal or oral language, in order to pursue further understandings of the potentials of language itself. For example, examining a book is to conceive that its cover, paper, binding, layout and typography also produce meanings that may (or not) support the printed story. Hence, even if it is a book of prose (with no images, graphs or other modes of symbolisation), the features necessary to make it concrete also carry symbolism, such as typography. This is why Kress and the other authors have positioned themselves within a semiotic approach by focusing on producing and reading meaning in culture.

Considering this perspective, some authors have suggested that school should provide multimodal literacy, while others have used the term multisemiotic literacy with a similar meaning (Gualberto, 2013; Rojo et al, 2010). According to Rojo et al (2010), this signifies a literacy that comprehends the plurality of modes present in contemporary texts, such as sounds, images, animations and so on. Gualberto (2013) demonstrates that promoting multimodal literacy is a matter of citizenship, ensuring that people, as readers and citizens, are not excluded from the media they consume on a daily basis.

A similar term, although with a different meaning, is the concept of multiliteracies, which is broader than multimodal literacy, and even encompasses it. Thus, multiliteracies denote the valorisation of marginalised and local cultures of the agents involved in the educational process, bringing them closer to formal and institutional cultures and allowing pupils the

possibility of recognising signs and elaborating content compatible with various social domains. This is why multiliteracies is never in the singular, and always in the plural. This broad perspective includes digitally produced texts, which increasingly permeate the lives of pupils and may thus be incorporated into the school experience. Multiliteracies were defended, and were even in the title of a manifesto, by a group of literacy researchers who came together in 1996 in the city of New London, Connecticut (US) and was called the New London Group (NLG).

Multiliteracies differ from the multiple literacies conceived by the New Literacy Studies (NLS), as Street (2014) clarifies. The NLS was a movement of theorists that began its activities in the 1980s by questioning studies that conceived writing as being more cognitively complex in relation to orality, and the idea of linguistic education by studying the code through individual psychological capacity. They defended the literacy process as a social practice, which, through such means, is a multiple literacy, since it changes and adapts to the socio-historic conditions in which relevant literacies become necessary for a certain group.

Multiliteracies and multiple literacies are concepts, which indicate aspects of literacy that involve issues beyond formal aspects and the characterisation of the modes employed, just as the idea of a critical literacy, in which ideological and political aspects behind linguistic practices are conceived in education (Kummer, 2015). However, if multiliteracies is as broad as the concept may become – including multimodal, multicultural and critical issues (Rojo et al, 2010) – there are also narrow but very sharp conceptions of literacy, such as visual literacy.

Visual literacy is a widely-known term, popular in the design field because of the work of the professor Donis A. Dondis (1997), who advocated education that promotes better graphic practices. This publication aimed to discuss basic features of visual language by examining principles, such as harmony and contrast, that should be used in professional design training. Its popularity amongst designers, however, fell short in terms of its exact meaning, as claimed by Averignou and Ericson (1997), for whom there was little consensus in the work from those who employed this term – who belonged to different disciplines and were guided by a variety of paradigms. The authors believed that, by having so many meanings, the term ‘visual literacy’ was emptied and led to nothing, therefore it should be discussed and defined. They argued that the power of the idea behind visual literacy in its educational facet – as skills that should be identified and taught to promote a critical consumption of the profusion of images of contemporary society – is too urgent to be left to unproductive disputes.

The idea of visual literacy leads to the natural deduction which would be to speak of graphic literacy. However, searching for the term in national databases

has yielded no fruitful results. Outside Brazil, however, in English, the term graphic literacy refers to the mastery of principles and graphic elements for the representation of information, amongst which Bruzzese (2009) highlights comic books as examples of the motivational use of articulated graphic elements.

Danos and Norman (2009) go further and use graphic literacy as a synonym for the term graphicacy, which involves the necessary skills to create and understand images – broadly conceived as involving graphics, diagrams and maps. Balchin and Coleman (1965) claimed to have coined the term graphicacy, arguing that this competence should be included in schools as a fourth skill along with verbal literacy, the ability to communicate through reading and writing; numeracy, which is mathematical literacy; and articulatory, which may be understood with rhetoric or the ability to be articulate and confident in the use of language. Aldrich and Sheppard (2000) also claim the introduction of graphicacy as a fourth element in education, but this time, they refer to it as the ability to understand and present information through visual language and should therefore be a fourth ‘R’ – in reference to: *reading, writing and arithmetic*, the three basic skills commonly known in the UK as the three ‘R’s.

This term, translated into Portuguese as ‘graficacia’, is found mainly in the area of cartography, used to refer to the ability of reading and making maps – which is consistent with the literature review performed by the English researchers Danos and Norman (2009). The term was also found in papers in the field of design, but always used by the same group of researchers and with a very specific purpose related to the use of drawing for design practice, which differs from the English meaning of the term:

‘Graficacia’ is the graphic representation indicating aspects of intelligence and behaviour in the face of new situations and, therefore, assisting in the understanding of design and creative processes when designing industrial products. (Gomes et al, 2012, p. 5; translated by the author)

This variety of conceptions has been listed to illustrate how educators and theorists are concerned with taking diversified, new media into schools as a form of promoting new ways to deal with information and creating a critical viewpoint of the huge amount of texts to which the subjects of society are exposed. These efforts that have originated from linguists, researchers and educators – in other words, lay people in design and graphic language – have become aligned with the concerns of people from the design field who believe some education in graphic aspects would be beneficial for the educational dynamics of school.

* * *

In this section, we have seen how conceptions regarding the promotion of literacy have changed from relying on strict methods to an absence of methods, which includes the demise of teaching and practicing calligraphy in schools. On the other hand, a variety of discursive genres has been introduced into schools with their multicultural and multimodal features. Somehow, abolishing methods for developing literacy has brought about very few changes in relation to teaching the visual organisation of handwriting, since it has never been systematically taught in schools. However, the consideration of other genres and their broad means of producing meaning might have opened up possibilities for raising awareness on the visual and graphic configuration in the educational sphere.

The following section will discuss the methodological approach proposed in this research, and how issues related to the graphic practices and the teaching of handwriting organisation in schools will be undertaken.

2.2 METHODOLOGICAL APPROACH

This section is dedicated to discussion on the methodological issues of this research. First, we situate its theoretical background, followed by a meticulous description of the steps and decisions taken during the process. This description however, does not consider the methods used for data analysis, which, for means of convenience, has been included in section 4.1, which is dedicated to this subject. However, the methodological approaches employed by other similar research are discussed below.

2.2.1 An overview of the research: what is being discussed and what may be learned?

Over the past decade, three researchers have developed pathways for studying the correlation between design and education in Brazil: Rita Couto at the Pontifícia Universidade Católica in Rio de Janeiro; Solange Coutinho at the Universidade Federal de Pernambuco; and Antonio M. Fontoura at the Universidade Federal de Paraná. Couto (1998) presented and published a paper on experimentations with design content in basic education; and some years later she commented on the parallels between design in basic education and one other area of her particular interest, design education¹⁰ (Couto, 2003). Besides studying e-learning, Couto worked on interventions within the school environment aimed at educational artefacts – amongst which a game called *Multi-trilhas* (2007) was developed as an aid for Brazilian deaf children in acquiring the Portuguese language.

Coutinho, continuing the topic developed in her PhD thesis (Coutinho, 1998), began researching and publishing on education through studying the practice of drawing within schools in the city of Recife. This body of research resulted in papers published in the early years of the last decade, examining the practices of both teachers and schoolchildren (Miranda and Coutinho, 2003; Formiga and Coutinho, 2004).

In his PhD thesis, Fontoura (2002) established bases for studying design practices within the school environment, which have continued until the present day. Although the author did not conduct an empirical study, he developed six approaches in order to systematise and enhance existing design practices within schools. This is in line with the trend described by Owens (2012) regarding authors such as Twyman (1982) and Cross (1979) who, while recognising lay practice as being problematic, considered that it could be improved through training. Fontoura's thesis, therefore, was one of the first Brazilian studies aimed towards design education in schools, thereby following

¹⁰ Couto is interested in design education at undergraduate level, and in 2008, published a book on the subject: *Escritos sobre Ensino de Design no Brasil*.

the example of the UK curricula. The intervention he proposed may be conducted in six manners: (a) as a school subject, similar to 'Art and Design' in UK schools; (b) as an interdisciplinary school subject, co-dependent on other areas; (c) as a transversal theme present in many school subjects; (d) as a field of knowledge integrated with an interdisciplinary structure; (e) as a complementary program, such as extra activities integrating schooling content; and (f) as a complementary program, separate from other school subjects.

In order to understand the subjects and methodologies used by researchers concerned with design problems in education in Brazil, we undertook a study in four main Brazilian publications, from 2010 up to the present day. Two journals and two proceedings from noteworthy Brazilian conferences were selected, since the theme of design and education was one of the topics. The reasoning behind this was to pursue work dedicated to the national educational contexts, including the idiosyncrasies. The publications examined were:

- *Estudos em Design* – the first specialised journal in Brazil dedicated to design issues. This publication has the highest ranking, according to the Brazilian evaluation system of scientific publications.
- *InfoDesign* – the top journal dedicated to issues on information design. This was chosen because of its national relevance and consistency, and in accordance with its adequacy to the research topic of this investigation.
- *Proceedings of the P&D Design conference* – this is the largest and most important national conference involving design research, listing the main topics that are being studied.
- *Proceedings of the CIDI* – this publication brings together a set of papers presented at CIDI, an information design conference.

The abovementioned events have specific tracking dedicated to investigations on education (in very broad terms), inasmuch as the journals have published special editions on the subject. Apart from papers in specific sections on education, those included in other sections that included educational issues were also considered, thereby totalling 274 units¹¹. An analysis of their titles, abstracts and, in inconclusive situations, body content, revealed that many of them were concerned with teaching and learning practices on undergraduate courses in design, e-learning, a description and testing of proposed educational artefacts, and theoretical issues concerning design and education. Only a few studies reflected on basic education, and the segment of works regarding design practices within the school environment was also extremely limited, particularly with regard to studies such as this, which describe studies on artefacts produced by lay designers – in this case, teachers, pupils and others on the school staff –, of which there was a total of 16¹².

This result was not unexpected, since one of the main motivations in design research is to improve its professional practice, which involves better training,

¹¹ The list of papers is included in Appendix I of this thesis.

¹² These papers are highlighted in the list in Appendix I.

more efficient methods, new technologies, innovative materials and a critical consideration of both the use and performance of artefacts. Therefore, the design practices of non-designers in everyday life does not feature amongst the interests of most researchers, including school activities. The following studies stand out as being exceptions to this, and the corpus of work through the project known as Teaching Design/Ride (of which this thesis is a part) receives special attention, due to its presence on the listed publications.

Following the lead of Fontoura's discussion over the last decade, Jordy and Portugal (2012) conducted theoretical associations between design, art and education through a case study at an Arts School, in which they identified a number of design tasks amongst the artistic activities, such as developing scenery for theatre plays, and proposed the use of design methodologies to conduct them. The authors provided few details on what was discussed with students, but they indicated that such an approach was helpful for them to broaden their repertoire and to create solutions in order to achieve the desired goals in the projects.

Also in the direction of design education, work by Kuser, Lima and Vilela (2010) described a proposal of design material for art teachers interested in using design methods in the education of 6th year pupils (aged around 12). The intention of this material was to provide teachers with topics, content and tools, and was developed after a four-month exploratory research period at a school, following the art activities of a 6th grade class using observation, surveys and even testing some of the content inserted into the proposed material.

The work by Claro, Nojima and Farbiarz (2010) had a narrower focus, concentrating on graphic artefacts created within the school environment. They conducted participant observation in two schools, with the intention of understanding how didactic material was created and used. By analysing two types of artefacts (posters and handouts) through semiotics and design contents, the authors illustrated that the teachers had not considered how pupils would access a document. They also discovered that teachers from one school displayed much more attention in creating artefacts than those from the other. However, this may have been related to internal institutional policies linked to graphic communication. In one school they visited, which had adopted the Montessori¹³ approach, it was observed that the teachers considered many aspects of visual communication: they were careful to represent reality, thereby preventing inaccuracy in the interpretation of images, they employed cursive typefaces in the printed handouts (because these are similar to the teacher and pupil's handwriting), and they used colour as an informative element. The

¹³ The Italian educator Maria Montessori has become a reference, due to her active, child-centred methods. This understanding has led to tailor-made environments and didactic artefacts according to the children's characteristics and needs, in order to promote their independence and to stimulate their cognition through sensorial exploration (Fontoura, 2002).

general remarks of the authors indicated the teachers' willingness and need to create didactic aids in their teaching practices, but at the same time demonstrated their lack of training in visual communication and technical skills, for example, in choosing images with adequate resolutions.

Aguiar and Oliveira (2014) also approached graphic material in school. However, they not only investigated production by teachers, but also their opinions. The authors proposed and tested a graphic project for printed handouts within a kindergarten context after evaluating some of the study books used and conducting a focus group with both teachers and supervisors who worked with children of this age. The evaluation was then presented to the teachers in order to prompt discussions to gain their opinions and abilities regarding the desired qualities a graphic handout should contain. They felt that graphic design was an important issue for these children who at this stage are still unable to read, therefore they inferred that visual cues such as position could be related to different parts of an exercise, such as the title and the instructions. The suggestions they listed were: exploiting the white areas, linearity of content (avoiding columns, considered disruptive by the teachers), large formats (printed on A3 paper), black and white print (excess of colour was also seen as being disruptive, and the absence of colour could stimulate pupils to engage with illustrations by printing them), and using upper case letters. The proposed handouts created with these guidelines were then tested by one pupil, confirming that the project criteria were helpful.

Lourenço and Coutinho (2015) also discussed teacher preferences in the first and second years of primary school (during which children learn to read and write) in terms of readability and legibility, through a survey involving 37 individuals. The responses indicated that:

- teachers believe that their handwriting and the alphabet they employ when writing on the whiteboard influences the reading and writing practices of their pupils;
- most teachers present their pupils with both cursive (upper and lower case) and 'print' handwriting, and in the 2nd year they start using cursive handwriting;
- they believe that the practices of reading and writing should be developed alongside one another;
- pupils improve their reading skills within the first year, and from then on to the second year;
- one of the most cited problems in reading by 1st year teachers was the lack of parental/family support and by the 2nd year teachers, issues connected to recognising the letters;
- pupils change their preferences from upper case print letters in the first year to cursive handwriting, nevertheless teachers from these two grades felt that most pupils preferred uppercase letters for reading.

The work of Guimarães and Silva (2016) built a theoretical discussion on how design may improve the teaching of cursive handwriting. They suggested that it could be helpful if teachers learned about typography so as to provide extra

support to distinguish machine-made letters from handmade letters. In addition, anatomical terminology developed by typographers could also be helpful for teaching pupils how to produce letters, due to its playful nature – using words such as shoulder, eye, and belly.

These six papers from this decade, published in Brazilian journals and proceedings from the field of design illustrate the tendency of these researchers, when approaching the development of didactic material in schools, to visit, observe and talk to subjects within the school environment, which may be interpreted as a notion that education is indeed a complex matter. They also tended to be prescriptive, either in their immediate solutions, such as proposing material for teachers (Kuser, Lima and Vilela, 2010) and a graphic project for handouts (Aguar and Oliveira, 2014), or with long-term solutions, through teacher education (Guimarães and Silva, 2016) or through adopting design methodologies and content in schools (Jordy and Portugal, 2012).

Following the order in which the studies were presented, we observe that specialised topics were introduced, from a holistic and more general approach of design in education (Jordy and Portugal, 2012), through to considering visual communication in graphic documents produced in schools (Claro, Nojima and Farbiarz, 2010), including work, which focused not only on typography, but also on cursive handwriting (Guimarães and Silva, 2016).

Apart from these, the selected issues from the listed publications included nine papers by researchers from the *RIDE* (the International Design/Education Network), a research group led by Professor Solange Coutinho, which has evolved from the projects *Teaching Design I* and *II*. Basically, these research efforts may be described as ‘working in the field of information design with a synergistic perspective within the field of education’ (Coutinho et al, 2018:1). Since its inception, in 2003, several researchers have conducted studies along three main branches: speculations (and proposals) on how design may be introduced into basic education; the study of didactic objects designed by professionals and their use in school subjects; and investigations into graphic expressions created within schools.

In the first trend, regarding policies and proposals for including design content and methodologies in basic education, research by Morim (2007) investigated how content on graphic language may be included in the art curriculum of Brazilian primary education. Lopes (2009) developed a thorough examination of the policies that regulate the formation of teachers in order to reflect on how design could be included. She also went on to propose a program for what she termed ‘training the eye’ of teachers, providing them with a new manner in which to perceive the visual discourses of the devices they work with (Lopes, 2014). In order to develop this programme, Lopes, with Coutinho and Barbosa, published a theoretical investigation into design methodologies and their features, which could be used during teacher training (Lopes, Coutinho and

Barbosa, 2012); and the early features of her method have inspired a course on slideshows for undergraduate students undergoing teacher formation, conducted by Cadena (2013).

Many research efforts have been dedicated to the industrially produced variegated artefacts used in schools, such as study books, storybooks, apps and so on. Costa and Coutinho (2009) studied the relationship between text and images in illustrated storybooks, while Freire (2005), also studying illustrations, evaluated the semantic aspects of study books. Silva and Coutinho (2010) investigated schematic graphic language in study books. More recently, Lameira (2016) explored the use of digital educational objects.

Amongst this group of researchers, Vanderlei (2003) was the first to explore artefacts produced by teachers in her study of murals and posters in schools. Later, Cadena (2010) investigated the graphic language used on white boards by primary school teachers. Andrade studied primary teachers and the production of artefacts with digital means, first concentrating on printed handouts (Andrade, Cadena and Coutinho, 2012) and then on slideshows (Cadena, Andrade and Coutinho, 2014). Bittencourt followed this line of study by investigating issues in the use of smart boards in more advanced classes, for pupils aged up to 12 years (Bittencourt, Cadena and Coutinho, 2015). Within this trend, the growing interest in digital artefacts has followed the manner in which new technologies have penetrated schools, and the relationships that teachers have established with them when creating graphic material.

Finally, the work by Ferreira (2016) in developing a digital platform for RIDE has aimed to solidify and expand the work towards new perspectives. Examples of current research being conducted include not only the investigation and development of new parameters on the formation of non-specialists, but also the training of designers. New philosophical parallels are also being developed through Morim's reflections on the work of Ivan Illich (Morim, 2017; Coutinho et al, 2018).

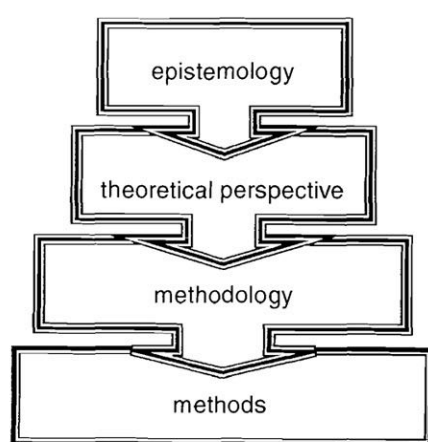
2.2.2 Theoretical background

In this thesis, which is concerned with the practices of creating, teaching and reproducing graphic language within schools, design is considered as both a social practice and a social science. The first stance would be design with a lower case 'd', the everyday practice of planning and making objects that most humans frequently engage with. This moreover, may also be performed by professionals, especially when it comes to more complex projects (Owens, 2012). The social nature of design is a consequence of being practiced by humans in response to survival and social needs, engaging with knowledge and resources as cultural constructs in dealing with the world.

Design with an upper case 'D' stands for the field of knowledge concerned with artefacts, their use and their development. Linked to empirical things and processes and involving methodologies such as observation and experimental tests, Design may be understood as a factual science. According to Lakatos and Marconi (1991) efforts to classify sciences, factual sciences like physics and biology, provide statements that may be verified empirically, as opposed to formal sciences, for which statements are accessed through logical relationships. Design, however, diverges from the cited sciences because it is concerned with social and cultural practices, not natural phenomenon. Therefore, it is able to sit comfortably within the denomination of a social science, enjoying (and contributing to) methodologies from the corpus of sciences under the same denomination.

This research has been conducted and based on the corpus of knowledge built by Design as a science, which has an interdisciplinary nature and converses with psychology, linguistics, engineering, management, and other fields. This thesis investigates how premises of graphic organisation are taught, thus linguistic studies, and their major contribution to research on literacy, have been consulted and have thereby shaped processes and assumptions.

The scheme proposed by Michael Crotty (2015) has been used to delineate and reflect upon the theoretical paths that this work has traced. Crotty built an approach for researchers in order to justify the methods employed, relating them to assumptions they carry, providing an accurate understanding and use of the terms that are often seen as equivalent 'methodologies' or 'approaches'. The author achieved this by listing four elements that are related to and influence one another, as represented in Figure 8., going from epistemology to methods so as to describe what informs what. He understands however, that the sequence they imply does not necessarily describe the chronological approach of most researchers, who often begin by choosing methods and methodology, frequently to deal with real life issues.



Epistemology	Theoretical perspective	Methodology	Methods
Objectivism Constructionism Subjectivism (and their variants)	Positivism (and post-positivism) Interpretivism <ul style="list-style-type: none"> • Symbolic interactionism • Phenomenology • Hermeneutics Critical inquiry Feminism Postmodernism etc.	Experimental research Survey research Ethnography Phenomenological research Grounded theory Heuristic inquiry Action research Discourse analysis Feminist standpoint research etc.	Sampling Measurement and scaling Questionnaire Observation <ul style="list-style-type: none"> • participant • non-participant Interview Focus group Case study Life history Narrative Visual ethnographic methods Statistical analysis Data reduction Theme identification Comparative analysis Cognitive mapping Interpretative methods Document analysis Content analysis Conversation analysis etc.

Figure 8. Left image: Scheme of how the four elements inform one another (Crotty, 2015:4). Right image: Table listing samples of each category (Crotty, 2015:5).

2.2.2.1 Epistemology

Epistemology is the stance adopted in the inquiry regarding the theory of knowledge, and which is related to questions on how knowledge is understood and the kind of knowledge that research is going to produce. Therefore, it is intertwined with the theoretical perspective and the methodologies used, since they are concerned with creating meanings from the observed world. Considering epistemology helps the researcher to know if this knowledge is adequate or legitimate.

Objectivism is an epistemological stance that defends the existence of meaningful reality separate from the consciousness, in other words, meanings are carried by objects, whether acknowledged by human minds or not. It implies that there is an objective truth that must be pursued and may be reached. On the opposite pole, there is subjectivism, in which meaning is imposed onto the object by the subject, so the object is independent of the resulting meaning. Crotty believes that to state that meaning is created 'out of nothing' (2015:9) is too extreme, thus it would otherwise derive from religious beliefs, collective unconscious, or anything but the object.

A third epistemological stance, and the one that grounds this research is constructionism¹⁴, which may be understood as being situated between

¹⁴ It is necessary to acknowledge that constructionism is different from constructivism. Crotty distinguishes them clearly by stating that (2015: 58): 'It would appear useful, then, to reserve the term constructivism for epistemological considerations focusing exclusively on "the meaning making activity of the individual mind" and to use constructionism where the focus includes "the collective generation [and transmission] of meaning"'. And even if terminology is often mixed by many authors, constructivism is used to refer to the theory by Jean Piaget on perception.

objectivism and subjectivism. In constructionism, meaning is created by the interplay between subjects and objects, in other words, there is no objective truth standing outside the mind waiting to be discovered. Meaning, then, should be constructed from objects that may be natural or social according to the existing frames of reference.

Crotty introduced an example of how meaning may be constructed in a ‘small experiment’ reported by Fish (1980), about which we will comment since, coincidentally, the philosophical ‘object’ in the example is a text on a blackboard. In his essay, Fish commented that he was teaching two courses for a summer program, the first exploring linguistics and literary criticism, and the other teaching English religious poetry. One morning, after the students from the first class had left the room, instead of cleaning the blackboard, which contained a list of authors which the students had been asked to research, he drew a frame around the names and wrote ‘p. 43’ above it. The last name on the list was followed by a question mark because he was unsure if the name was spelled correctly.

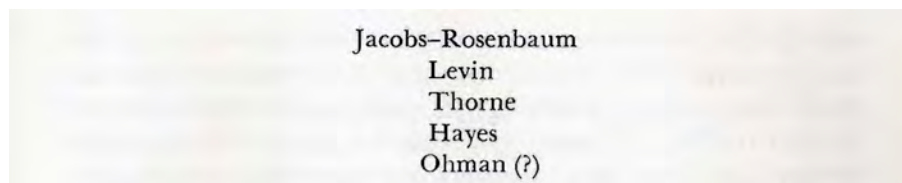


Figure 9. The list of names and how they were presented. Fish (1980: 323)

When students from the English religious poetry class arrived, Fish told them that the framed list was a religious poem and asked them to interpret it. The students suggested many interesting interpretations for what they were seeing: it was in the shape of an altar or a cross; it contained references to the new and old testaments as three names were Jewish, two gentile and one unknown; and the last name could be read in three ways because of the question mark: ‘omen’, ‘Oh Man!’ or ‘Amen’.

This case was used by Fish to demonstrate that reading is not about discerning and portraying meanings that are attached to something, but about how to produce, to construct, meanings that may be related to the text. When someone arguments that for the first students the undeniable meaning was clearly standing right in front them, Fish says that considering it as a list of names is again an act of interpretation, as in the case of the alleged poem, since within the understanding of the series of shapes as a list of names is embedded ‘concepts of seriality, hierarchy, subordination and so on’ (Fish, 1980: 331). This example is also useful to illustrate the manner in which context is able to produce meanings out of reality, since sense may be made of the same reality but in different manners, depending on a variety of factors, such as the people involved, cultural issues and numerous other features. This is why

constructionists do not refer to knowledge and meaning as being true or valid, but rather as useful and adequate for certain purposes.

Crotty (2015) commented that the particular names chosen by Fish were necessary in order to generate those particular meanings, hence, if other names had been included, they would have been interpreted differently. The meanings were not simply imposed onto the poem, as it would have been in a subjectivist approach, but rather the students built them in response to the object. This entire example is very opportune with regard to what is being studied in this thesis, in which we observe the construction and employment of graphic language. The contexts in which such practices were based have been taken into consideration and will be presented along with the analysis, thereby supporting and justifying the constructed interpretations.

Because understanding how knowledge is accessed is very closely related to the study of being, Crotty (2015) does not include **ontology** – concerning the study of ‘what is’ – as a fifth element in his scheme. For the author, the issues of epistemology and ontology emerge together, side by side, because the theoretical perspective is tied to both the understanding of ‘what is’ (ontology) and ‘what it means to know’ (epistemology). However, this does not signify that one implies the other. For example, the ontological notion of realism, in which realities exist outside the mind, is deeply related to the objectivist epistemological notion that meaning exists in the objects apart from consciousness. Nevertheless, Crotty believes that realism can also be compatible with constructionism, in which a world may perfectly well exist outside the mind, but the creation of meaning regarding that world is only possible through the human mind. It is not constructionism that is against realism as some, such as Abbott (2004), have declared, but idealism with its assumptions of what is real only exists in the mind, while reality is just about ideas. Moreover, constructionism does not corroborate this view either (Crotty, 2015).

2.2.2.2 Theoretical perspective

The epistemological viewpoint conforms to the theoretical perspective. It relates to the concepts of reality in which the researcher has based the work, and thus, by exposing the theoretical perspective, shares how the human world and social life is conceived. This shapes the methodological option in research, providing a context for the process developed and a basis for the rationale and criteria employed. Some examples would be positivism, interpretivism and feminism.

One of the interpretivist traditions, symbolic interactionism, supports the methodological choice of this research. Interpretivism, a response to positivism, attempts to understand and explain social reality, conveying certain empirical logics from natural sciences in order to apply them to research on human issues. It contrasts with a positivist approach in that it pursues interpretations of social phenomena according to a cultural and historical context, while

positivism searches for the universal features of humanity made by an allegedly neutral and detached researcher (Crotty, 2015). Moreover, by following constructionist epistemology, the results of an interpretivist investigation are not facts but an interpretation by the researcher of a phenomenon.

According to Crotty, interpretivism is linked to discussions conducted and instigated by the philosopher Max Weber, in which he opposes the explicative approach of natural sciences, focused in causality, to the approach of human and social sciences based on interpretation and understanding. This debate leads to the conception that natural sciences search for regularities, consistencies, seeking what is *nomothetic* (*nomos* meaning law), and social sciences search for what is *idiographic* (*idios* meaning individual), as it relates to individual cases. The author highlights that rather than being limitations that exist within the nature of these sciences, they are related to the interests they arouse (Crotty, 2015).

Abbott (2004) also demonstrated that the positivist or interpretivist approach may be adopted by any researcher, mixing and gathering analytical methods in an unexpected fashion to provide fresh outcomes. An example he provides is of a researcher who revealed aspects of theories on poverty after using metric parameters so as to analyse its representation by social service agencies.

Along with phenomenology and hermeneutics, symbolic interactionism is one of the strands of interpretivism. It enunciates that the relationship between humans and objects is driven by the meanings that the objects have for the subject. These meanings derive from the social interaction between subjects and their respective fellows, and are also negotiated and modified by the person in the subjective relationship with the objects. In other words, it may be stated that social forces shape an individual's life and individuality, but the person plays an active role in changing and dealing with these social forces. Therefore, what makes human consciousness is the symbolic interaction with objects, and this interaction is a product of social relationships (Crotty, 2015).

According to Crotty, this results in the conception that, in order to understand and be part of a community, it is essential to take the role of others. This begins in early childhood through imitative acts, whereby children act like others, and in playing games where they mime others, imagining how they would think or act. In terms of research practices, the notion is derived that a viewpoint of subjects should be adopted in order to understand the community into which he/she is inserted. This is considered an interaction that is symbolic and also occurs because of the mediation through the symbols that humans use to communicate.

In this research, the process that took place at the schools was not exactly participatory: the researcher did not engage with the activities that the teachers and pupils were involved in – at least, not intentionally, nor when it could be

avoided¹⁵. Our position was that of paying close attention to the activities through observation, although following the practices *in locu* and while they happened enabled the researcher to consider contextual issues that only actual participants of that community may have access to.

2.2.2.3 Methodology

To discuss methodology is to approach the description of the plan, linking the research design with its particular methods to achieve the desired outcomes. This involves the rationale that links the purpose of the inquiry and the selected methods, as in experimental research, discourse analysis and ethnography.

Ethnographic principles have been employed in this research, and one of their main features, according to Hammersley and Atkinson (1995), is to examine the phenomena in its natural site, in the 'field', rather than in a laboratory or some artificial environment, as is common in experimental research. The very meaning of the term (*ethno* meaning folk and *graphy*, writing) relates it to the study and description of groups of peoples, usually from pre-industrial societies, from the origins of ethnographic research by anthropologists in the nineteenth century. Abbott (2004) stated that ethnography is extremely linked to anthropology, around which this science is mainly organised.

If at first, traditional ethnographic approaches were dedicated to the study of non-western peoples – as with the study of Arctic Eskimos by Franz Boas, one of its pioneers – (Crotty, 2015), it has since moved on to the study of other human groupings, such as urban subcultures or organisations and corporations. The methods employed were also diversified, going beyond observation and towards the investigation of artefacts and the consideration of recordings (Silverman, 2006).

The research design of ethnographic studies differs from experimental studies, because they are somewhat flexible, adapting themselves to issues that emerge from the field, while the research questions are constantly being revised. It is also common that categories of analysis appear from the data itself, instead of circumscribing it (Hammersley and Atkinson, 1995).

In ethnography, either a single or very few cases are preferred to a vast corpus, enabling a more profound examination of the data and context studied, such as long-term fieldwork and employing a variety of methods, like observations, interviews and document analysis (Hammersley and Atkinson, 1995). The issue that arises with having just a few cases is that it does not allow generalisations,

¹⁵ The understanding of what is necessary and what could be avoided is clearly relative. Our intention with this is to say that when requested, the researcher participated in activities, such as when the school manager asked the researcher to dance with the pupils in the school's carnival party, or when a pupil asked her something about her research. Another occasion when the researcher's participation was unavoidable occurred when she was the only person to witness the aggression of one boy against a girl. Instead of understanding herself as a neutral, detached investigator within that reality, but rather as an entity whose presence in the school was negotiated through trust and empathy, such interventions were understood as expected ethical responses.

but moving on from a positivist approach, it is possible to evaluate quality in an ethnographical research through other criteria, such as care and accuracy in data gathering, and authenticity in the analysis. Another important attitude in a carefully planned study is being precise about the researcher's 'lens' (theoretical background, personal assumptions) involved in the steps.

This approach was selected to guide this research because of the belief that the record of even small portions of the practices and activities of a community may enable it to represent any related motivations and understandings. During the fieldwork, which according to Wragg (2002) is full of simultaneous events that would be impossible for a single researcher to perceive and register, the focus was on the activities led by teachers and the graphic artefacts employed.

For our context of work, ethnographic research conducted in classrooms was the most plausible way of researching the graphic education of children because of the valuable information that exists inside the classroom: interactions, dynamics and even graphic records, which are very ephemeral, such as writing on the white board. Apart from which, the teachers' and pupils' responses to such practices may be unclear, as they are not always able to talk about what they do, because the practice has not been precisely rationalised and there is even a lack of terminology with which to address such issues.

By selecting a small number of cases (8 classes from 6 schools) it was possible to conduct a practical investigation through the use of many methods, which will be described in the next section. However, it also limited the time available to follow each class. Traditionally, ethnography enables a long-term immersion into a community that may sometimes last for years, hence, a ten-day observation period was definitely more limited in terms of researcher involvement, adaptation and learning.

The fieldwork was extremely exploratory and certain assumptions were quickly proven wrong, leading the research into a very organic, fluid direction, in response to what was being presented. Methodological answers for issues that arose from the fieldwork are included in the next two parts, which will first describe and make sense of the whole fieldwork, and then expose the efforts in creating an analytical tool adapted to the collected data and the analysis itself.

2.2.2.4 Methods

The last stance in Crotty's (2015) scheme involves the methods, which may be understood as procedures and techniques engaged to gather and analyse data. In order to use these as a starting point so as to understand the other elements related to the research, the author states that methods must be very detailed, such as: the focus group, the survey, statistical analysis.

Abbott (2004) reflected on methods used by social scientists, highlighting how some procedures are customary within some communities of scientists, but that

none of the sciences own any particular methods – although there is a strong relationship between anthropology and ethnography, its principal method. Many of the methodological features may be used to classify them, and the author proposes three approaches that have been systematised in a table presented below (Table 1): type of data gathering; how data is analysed; and the number of cases considered.

	Ethnography	Surveys	Record-based analysis	History
Type of data gathering	Personal interaction	Interviewing subjects or asking them to answer questionnaires	Formal records such as censuses, reports etc	Old records (formal or not), surveys, ethnographies
	Direct interpretation	Quantitative analysis		Formal modelling
Data analysis	Reflection and synthesis by an individual	Employment of statistical methods to reason about causes		Creation of a formal system used to simulate reality
	Case-study analysis	Small-N analysis		Large-N analysis
Number of cases considered	Unique example studied in great detail	Small number of cases for means of comparison		Large number of cases, usually randomly selected for means of generalisation

Table 1. Summary of the categories of methods proposed by Abbott (2004).

These approaches, when combined, may become several methods that, as Abbott indicated, have possibly been used before. Those resulting methods are often hybrids, as they are used to enable different answers regarding complex issues, such as ‘living social things, not abstract categories’ (Abbott, 2004: 15). Crotty (2015) also discusses a combination of methodologies and methods, saying that the two columns at the right of the table with samples of elements regarding his scheme (Figure 8) may be used freely by the researcher to fulfil the aims and purposes of the inquiry. This would be the case of this research, in which methods were mixed, as represented in the table below.

Epistemology	Theoretical perspective	Methodology	Methods	
Constructionism	Symbolic Interactionism	Ethnography	<i>Number of cases considered</i>	Small-N analysis
			<i>Type of data gathering</i>	Observation Semi-structured and unstructured interviews Record-based analysis
			<i>Data analysis</i>	Direct interpretation Quantitative analysis

Table 2. Table revealing the outline of this research based on Crotty's scheme (2015:4) and Abbott's categories of methods (2004).

With regard to Abbott's classification, there was just one response in the criteria of the number of cases considered, which was a *small-n analysis* of eight school

classes. In the other criteria, there was a mixture of several methods. The most extreme was in the type of data gathering, in which three methods were employed: observation (replacing the term *ethnography*, herein understood as a methodology), which enabled the realisation of semi-structured and unstructured interviews (termed *surveys*) during the fieldwork, which was combined with a *record-based analysis* of formal records from the schools (their Political-Pedagogical Project). The final consideration was how data was approached, which was mainly by *direct interpretation* of the collected data, although with regard to the main analysis in the core of this research, some *quantitative analysis* was used to describe and support interpretation, even if no formal statistical methods were employed.

The principal method of this research was observation, which provided the main data analysed (the records of the graphic activity) and deserves some attention. As in previous experience in research by RIDE (Coutinho and Lopes, 2011) and Lopes (2014), it is difficult even to name the knowledge contained in graphic practices, which represents how internalised it is. This is why, for example, it was important to observe instead of just conducting interviews – even if the interviews had been used to complement the data and provide explanations.

Nonetheless, the researcher did not only observe the activities, she also proposed a slight intervention in the practices of the main teacher. This intervention was designed not to be (too) disruptive: after a couple of days of observation, she analysed the teacher's main writing practices and asked if the teacher would agree to replace one visual element with another during the following days of observation. For example, if a teacher always underlined a title she was, instead, asked to frame it. While these changes did not alter the content of what they were doing, they could be somewhat disruptive to the consistency of the writing practices of the teacher. However, the teachers displayed similar variations in their everyday practices, thereby demonstrating that they did not consider the researcher's suggestion to be greatly inconvenient.

This method was inspired by the work of Coutinho (1998), in which she listed three types of elements found in observation-drawings by schoolchildren: structural components were those that delineated the object; defining components were those that specified the nature of the object; and differentiating components were those found in the particular object being drawn by the children in that particular situation. Hence, this added element was employed, much like a differentiating component, to signal that pupils were attentive and would reproduce those exact visual elements – and not use alternative visual elements that they knew or preferred. It was also an opportunity to check if they would verbalise any surprise or doubt regarding the new element.

The methods of data gathering and the constitution of the analytical corpus will be considered in the full description of the fieldwork, and the preparation thereof in the next section of this section. Issues related to data analysis however, will be presented in section 4.1, a separate section dedicated exclusively to this research stage.

Further considerations on ethnography and observation in schools

Ethnographic research is often confounded with observation, but as mentioned above, while the latter is a very important method in the ethnographic approach, it is not exclusively used in ethnographic research, especially in recent studies. Silverman (2006) commented on the versatility of the observation method, employed in many other sciences, including natural sciences, such as biology.

Bryman (1988) listed some features of observation:

- *Seeing through the eyes of a subject.* Seeing from the viewpoint of a participant from the community studied is one of the main purposes in conducting observation, as it provides the representation of actions, events, values and many elements related in the field. It requires empathy in order to adopt the perspectives of those being studied and to understand the context in which such activities are embedded. Searching, adopting and reporting the standpoint of the subjects is connected to symbolic interactionist premises, as mentioned by Crotty (2015).
- *Description.* Observation is attained through the description of details, which are helpful in understanding processes and context. Silverman (2006) defends that more than focusing on what people are thinking and feeling, through observation, the ethnographer should focus on what people are doing – which is something they are often unable to properly report.
- *Contextualisation.* The localisation of the events is one of the capacities allowed by the observation method, since the researchers are in touch with the wider social, historical and even random context interfering with an event.
- *The account of process.* Just like reporting the context, observation enables the processes to be reported, as qualitative research is very interested in the processual rather than the static approach to social life. Again, methods such as interviews may not be the best manner to obtain information on how certain practices are performed, since details about them may be intentionally neglected or remain unacknowledged.
- *Flexibility and lack of structure.* Observation in qualitative research is often tied in with flexible research designs, allowing the researcher to deal with unexpected events and issues that are also part of a less structured research. This is considered to be a more organic and less restrictive approach to social phenomena.
- *Avoid early use of theories and concepts.* Theories and concepts are not developed in advance of the fieldwork, in order to impose frameworks onto the studied communities. It is a form of preventing distortions in the collection of data by the researcher, even if a neutral and detached posture is believed to be impossible in qualitative research.

All the abovementioned features are present in this research, since an exploratory nature has followed a bottom-up approach, in which the data has led on to theory, rather than the other way around.

Hammersley and Atkinson (1995) discussed levels of participation in ethnographic work. At one of its poles is the complete participant, who would be the researcher working covertly as part of a community. While this appears somewhat attractive, as the information provided does not need to be negotiated with the studied subjects, the capacity of collecting data is limited, and much energy is dispensed by participating in social practices. The opposite pole would be the complete observer, who conducts observation without having contact with those being observed, usually with one-way mirrors or recording equipment. The constraints in this type of research are on the ethical barriers of what should and should not be observed, and the fact that this lack of interaction with the subjects rules out the possibility of questioning them.

Most research, as with the current study, is located between these two poles, and the observer, even when not assuming an existing role within the field (such as working as a teacher or adopting the role of pupil), takes on a new role, not commonly present in that community. In this investigation, the researcher assumed the role of a type of evaluator, who neither took part nor interfered in the activities conducted by the subjects, but who was doing something that all the involved participants were aware of, whether taking notes and photographs or filming. Lakatos and Marconi (2003) labelled this type of procedure as non-participative observation.

Issues connected to the school environment have also been taken into consideration, assuming particularities of this social organisation, especially through the work of Vianna (2007) and Wragg (2002), who were concerned with the caution that researchers should adopt when entering educational institutions. Vianna (2007) commented that the school routine might be quite repetitive, either on a daily basis with the routines and pauses; on a weekly basis, with the cycle of classes and courses; or regarding the terms that divide the school calendar, and concern teaching, training and evaluating. He also suggested that the researcher does not always consider the entire group in a classroom, citing other designs focused on specific pupil groups or even on just one pupil.

Vianna (2007) distinguished qualitative from quantitative approaches in observing activities within a school. The quantitative approach is more structured, using specific procedures (such as, for example, observing a subject every two minutes) or categorising activities according to scales or categories of events. The qualitative approach however, is responsive to the events in the classroom, portraying them without such constraints. The author highlighted quantitative approaches as being systematic and more objective, enabling the researcher to reduce her/his influence, whilst the other approach may lead to very subjective data, which would be of little scientific value. Nevertheless, at the same time, this so-called objective approach may lead to distortions if the researcher is not careful to register important issues rather than exceptions,

and qualitative approaches may lead to a more holistic view of a classroom context.

Naturally, we applied filters to edit what was collected in the fieldwork, selecting what was important to the research, because as Wragg (2002) advised, there are many overlapping details in a classroom:

- Personal traits in the interaction between the subjects;
- Verbal interaction in what is said, questioned and answered by whom to whom and the kind of vocabulary used;
- Non-Verbal relationships such as movements, gestures, facial expressions;
- Activity, concerning the nature of the teacher and pupil tasks;
- Management issues regarding how the teacher conducts the dynamics and routine in a classroom;
- Professional skills involved in the teacher's behaviour and how this affects the promotion of activities;
- Teaching aids, concerned with the artefacts and equipment used;
- Affective and interpersonal relationships;
- Cognitive report on the nature and level of thought in developing some concepts;
- Sociological issues regarding the division of roles within the classroom and the school, norms, status, effects of social background and so on.

In the description and contextualisation of the fieldwork, many of these elements will be presented, but the focus of this research is on the activities and the respective teaching aids used or developed during and for them.

Considering the complexity of the classroom environment, Vianna (2007) warned that data should be recorded as quickly as possible, as should coding and storing, so that important details are not lost. While in the fieldwork, the researcher should try to fix or complement incomplete or problematic data.

2.2.3 Methodology: corpus, methods and instruments

In this section, the research will be described meticulously, considering its methods, equipment and tactics according to issues in the ethnographic methodology listed by Silverman (2006) on the work by Hammersley and Atkinson (2007)¹⁶: defining a research problem, selecting a research site, gaining access, finding an identity, looking as well as listening, and recording observations. The step regarding the analysis of field data is contained within a separate section.

2.2.3.1 *Defining a research problem – and the development of a pilot study*

With the aim of investigating the teaching of graphic language in the Brazilian education system, these research questions were embedded into this inquiry:

- To what extent does the teacher's visual organisation of handwriting influence the pupil's organisation of handwriting?
- How do teachers approach graphic language?
- What kind of visual material do teachers develop and use in their teaching routine?
- What role do teachers feel they play in the graphic development of their pupils?

To address the issues implied within these questions, it would be possible to use methods such as interviews with pupils and teachers, as well as investigations into the artefacts that have been employed during school activities. However, from the very outset, we opted for the ethnographical approach based on observation, in order to be able to record items that subjects might have forgotten, neglected or hidden had they only been interviewed. There was also a practical reason involved, since this approach would be easier than searching for and contacting pupils and teachers one by one. The pilot study, which only involved interviews and an analysis of a pupil's notebook, confirmed these qualities of participating in the school activities. This stage did not include a test of observation in actual educational environments because, at this point, it had not yet been approved by the Research Ethics Committee. In the end, the interviewed subjects were chosen due to their adequacy to the research target and to their personal relationship with the researcher, as they agreed to participate because of a previously established relationship of trust.

Thus, these exploratory inquiries cannot be exactly considered pilot tests, as they did not reproduce the school environment nor all the elements that would be faced conducting fieldwork in such an institution. Nevertheless, they were important for exploring contemporary practices in schools, establishing the tone and anticipating what the research would find during the actual observation periods.

¹⁶ The edition consulted was published in 2007, although the first edition of the book was 1983.

The protocol in the semi-structured interview was tested with a former teacher from one of the schools, which would be visited at a later date (the Arco Íris School, a private institution). Therefore, this preliminary investigation served to provide information on practices in this institution and to test the questions and subjects approached in the survey. Gabriela¹⁷ had worked in the school for one year, teaching English to children in the kindergarten and primary years. Her answers revealed that she had realised how influential she was to the pupils, even though she did not consider herself as possessing the profile of a ‘reference teacher’. She explained that there was a common belief amongst education professionals regarding the idea of a flawless teacher, one that serves as a reference. Therefore, she had to adopt approaches common to these methodical professionals – such as presenting ideas logically and clearly – because she realised that such behaviour was more effective with children. She used this tactic rather than her more talkative, flowing didactic approach, which worked with teenagers and adults, but was not so well accepted by younger pupils. In addition, she realised that a more logical, methodical way of dealing with information encourages pupils to be more organised and committed. The main problem perceived with the sequence of questions in this interview was the lack of inquiry into the teachers’ instruction and influences. These are interesting topics in order to contextualise the teaching practice.

The other explorative inquiry was an analysis of the notebooks and printed matter used by Mirtes, a pupil who was about to begin her studies in the primary 4th year. The documents were taken from two different school levels that were chosen to be the focus of the research, the primary 2nd and 3rd years. This early analysis illustrated more definition in the shape of the letters in handwriting and that some practices became more established, such as skipping a line of the ruled paper in order to separate blocks of texts – which, at first, was made with the aid of a small ‘x’, on the whiteboard, the manner with which the teacher signalled that such a space should be reproduced. It was possible to check which artefacts were used, confirm that notebooks and pencils were still important tools and that, in the case of this particular school, printed handouts were often used, being kept in a folder in the sequence with which they were used. Furthermore, it was possible to observe that the graphic organisation was very similar to documents studied in earlier research work and even to the researcher’s own practices as a pupil. This indicated that thus far, there was no strong factor to suggest promoting a revision of such consolidated practices, not even the pervading digital technologies in the daily life of teachers and pupils. Ultimately, this experience was important in anticipating (and, at some point, confirming) what was probably going to be encountered in the field research.

¹⁷ All subjects participating in this research were given fictitious names in order to protect their identities.

An unstructured interview with Mirtes was conducted at her own home with questions about her routine in the classroom and the reasons for some of the graphic differentiations in her writings. While an indentation was clearly tied to the necessity of marking the beginning of paragraphs, the recurrent centralisation of titles was explained by the intention of imitating what the teacher did. Mirtes displayed some hesitation in answering certain questions, which might have originated from a feeling of having to create a subsequent explanation for what had been done. The outcomes of this interview reinforced the previous intention of trying other ways in which to understand graphic practices inside the classroom, since retrieving such information from pupils' discourse would require tools and procedures that could prove more painful and out of the scope of this research.

2.2.3.2 Choosing a research site

In order to select the institutions and the most preferable level of education to study, it is necessary to understand the manner in which the education system is organised in Brazil.

Most educational institutions are dedicated to a particular level of education. Only some of the larger private schools offer all the different levels within the basic education system. Public schools, on the other hand, are dedicated to providing education for certain selected years, because different authorities are responsible for different levels, in accordance with the law (LDB¹⁸). The municipal authorities are responsible for providing the early school years until the end of the so-called 'basic education', although in practice, the last years of this stage are taken over by the state authorities, along with the responsibility of providing high school education (or, as it is called in Brazil, 'medium education'). The federal authorities are in charge of the so-called higher education in universities and faculties. However, the network of federal institutes that also provide high school education along with technical and higher education has widened¹⁹.

The stage known as basic education is free in public schools (just like all the other educational services provided in the public sphere) and receives children aged from 6, for a period lasting 9 years. The following table summarises the education system in Brazil:

¹⁸ LDB – which, directly translated means Guidelines and Base Law.

¹⁹ From 2002 to 2016, while the federal presidency was under the control of the left-wing politicians Luís Inácio Lula da Silva and Dilma Rousseff, 504 campi of Federal Institutes were created, more than triplicating the existing network and enabling countryside areas to have technical and superior education tailored to regional needs (Brasil. 2016).

Stage	Divisions	Year	Expected age of pupil
Infant Education	Nursery		0-3 years
	Kindergarten	1° – 2°	4-5 years
Basic Education	Early years	1° Cycle	1° – 3°
		2° Cycle	4° – 5°
	Final years	3° Cycle	6° – 7°
		4° Cycle	8° – 9°
Medium Education		1° – 3°	15 – 17 years

Table 3. General organisation of the Brazilian Basic Education System.

The first cycle of basic education, known as the ‘literacy cycle’, became the focus of this research. the choice for the last year of this cycle – the 3rd year, in which pupils are aged around 8 – was a security measure²⁰ in guaranteeing that pupils would already be able to read and write, while still being in the first years of a life-long literacy process of broadening their repertoire in using visual strategies.

One of the proposals of this research was to experience different school realities in the city of Recife, since there is a wide diversity in terms of structure, goals and community – thereby providing sufficient factors to illustrate the variations in graphic practices. One of the main features over which it was possible to retain control was the type of institution, selecting whether it was public or private. This would provide insights regarding public policies in terms of contemporary education and, maybe, also regarding the impact brought by equipment and infrastructure or the style of management. Even if there was no intention of undertaking an extensive exploration into these issues, they were nonetheless considered since they are related to factors that influence visual language, as for example, the production systems and human skills (Norrish, 1987).

The initial idea was to conduct the observation at eight schools. However, it was difficult to obtain acceptance from the private schools, because, being a private service, they try to avoid upsetting their relationship with parents/families and generally do not allow any invasive research, which they consider may somehow cause disruption. Therefore, the number of schools was reduced to six. In two of these schools however, it was agreed that two classes could be observed, which was of interest in terms of comparison. The criterion to decide on the schools was their location in the city of Recife, which is divided in 6 RPAs (known in Portuguese as Political-Administrative Regions). In RPA 5, none of the contacted school agreed to participate in the research, although the Arco Íris School is close to neighbourhoods within this area.

²⁰ Due to bad test results in reading and writing, a federal programme called PNAIC (the National Pact for Literacy at the Right Age) has taken on the commitment (not fixed by law) to provide aids that guarantee conditions so that the institutions achieve the desired goal of pupils being able to read and write until the age of 8 (Brazil, 2018). This is still a challenge to public education, because in all the public school classes visited there were pupils who were still unable to read.

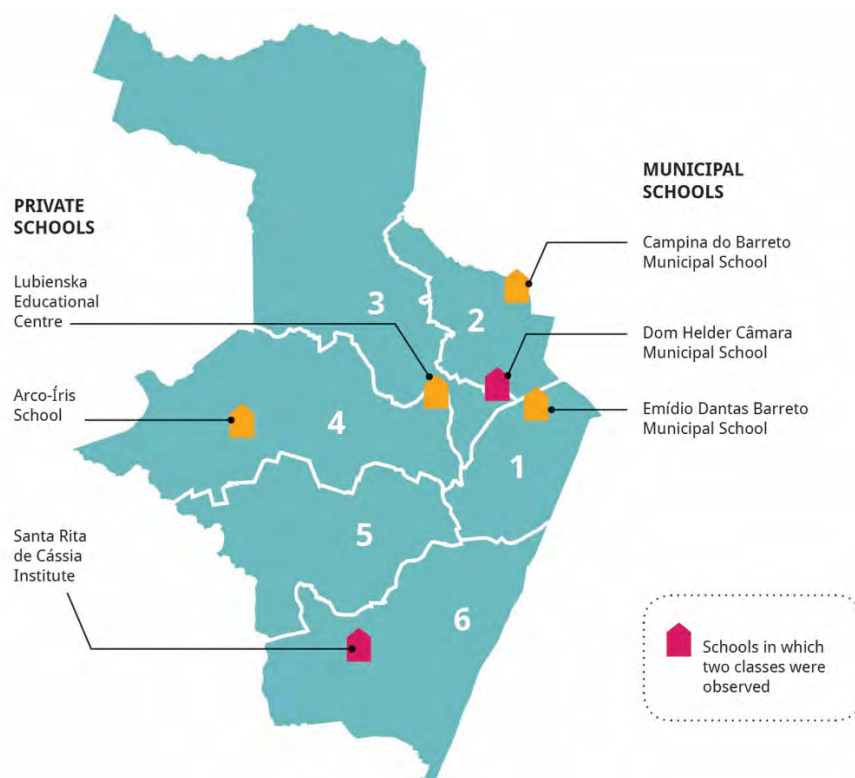


Figure 10. Map of the political-administrative regions in the city of Recife depicting where each visited school is located.

2.2.3.3 Obtaining permission (and organising the fieldwork)

Three types of permission had to be applied for: permission from the schools to develop the fieldwork; permission from the Research Ethics Committee; and permission from the subjects themselves (or their parents/guardians, in the case of children). As previously mentioned, obtaining permission from the required private schools was not an easy task, and appealing for help from personal contacts (friends and colleagues who either worked at the schools or knew someone who did) was the only successful recourse in managing to approach the schools. Contrary to this, permission to access public schools was obtained through the Education Secretariat, which analysed our proposal and granted permission to enter all the requested institutions.

Having obtained permission from all six schools, the research was submitted to the Research Ethics Committee, in order to receive permission to conduct the study. This was required not only because it involved children, but also in Brazil, any research involving human beings needs to be analysed by a committee (Brazil, 2012). Furthermore, there were concerns as to whether the methodological proposal of observing and requesting teachers to promote changes in their graphic behaviour could be considered unethical in some sense. Bogdan and Biklen (1994) would say not so, as the participants (and their legal representatives) were free to choose whether they participated (or allowed

their children to participate) or not in the research after being provided with all the necessary information, and because it probably would not cause any risk or damage to the participants.

The informed consent form requested by the committee (which in Brazil is called a TCLE, which means ‘term of free and informed consent’) was designed so that it would be easy to read and generate confidence and sympathy towards the research – especially since it would be sent directly to parents and guardians by the school, with no intervention from the researcher. As the committee regulates the content, the forms were not changed (except in layout) and a different coloured paper band was produced to wrap round the two copies of the form sent to the families. Information was delivered in a conversational tone, with regard to what the research entailed and also included a picture of the researcher, to inspire empathy and confidence in what was being requested of them.

TERMO DE CONSENTIMENTO LIVRE E ESCLARECIDO PARA RESPONSÁVEL LEGAL (PELO MENOR DE 18 ANOS) (Resolução 466/12)

INFORMAÇÕES SOBRE A PESQUISA

Sua pesquisa está a cargo de investigação e processo de aprendizagem da linguagem pública em contextos de ensino de português de sala de aula. A partir da observação, entrevistas e da análise da produção textual de professores e alunos em sala de aula, busca-se entender as normas e práticas de avaliação da linguagem por esses sujeitos. Entendemos que a linguagem das mensagens é parte importante do cotidiano do processo de ensino e da cultura da sala, e a escola tem um papel importante na formação dos estudantes para lidar com o texto e a escrita, mas também com todos os recursos visuais que estão associados à composição de informações.

Assim, a pesquisadora estará presente em sala de aula durante 15 dias, numa posição de observação não participante, que não interfere diretamente nas atividades escolares. Diariamente, consultará os professores e estudantes acerca das práticas que observou. No caso, investirá apenas as atividades de elaboração de documentos e atividades escritas, desenhadas, mas não com o intuito de produzir algo. Sobre a possibilidade de que professores tenham acesso ao texto produzido na sala de aula, a pesquisadora não se compromete a não divulgar os dados produzidos. Para analisar mais detalhadamente, a pesquisadora planeja, também, realizar registros fotográficos em vídeo de elaboração desses documentos.

Os dados desta pesquisa serão utilizados exclusivamente para fins de pesquisa e publicação científica, não havendo identificação dos voluntários, a não ser em nome do responsável pelo estudo, sendo assegurado o sigilo sobre a participação dos voluntários. Os dados coletados nesta pesquisa serão de vídeos, áudios e entrevistas feitas a uma amostra em um computador pessoal e em um HD externo sob a responsabilidade da pesquisadora Renata Amorim Cadena no endereço: CAC UFPE | Avenida da Engenharia, s/nº - Cidade Universitária, Recife - PE, CEP: 50740-900 pelo período mínimo de 5 anos.

Os voluntários não pagarão nada e não receberão nenhum pagamento para participar desta pesquisa, mas fica garantida a indenização em caso de danos corporais decorrentes da participação na pesquisa, conforme direito judicial ou extrajudicial. Se houver necessidade, a pesquisa para a participação será acumulada pelo pesquisador (sem prejuízo com o tempo de duração da pesquisa).

Em caso de dúvidas relacionadas aos aspectos éticos desta pesquisa, você poderá consultar o Comitê de Ética em Pesquisa Envolvendo Seres Humanos da UFPE no endereço: Avenida da Engenharia s/nº - Prédio da CCS - 1º Andar, sala 1 - Cidade Universitária, Recife-PE, CEP: 50740-900. Tel.: (81) 2125.8338 e-mail: cep@ufpe.br.

INSTRUÇÃO:

Em caso de consentimento, assinar as duas vias deste documento, guardando uma para si e devolvendo a outra para a pesquisadora.

CONSENTIMENTO DO RESPONSÁVEL LEGAL PARA A PARTICIPAÇÃO DO VOLUNTÁRIO

Eu, _____ CPF: _____, autorizo a participação na pesquisa **FORMAÇÃO GRÁFICA – A Influência do professor na construção da linguagem pública do aluno em sala de aula**, como voluntário(a). Fui devidamente informado(a) e esclarecido(a) pela pesquisadora sobre a pesquisa, os procedimentos nela envolvidos, assim como os possíveis riscos e benefícios decorrentes da participação (seles). Fui informado(a) que posso retirar o meu consentimento a qualquer momento, sem que isso leve a qualquer penalidade para mim ou para o(a) menor em questão.

Assinatura do responsável legal: _____ Data: _____

Assinatura da pesquisadora: _____

TERMO DE CONSENTIMENTO LIVRE E ESCLARECIDO PARA RESPONSÁVEL LEGAL (PELO MENOR DE 18 ANOS) (Resolução 466/12)

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Figure 11. Example of the layout of one of the informed consent forms and of how they were handed to the participants (folded into three with a pale pink paper band with a summary of what the research entailed and how to deal with the forms²¹).

Contact with each school was re-established some weeks before the beginning of the observation period. This was the moment to talk directly with the teachers, since initially, all contact had been with supervisors and directors – those in charge of granting permission. In most schools, the teacher’s opinion and willingness to participate in such projects was considered, but we were unable to ascertain as to whether they were directly consulted on the matter.

21 Hi! My name is Renata and I am conducting a PhD research in information design about the visual language created in the school. The pupil you are responsible for is being invited to participate in this research and, should you consent, the activities that he/she does at school will be photographed and a few questions will be asked. All this will be achieved with as little interference as possible to the school routine. I emphasize my commitment in ensuring that the children’s identity will never be revealed under any circumstances. To collaborate with this research all you have to do is complete, sign and return one of these forms to the teacher (if possible, with the signatures of two witnesses). The other form belongs to you and has my personal contact details. Thank you very much for your attention and collaboration!

Therefore, in this new approach, it was necessary to convince both teachers and parents/guardians that the research would cause their practices no harm.

The field research occurred over a period of four months in the first semester of 2017, and it was possible to visit classes in the same school simultaneously by attending different daytime shifts. The choice for 10 days of observation followed considerations by Vianna (2007) on repetitions in school routines. We realised that such a period would enable the researcher to witness two weekly routines of a classroom. For example, if there was an English class on a Wednesday, and something unforeseen occurred so that the class did not take place on one of the occasions, there would at least be a further opportunity to guarantee that the researcher would experience most of the diversity that pupils were dealing with.

The order in which the observations took place is described in the calendar below. The initials that define each school have been used throughout the whole cataloguing system.

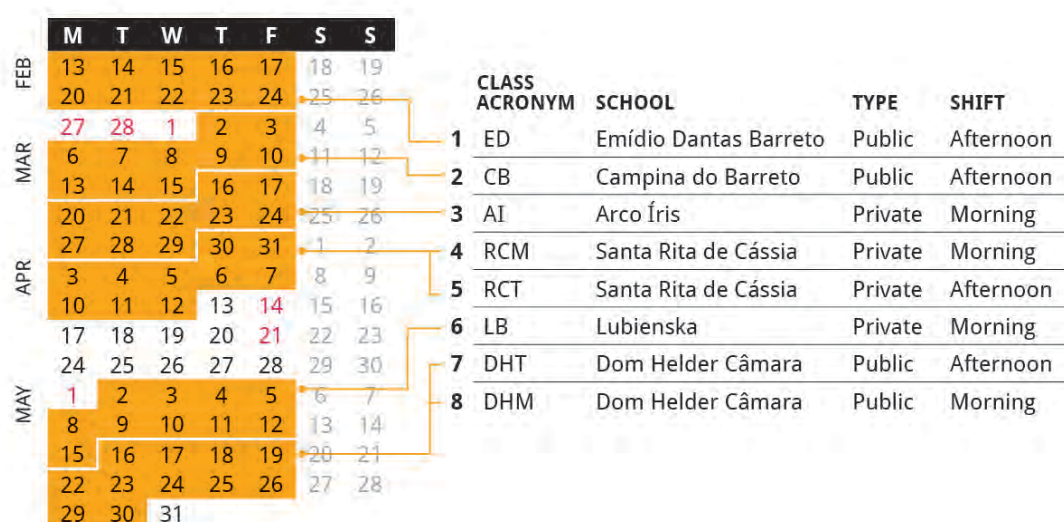


Figure 12. Field research calendar. Each of the eight classes were observed during 10 school days, totalling 80 school days of observation performed over 61 days, as classes from the same schools but from different shifts were visited during the same period.

2.2.3.4 Finding an identity and looking as well as listening: the fieldwork

The investigation had an ethnographic character, considering that the researcher was open to explore what was going on in a determined environment, although some approaches were planned so as to make sure that all the relevant data could be gathered while she was present at the school. Such presence was negotiated with many actors within each school: the managers, who had been the original contact, the teacher and pupils, and other members of staff, who were aware that someone strange to that group would be in the school for a set number of days. It should be mentioned that teachers and pupils, rather than being properly consulted with regard to granting

permission, were informed that the researcher would be present. Even so, in general terms, their acceptance was positive.

As discussed by Hammersley and Atkinson (2007), there was a need to adopt a role within this social community, and this was the role of an evaluator – a created role that is not part of the everyday routine in the visited classrooms. The researcher, therefore, attempted to remain out of sight, sitting silently at the back of the room, and trying to be as unobtrusive as possible in her actions of writing and photographing/filming the activities. Any questions were posed to the subjects by the researcher during the pauses, thereby avoiding any disruption during the planned activities. While she did not refuse to speak to pupils and teachers when requested, she tried to explain that it would be better if she did not talk to them during the activities, out of respect for the teacher. The teacher also requested pupils not to bother the researcher.

The researcher however, also proposed a small intervention, asking the teacher to arrange information in a different way in order to see how children would deal with that. The choice for which element should be introduced in teacher's practice came after some days of observation, to prevent any major disruptions.

The researcher followed the pupils during all their activities, except during the break when they were eating and playing. During this period, she mostly stayed with the teacher, since this was a precious time for interviewing and talking. Interviews ²²were another method used in the fieldwork and were both semi-structured and unstructured (Marconi and Lakatos, 2003). Semi-structured interviews, according to the abovementioned two authors, is when questions are pre-defined, although they may be adapted and rearranged during the conversation with the interlocutor. Semi-structured protocols of questions were used for interviewing teachers and supervisors, as it had been planned to discuss certain standardised issues with them. Questions to the teachers were connected to their careers, their choices and their understanding of graphic tasks, and the school staff was questioned on the school structure.

Unstructured interviews, conversely, took place as informal conversations where the researcher posed questions according to the context and flow of conversation. These types of interviews took place with most of the participants, with questions being posed while certain actions were occurring, so as to understand them and to connect with both the rationale and the remarks that the subjects might make regarding their practices.

²² The description of the script used in the interviews is in Appendix II.

2.2.3.5 Recording observations

Many instruments were used to record the observations. One was by means of a research diary, a notebook where the researcher took notes on the activities being conducted along with some initial thoughts on what was being observed. Almost two complete notebooks, which were used during the entire observation period were filled with notes.

Many pictures and videos were taken, mostly of the teachers engaged in graphic activities for the class and of pupil production. Most of the graphic material that both teachers and pupils used was photographed, as were the notebooks and study books. The semi-structured interviews were recorded and some core issues were copied so as to facilitate its retrieval at a later date. All recordings and photographs were made with a mobile phone, which, after conducting market research and advice from a video specialist, was a useful, effective and discrete manner of collecting data. Rather than using big cameras on tripods, which would have been completely unfamiliar to most pupils, the mobile phone was chosen, since it is an object that could make the presence of the researcher less intrusive and therefore less disruptive. Apart from anything, it was a convenient, multitasking artefact for the researcher, especially considering that she was embarking on journey of 80 school days of observation.

One other method of data gathering, and thus far unmentioned, was collecting the Political-Pedagogical Project²³, which was commented upon by school managers or supervisors when interviewed. This document contains important information regarding the school: how they conceive the learning process and their goals, including how they intend to achieve them, considering the human and physical resources that the schools possess. This is an important aspect because the school is not only an institution where classes are held and that distributes resources and material for educational activities to take place, it also mediates a conception and the educational project being developed, thereby guiding and legitimising what is happening inside the classrooms.

* * *

In this section, we have discussed and specified the methodological approach employed in this research. Following the chronological thread of this research, the next section is dedicated to the fieldwork description, in which the methods and theoretical perspectives considered herein face the reality of the visited schools.

²³ The law that regulates the structure of the educational service in Brazil (LDB) determines that the schools have to develop and provide a document called Political-Pedagogical Project.

3

**Visiting
eight
classrooms**

3 VISITING EIGHT CLASSROOMS

3.1 FIELDWORK RESEARCH

The purpose of this section is to describe the fieldwork, first by explaining the procedures adopted to organise and systematise the data. A description of the experience in each one of the eight classes follows on and, by the end of the section, we conduct a discussion on what has been experienced and analysed during the fieldwork.

3.1.1 Data rationalisation

This topic presents the field research in order to contextualise the data collected during the visits. This pre-analysis describes the attempt to rationalise the chaotic impression of being immersed in a complex environment.

The rationalisation of the collected data began during the field research. After each day of observation, all the collected data was transferred to a computer to keep it safe, and to ensure that everything was labelled with the respective name. On the following day, a review would make any necessary corrections. The system adopted for note-taking in the diary was divided into two sections: one was time based, describing activities in a sequential manner, with extra notes and thoughts.

This structure influenced the manner in which the data was handled: this was interpreted through diagrams structured as timelines, which began during the observation. Further coding helped to include more useful information on the timeline, as Figure 13 demonstrates.

- The timelines were divided into two to describe the activities in which both teacher and pupils were involved.
- A colour code classifies eight different kinds of activities. For example, green when pupils were involved in an activity that did not use any graphic material, such as debating or gymnastics; blue represents a graphic activity and light blue its supervision – a teacher task.
- A star on the timeline identifies that other teachers were working in the classroom, such as supply teachers or teachers from other subjects. When the main teacher was sharing the classroom with them, the star is followed by a 'T'.
- There is a code for graphic activities, which identifies the collected data regarding that particular activity, such as pictures and video clips. It contains letters referring to the initials of the school's name, numbers relating to the day of collection (over a range of days from 1 to 10) and the type of activity undertaken on that particular day.
- The graphic artefacts actively used by teachers and pupils are represented by icons, such as the whiteboard, photocopied exercises, the ruled-paper notebook, study books, tablets and others. It is important to understand the use of the diverse types of devices, relating them to the various graphic processes they enabled.

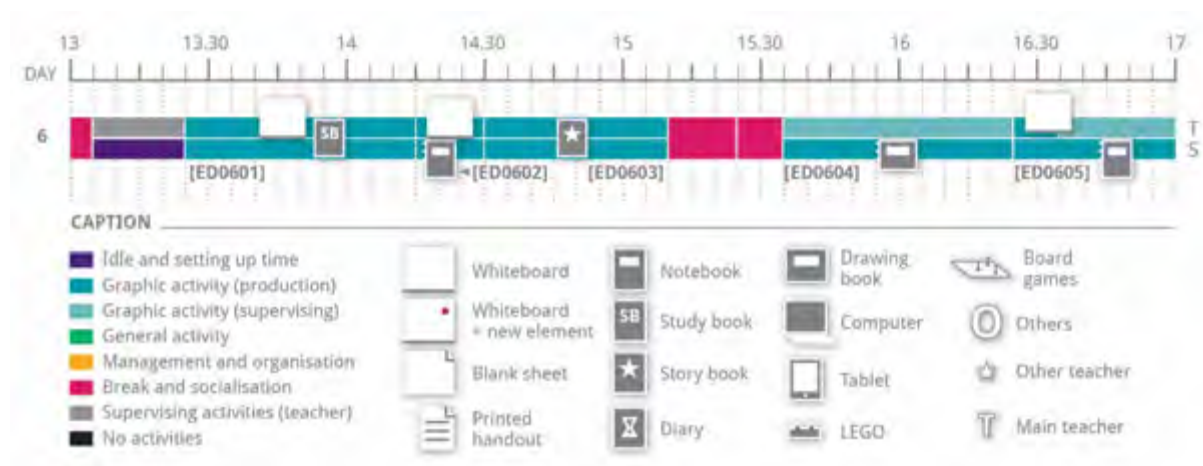


Figure 13. Example of a timeline from the 6th day of observation (as displayed on the left) at the Emídio Dantas Barreto School (ED). The label above the timeline displays the variety of activities and the artefacts observed.

The following sections contain comments on certain aspects regarding each class:

- *The school* – a description of every school is made using information from the Political-Pedagogical Project (PPP), what teachers and staff said in interviews and our observations. Thus, a description of the school, its beliefs and resources help to provide a perspective for the observed activities.
- *The teacher* – characteristics of the main teachers, their professional experience and educational background. This also includes issues discussed in the interviews, which focused on their relationship with graphic practices, and therefore includes information on their training, influences and preferences.
- *The class* – focuses on describing the group of pupils, whose exchanges and relations affect all the activities developed within the classroom, including those involving graphic language. This is a superficial description based on teacher and staff reports collected during observation (not interviews) and on remarks and impressions by the researcher.
- *The routine* – a description of the weekly routine of pupils: the classes they attend, the specific teachers they have, and the planned activities that often occur. This section exposes the ‘skeleton’ of the timelines that will be presented further on, and also the amount of time devoted to some of the activities, including graphic activities.
- *The period* – the school routine changes according to the period of the year. For example, time is allotted to adaptation at the beginning of the school year, and special activities are included when commemorative dates celebrated within school are approaching. This section situates the observation period according to the school calendar.
- *The timelines* – contain a meticulous description of the observation period in each classroom. The timelines comprise the main activities and their sequence on the school day in which they were the activities conducted by the teacher, for example, a command to read a book or do a drawing. Many other many processes that took place during this conceptual framework have been selectively ignored. For example, conflicts between pupils or other events that attracted the attention of the group, or part of it.

3.1.2 The Emídio Dantas Barreto Municipal School (ED)

3.1.2.1 The school

The Emídio Dantas Barreto Municipal School has been a formal educational institution since 1965, although it was only awarded this name at a later date. As with other municipal schools, it follows the municipal guidelines on education, which view the learning process as a collective construction, intended to prepare pupils to act critically within society:

Considering didactic projects as a tool of the teaching dynamics presents teachers with the challenge of adopting a posture and a methodology that allow pupils to participate effectively in the teaching and learning processes. Therefore, the teacher, as the most experienced subject and mediator in the teaching/learning relationship, has to bear in mind what is indispensable and what is desirable teaching for constructing a collection of knowledge, so as to guarantee pupils the right to learn. (Recife, 2015, p.78, translated by the author)

Unlike other municipal educational institutions, which often operate in inadequate premises and buildings not originally intended as educational establishments, this school has a large structure, with an open, covered courtyard, a sports court and a library that is also a multimedia room for special classes – besides the classrooms. The school receives mainly children from the local community, from the neighbourhoods of Santo Amaro and Boa Vista. According to vice-director Rebeca, the families of the pupils do not participate regularly in school activities. Some families take part in the daily issues of the school but others do not even attend the occasional meetings between school and family.

EMÍDIO DANTAS BARRETO MUNICIPAL SCHOOL		Type	Municipal
Location	Santo Amaro	PAR	1
Levels offered	4 kindergarten classes (Group IV and Group V) 14 primary classes (From Year 1 to Year 5) 1 youth and adult education classes (Phase I)	Number of Pupils	321
Shifts	Morning, afternoon and night (only for Young Adult Education - YEA)	Number of Staff	53

Table 4. Summary of the school structure.

According to Rebeca, the main challenge faced by the school administration is the lack of family involvement in the pupil's education, since they themselves often do not know how to follow the activities and how to properly encourage their children to study.

3.1.2.2 About the teacher

Teacher Lúcia began her teaching activities on the same day as the observation, as she had been called in temporarily to teach this class. The previous teacher, who had stayed with the pupils for one week, was moved to teach 4th year classes. The fact that Lúcia was a temporary teacher (expected to stay for a month) may explain her suspicious reaction to the researcher – initially, she was uninterested in allowing the observation –, and the weak ties observed amongst the pupils. She did not know how long she would stay with this group of children, and was not interested in staying with the class until the end of the school year.

Name	Lúcia	Age	66
How many years teaching	25 years	How long in this school	19 years
Occupation	Works two shifts at this school, both with the Primary 3 rd year	Education	Initial teacher training ¹ Graduated in Social studies (with an emphasis on teaching) ²

Table 5. Personal data of the teacher.

At the interview, the teacher stated that during her initial teaching training, she had received some guidance on how to develop didactic material, such as printed handouts, but she could remember neither the name of this particular subject nor any of its guidelines. She said that the periodic training that the Municipal Secretary of Education provides deals with the topic of multimedia in school, although she gave no further details regarding this item. She believes that she is careful in how she organises what she writes for the pupils, in her professional role (which is different from her behaviour outside the school, in her daily life). Teachers do this out of personal interest, not because the school requires it, since it does not regulate the visual aspect of the artefacts in the school.

She says that she uses many printed handouts, which pupils may paste into their notebooks – there are many pupils with literacy and reading problems in her classroom, so they experience some problems in copying the exercises and texts into their notebooks. In the other class of the same level (on the morning shift), Lúcia said she uses the study book more often. Besides the white board and the notebook, which are the artefacts she uses the most, she claimed to like using storybooks, movies, theatre plays, group work and projects on festivities.

With regard to visual organisation in the notebook, the teacher mentioned how it is important to mark paragraphs (with indentation) and to use grammatical

¹ This training is equivalent to a technical course, and used to be very commonly offered as an additional year course in secondary schools, mainly for women.

² In Brazil, some graduation courses may either be bachelor degrees or teaching-oriented degree, where besides studying the subject of the graduation itself, the undergraduate will also study pedagogy and teaching methods. This type of degree is usually required for people interested in becoming teachers.

punctuation signs. She believes it is necessary to have beautiful handwriting, which is why she revises each pupil's notebook individually, where she not only observes the content, but also its visual aspect. This experience led her to state that most of the pupils' difficulties are in the correct use of the upper case, the uses of the margins and the lines of the notebook. Lúcia stated that she had worked with the pupils for about three years on the notebook: what it is, its parts and how to use it. Nevertheless, pupils were free to organise the information, and change the 'model' that she provides. The teacher believes she is a model for the pupils' writing practices, together with their families and cartoons, and that they are strict with her on how she writes, and often complain when it is not well organised.

3.1.2.3 About the class

Classroom observation started in the second week of classes, still during a period of adaptation, thus, the constitution of the group had not yet been defined, as some pupils were changing schools and classrooms. While a total of 21 pupils had signed up for that class, only around 15 attended the observed classes.

The group was quite heterogeneous in terms of development in their reading skills. Some pupils were able to read and write and others only copied the letters and could not read – these are called copyist³ pupils.

A total of eight pupils participated in this research – one of them, Wilson, was moved to another classroom because he was diagnosed as having difficulties in reading and writing and he therefore joined a classroom composed of pupils with similar difficulties, in a project called '*Se liga*'⁴.

³ Educators Ferreiro and Teberosky (1985) differentiate 'writing as copy' from 'writing in itself' as they believe that to write letters on paper is different from using verbal language. 'In the same manner, we believe that the evolution of writing that we indicated does not depend on children's good or bad graphical ability, in their greater or lesser possibility of drawing letters like ours, but from what we call their level of conceptualization about writing, in other words, the set of hypothesis explored to comprehend this object. In forbidding them to write (this means exploring their hypothesis in the act of producing a text) and obliging them to copy (namely to repeat another person's tracing, without comprehending its structure) we prevent them from learning, in other words, of discovering things by themselves.' (*Op. Cit.*, p. 274-75, translated by the author).

⁴ The name of this project is equivalent to the English expression 'Turn on!'. This project, alongside another project called 'Accelerate', is one of the initiatives from a program to correct age distortions between pupils in primary school. The first is dedicated to illiterate pupils and the other serves pupils that have not developed the expected knowledge and skills during the five years of primary school. Both programs are a partnership between the Municipal Secretary of Education, Ayrton Senna Institute (an NGO working with educational issues) and the Federal Ministry of Culture.

Participants	Additional comment
1 André	
2 Carlos	
3 Dara	
4 Emanuel	He also studied in a private school in the same neighbourhood during the morning. His father works there as a doorman and he goes to this school in the afternoon so that he is assisted while he waits for his father to leave off work.
5 Igor	
6 Marcos	
7 Walter	
8 Wilson	Changed classrooms on the 6 th day of observation

Table 6. List of pupils participating in the research

The low adherence to the research was a common occurrence throughout the public schools visited, often because they generally have difficulties in establishing contact with the pupils' families. In private schools, the use of a pupil diary helps to create a channel between the family and school, as it centralises any announcements made in the school and allows parents to send messages to the teacher. In the municipal schools, teachers also commented that some of the parents were unable to read and, therefore with no immediate contact, it was impossible to explain about the research.

3.1.2.4 Classroom routine

In this school, classes for primary pupils start at 13.00 and last until 17.00, every working day of the week. Pupils have a 20-minute break at around 15.00, with a snack served in the courtyard. Hence, pupils may both eat and play. The break did not happen at the same time every day, and depended on whether the meal was ready to be served. This implies that classes did not have their break at the same time, as the kitchen staff could not serve all the pupils at the same time. This occurred in all the municipal schools observed.

This weekly schedule of the class had only one extra activity: playing sports and games in the sports court on Thursdays, from 16.00 to 17.00. This cannot be considered a proper physical education class, as there was no suitably trained teacher, nor a planned physical activity – it was more like recreation time. However, sports activities were supposed to start the following month ministered by teachers hired from a program called '*Segundo Tempo*'⁵. On a monthly basis, pupils had a multimedia class taught by a specialised teacher.

⁵ The name could be translated as 'Second half', in relation to the two halves of a football match. This program is a federal initiative from the Sports Ministry to promote access to sports for children and teenagers, as the municipal schools are not obliged to hire specialised physical education teachers to conduct sport and physical activities during the first years of primary education. Polyvalent teachers are in charge of promoting such activities, even though they are not trained to do so.

3.1.2.5 About the period

The observation research was due to take place between February 13 and 24, but there was no class on the 24th since it may have been closed or there were problems of access because of carnival, which was about to start the following day.

The beginning of the observation coincided with the first day of teacher Lúcia, which had an interesting consequence, since it enabled the researcher to observe the first exchanges between teacher and pupils. Since this was her first contact with the pupils, the teacher undertook some diagnostic exercises in order to understand the kind of skills and knowledge they had already developed. Besides these, she also introduced activities related to carnival, mask making and painting activities involving folklore icons connected to this celebration.

3.1.2.6 Detailing the activities

Considering that teacher Lúcia was only temporarily responsible for the class and that a routine had not yet been established – didactical material was only distributed on the third day, and some pupils were still changing classrooms –, this clearly did not depict an ordinary week of work. Nevertheless, routine in a school can be quite eventful and changes that disturb what would be considered a ‘normal’ routine very often occur. For example, at a later date in this class, there was an impact caused by the arrival of the permanent teacher. Similar events to this also took place in the other schools visited. To exclude these days from the observation calendar would signify neglecting time and effort dedicated by the children and teacher, as though troubled days were not also representative of the classroom routine. However, it should not be considered acceptable that in the first days of school children have no material, no defined teacher nor a classroom. Unfortunately, some of these problems are recurrent in public education, as will be detected throughout this work.

The observed days are summarised in this diagram, which includes timelines describing each of the ten days observed.

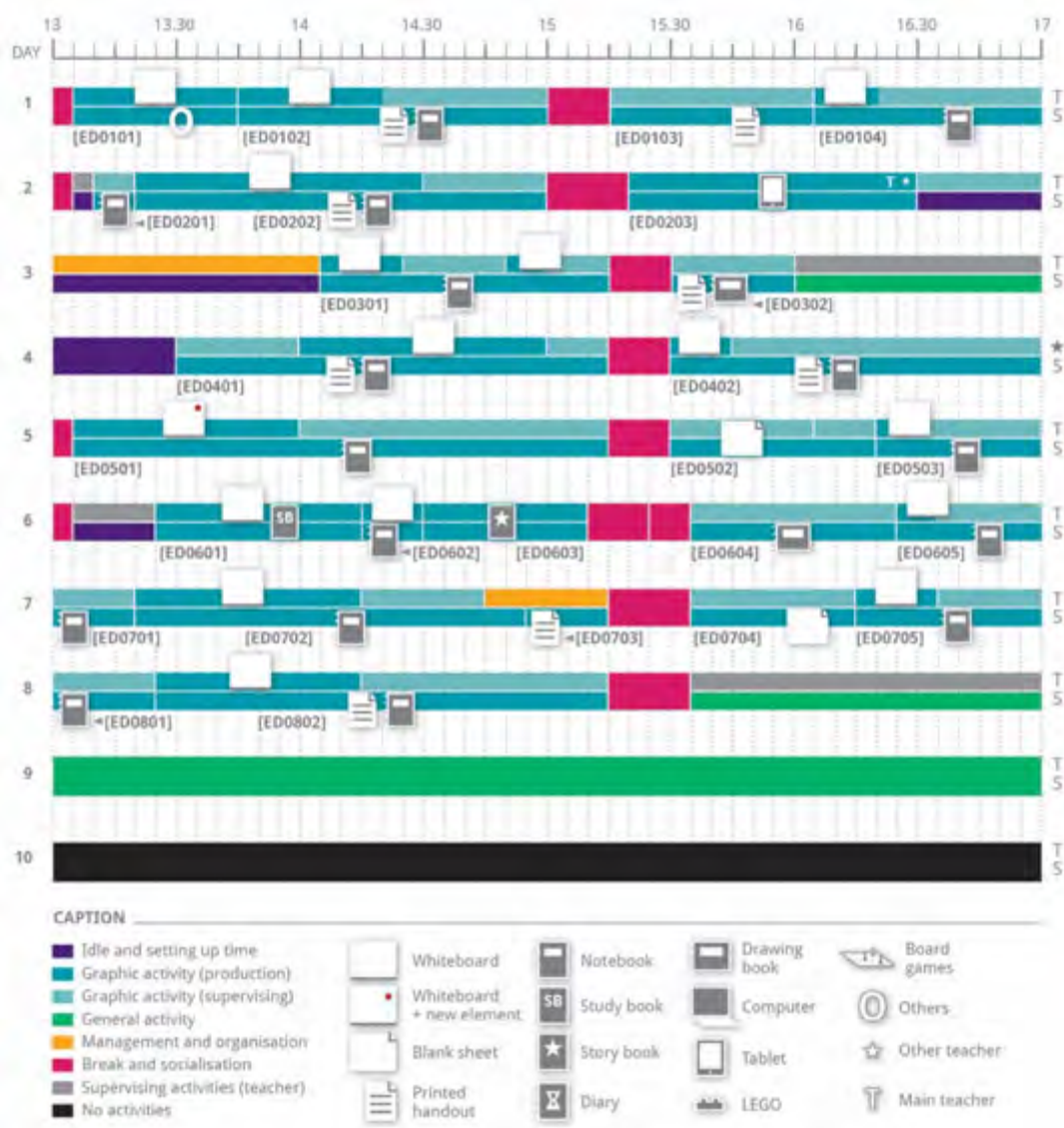


Figure 14. Timelines schematising the 10 days of observation.

We may observe that the 4-hour span was mostly filled with didactic activities that used graphic material as an aid, except the recreation time on Wednesdays and the celebration of carnival, which occurred on day 9 of observation. Breaktime may also be an educational moment in school, which may be more or less regulated and planned by teachers and supervisors, but this was not really the case for this school, as breaktime functioned more as a rest period from the ‘proper’ didactic activities that took place inside the classroom.

In total, we may identify over 26 situations in the diagram of engagement with graphic material, which usually lasted for a relatively long time, as there were pupils with many levels of literacy and writing skills. By the analysis of icons regarding the didactic objects used, it is possible to see that a study book was used just once, such as a storybook and tablets. The pupils used both drawing books and blank paper twice, and the most requested artefacts were the

notebook and printed handouts. The teacher, on the other hand, mostly used the whiteboard.

The reduced use of printed material and digital tools indicates that graphic mediation of information was made mostly through handwriting lessons and exercises created by the teacher. It is important to mention that the didactic material was only distributed to the pupils on the third day of observation, except the study books, because they were used mostly in the classroom. First, they were new to the teacher, as they had only just been handed out, and second, even if she had participated in choosing the study books, this does not mean that her first option of book would have been chosen⁶.

A red dot on the whiteboard on the 5th day represents the occasion when the teacher made a change to her graphic toolbox as requested by the researcher. In her case, she was asked to use asterisks as bullets in lists, which she consented to do. However, she did not remember to do so or feel comfortable in using it, so even on this one occasion, she did not make consistent use of the asterisk as a visual cue, and added it only as a cue in the first item of a list of exercises. This use and its impact on pupils will be further discussed in the next part of this thesis, the analysis of the selected material.

⁶ A federal program called PNLD (which in Portuguese means Study Book National Program) provides the study books in municipal and state schools. This program allows teachers and supervisors to choose which study books they prefer, which will remain in the school for three years – the pupils give them back in the end of each study year. In practice, we see that teachers complain that the study books provided are not the ones they have chosen, a reality that Simões (2005) had already detected 13 years ago and still remains unsolved. She also detected that some teachers, like Lúcia, think that the content of the books do not match the pupils' needs or are ahead of their skills and knowledge, which leads her to replace it with other materials, such as printed handouts and the notebook.

3.1.3 The Campina do Barreto Municipal School (CB)

3.1.3.1 The school

The Campina do Barreto School is located in a building that used to be a family home, which means that its installations are only partially adapted to the needs of a school. For example, primary pupils do not have a proper sports court for physical activities, nor a courtyard where they can play at breaktime. That said, the internal courtyard functions as a refectory and pupils have to spend their breaktime inside the classroom just after they have eaten their meals.

CAMPINA DO BARRETO MUNICIPAL SCHOOL		Type	Municipal
Location	Cajueiro	PAR	2
Levels offered	5 kindergarten classes (Group IV and Group V) 13 primary classes (From Year 1 to Year 5) 2 youth and adult education classes (YAE) (Phase I)	Number of Pupils	346
Shifts	Morning, Afternoon, Night (Only for YAE)	Number of Staff	40

Table 7. Summary of the school structure.

This school serves a number of poor communities in the neighbourhood. Its understanding of the learning process is shared with the other municipal schools visited, as it follows the Municipal Education Secretary guidelines to all schools and does not differ in any particular manner from those schools.

According to the principal, Valquíria, the main problems at the school are related to the low budget provided by the city council to maintain activities and to a few interpersonal issues amongst the staff that, as school manager, she tries to mediate. She says it is a challenge to invite families to take part in the school space and that difficulties, which pupils face at home – such as the lack of resources and sometimes even affection – have a direct impact in their school experience and may turn into problems involving indiscipline and/or apathy.

3.1.3.2 About the teacher

Teacher Fernanda was contacted in advance so that she could plan the visit to her class. She was participative from the very beginning, helping to build strategies for the parents to authorise the participation of their children in the research.

Name	Fernanda	Age	34
How many years teaching	7 years	How long in this school	5 years
Occupation	Morning: works in an administrative position in the Municipal Secretary of Education of Abreu e Lima, a city nearby Afternoon: teaches at this school	Education	Graduated in Education and in History (with emphasis on teaching) Specialisation course in History Teaching Specialisation course in Educational technologies

Table 8. Personal data of the teacher.

In the daily routine of the classroom, teacher Fernanda tries to contextualise the teaching methods she uses in order to approximate interests of pupils to the curriculum. To do this, she employs many materials, always trying to reach pupils and encouraging them to interact with the desired knowledge they are supposed to build. The artefacts include the notebook, but study books, storybooks and games were also used. She likes to use a digital projector, but the school projector is broken. She also commented that the pupils sometimes pressure her to promote copying activities, a practice understood by them as studying, so while she develops activities other than writing, she also succumbs to their demands and frequently tries to include using the notebook.

Throughout her formation, Fernanda mentioned she had learned that for the kindergarten she should use uppercase and not cursive letters and that for pupils until the 3rd year, letters (in printed and handwritten materials) should be slightly bigger. Apart from that, she says that her practice of using graphic materials inside the classroom has developed from observing colleagues and through her own practice, not from university. By interaction with pupils, listening and considering their requests, she has also learned what is expected from her. Another lesson from her graduation was the necessity of being a mediator for the children's visual expressions and not to impose her own views.

Fernanda stated that there was no outstanding influence to her graphic work except for the conventions from what she had experienced in school and university, conventions that are also used in her daily life, not only inside the school. She declared that she is always careful not to pollute her writing visually or with too much information that would confuse the pupils, and that she tries to keep letters quite big at this level.

The teacher periodically corrects what the pupils have written, and she takes into consideration their style and freedom in writing. In the notebooks, she considers that it is necessary to provide a heading that allows pupils to keep track of the chronological development of their work, as well as to identify what kind of exercise they are doing, so that the family may also follow their homework.

Fernanda sees her influence on the pupils as being very straightforward in the style of writing (she asks them to concentrate on the most important issues), in terms of graphical performance. Some of the pupils follow her lead and others are more autonomous. Other influences she mentioned were cartoons and TV shows, more than the style of relatives. Pupils also influence one another, such as when they use colouring pens to decorate their work.

3.1.3.3 About the class

Observation started on the Thursday immediately after carnival, so there were only a few pupils on these first two days. The class was relatively small, with only 16 pupils, and it is part of school culture that when there is any kind of adversity, parents do not bring their children to school. In general terms, teacher Marta⁷ says that this class has a very high level of frequency compared to other classes in the school.

Participants	Additional comment
1 Lídia	
2 Jéssica	
3 Malu	
4 Marcelo	Has literacy problems
5 Nara	
6 Teresa	
7 Wagner	Knows how to write but has difficulties in reading
8 Yan	

Table 9. List of pupils participating in the research

As with other municipal schools observed, there is a great heterogeneity in the literacy development amongst pupils, even those from the same class. This is not exclusive to this particular class, as discussed by Mendonça and Mendonça (2011) regarding Brazilian education. They associate this with misunderstandings regarding new and active methods to promote the literacy process, which have been widely used but without considering the instruments that teachers have needed to dominate, such as the traditional method of syllabication. As a result, some pupils do not reach the desired levels – and schools, pressured by state statistics in seeking better approval rates, do nothing. Consequently, the following year, when the class has more pupils and there is less possibility of close teacher supervision, the level of heterogeneity amongst the pupils becomes an even bigger problem.

Fernanda tries to face this issue by creating exclusive activities to meet the individual needs of some pupils, such as in the case of Marcelo and other pupils that have writing difficulties. However, as Marcelo's demands were different from the other pupils, his activities have not been considered for this research.

⁷ Marta is the supply teacher that replaces teacher Fernanda on Wednesdays, a day reserved for planning and teacher training. It is guaranteed by law that teachers have a third of their labour time dedicated to planning activities. Therefore, this is undertaken by leaving one day per week in which the teacher is not in the classroom and another teacher replaces her/him. Some teachers 'sell' half of their planning time, and have only two planning days per month, thereby also earning some extra money. It is compulsory for them to reserve one of the planning days (called activity classes) to participate in training activities that take place at a Municipal Education Centre.

3.1.3.4 Classroom routine

In this school, classes last 4 hours, starting at 13.30 and finishing at 17.30.

Breaktime is for distributing meals, which takes place at around 15.20. Physical education classes had not yet started during the observation period, but when the project *Segundo Tempo* started, these classes would occur during the other shift – in this case, during the morning. Weekly, pupil routines had two variations from the daily classroom life: on Tuesdays, for about half an hour, they attended recreation in the courtyard (which is also the refectory); and, on Wednesdays, their class was taken by teacher Marta.

Sometimes, Fernanda also took the children to the library, or there were activities with the teachers responsible for working with multimedia resources available at school. During the observation period, the class visited the library once and performed activities with tablets one other time in the classroom, with the support of a specific teacher. One other characteristic of this class is the time that Fernanda dedicates to the individual correction of pupils' notebooks at the beginning of every class. She feels that it is necessary to provide the pupils with detailed attention, which enables her to become familiar with their individual difficulties, thus acting as a stimulus for pupils to do their homework.

3.1.3.5 About the period

Observation took place between March 2 and 15 – from Thursday through to the second Wednesday. During this period, the first two days were poorly attended, as this also coincided with the fact that on the two Wednesdays the teachers' union had called two consecutive meetings, and consequently many at the school had no classes. This did not however affect the class under observation because that was the day reserved for teacher Marta, who is not on the permanent staff, so her contract does not allow her to attend such meetings. Nevertheless, even with the usual classes going on for the 3rd year, attendance was not normal, because some parents had not wanted to go to the school just to take some of their children and not others, or they had misunderstood the notification and thought that there would be no classes at all for the 3rd year.

Furthermore, although the school year had started on February 6, it was only on March 9 that the didactic material had been delivered, including the study books. This was certainly a problem for the work of teacher Fernanda, since it jeopardised her plans and delayed some activities.

3.1.3.6 Detailing the activities

Teacher Fernanda has established a kind of routine with her pupils. At the beginning of each class she starts by looking at their notebooks, and correcting their homework on an individual basis. After this, she conducts the planned activities for that day, and the class ends by defining the homework for pupils to bring in the following day.

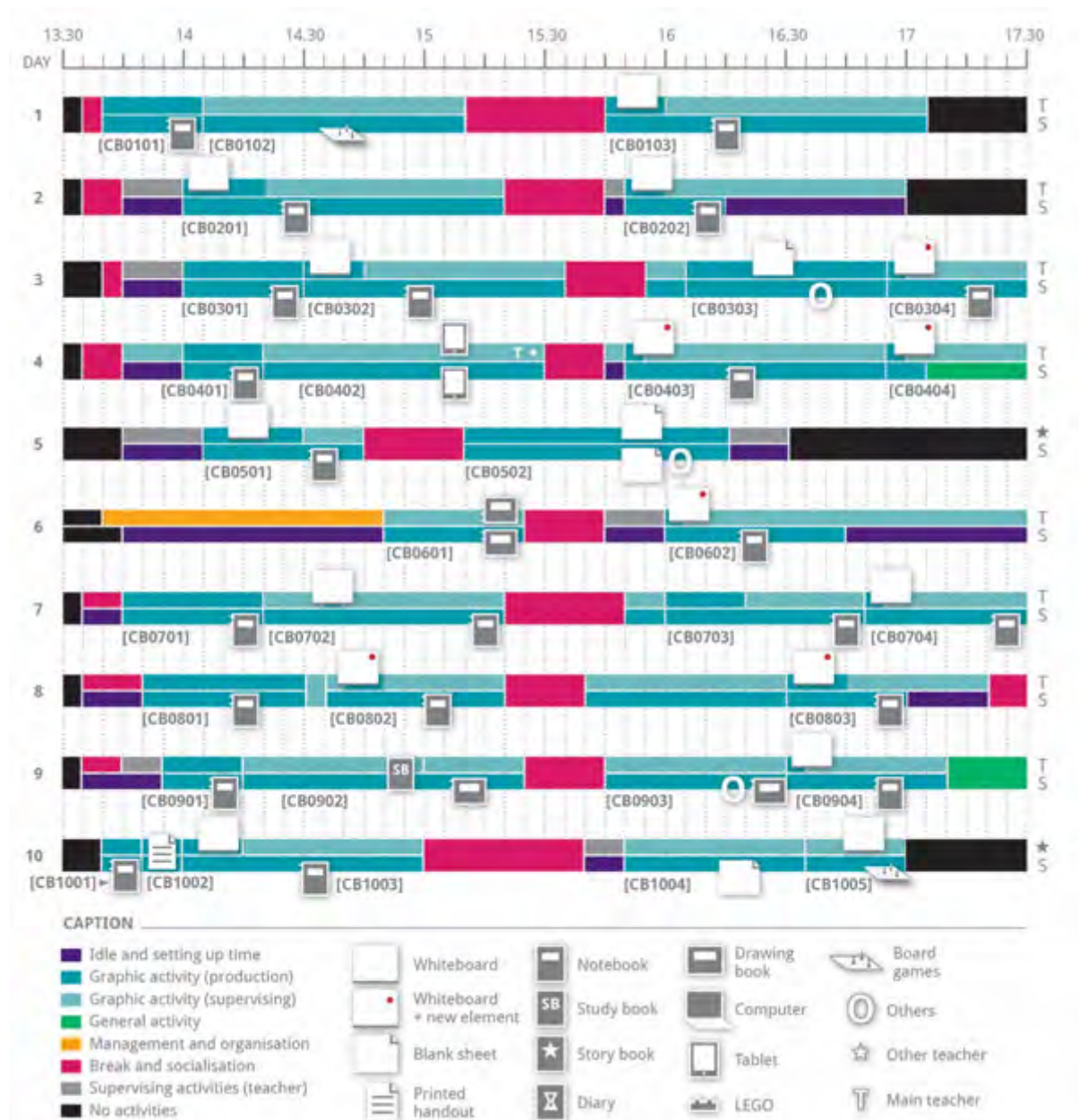


Figure 15. Timelines schematising the 10 days of observation.

We may observe that on frequent occasions, the class does not last the complete four hours: it always starts slightly late and it did not finish at the determined time on the days with poor attendance in school, due to the union meetings or just after the carnival holiday. We also notice that the time and duration of the

breaks were very flexible. Apart from that, the diagram is filled with blue denoting that the activities were mostly graphical.

Over ten days, 33 activities were registered and most of them were tasks in the notebook and on the white board, but it is possible to identify a wide variety of objects being used: tablets, drawing book, study book, board games, printed handouts, blank paper. In a broader sense, there was a diversity of media, and resources such as study books, could have been better explored if they had not been delivered only on the 6th day of observation. Comparatively, we did not observe printed handouts in this school as often as the previous school, as here there was a very restricted access to printing and photocopying.

Handwritten texts were also very important in the daily life of this class. In addition, much like the copying routine, personalised correction of exercises is one of the practices in which writing development is mediated by the teacher. This particular process was not closely followed, and in her interview, Fernanda commented that she also pays attention to organisation, but only in the sense for them to make their points clearly and not for her to check whether they have copied the same as hers.

When asked if she would change her way of numbering the questions (she always used a number followed by a parenthesis), Fernanda expressed a willingness to do so. In her practice, she alternates an ordinal number with a number followed by a dash – a composition that she already uses to list items that were not questions, so the pupils were familiar with this tool.

3.1.4 The Arco Íris School (AI)

3.1.4.1 The school

The Arco-Íris School (meaning ‘Rainbow’) was created by parents, many of them educators, who were seeking an education that conceived pupils playing an active role in their own education process. Ever since, there has been a diversification in the family profile they serve. At first, they brought together professors and others connected to the local Federal University in Recife, but afterwards started attracting other groups who were also seeking this educational approach. This was one of first schools in Recife to work with constructivism, back in the 1980s. The institution values inclusion and developing individuality.

ARCO-ÍRIS SCHOOL		Type	Private
Location	Várzea	PAR	4
Levels offered	8 kindergarten classes (Nursery and Groups I to III) 10 primary classes (From Year 1 to Year 5) 8 secondary classes (From Year 6 to Year 9)	Number of Pupils	370
Shifts	Morning and Afternoon	Number of Staff	90

Table 10. Summary of the school structure.

The school has a broad structure that includes a multimedia lab, computer lab, science lab, arts classroom, library, gymnasium, many playgrounds and a vegetable garden, amongst other spaces. As with the municipal schools, meals are served by the school with a balanced menu – but, unlike other schools, pupils are forbidden to bring sweets, biscuits and other sorts of snacks from home.

Normanda, the coordinator of the primary level, says that maintaining such a structure (both physical and staff wise) incurs high costs, and that it is difficult to harmonise between the interests and understanding of certain families regarding this matter, so classes generally have to be small⁸ in order to properly attend its pupils. She says that the school tries to mediate social relations between staff and families, since the institution requires their participation, inviting and expecting exchanges to be established. The coordinator considers that the biggest educational challenge is to respect the moment and specificities of each pupil, especially those who require a certain special attention due to learning issues.

⁸ As the school has good staff and provides support to pupils with special needs, sometimes there are more than one of these pupils in a classroom and the capacity of the school to take care of them reaches its limit. Therefore, they are not open to large numbers of pupils, which thereby leads to small groups of pupils in some cases.

3.1.4.2 About the teacher

Teacher Lucila has had a long career in teaching, and has worked in many private schools. She comments that she feels very comfortable at this school and receives a lot of support from her coordinator to undertake the projects that she develops.

Name	Lucila	Age	58 years old
How many years teaching	28 years	How long in this school	5 years
Occupation	Work in two shifts at this school, both with Primary 3 rd year	Education	Graduated in Education Specialisation course in Psychopedagogy

Table 11. Personal data of the teacher.

At university, Lucila studied how to produce didactic material, but not from a visual aspect, so she believes that her graphic practice has been developed through her own efforts and research during her professional life. Her style is the same at school and outside, and says the school does not restrict or request specific visual approaches.

In classroom routine, she explores different didactic resources, the most prominent being the study book, the notebook and the whiteboard. Besides these, she also explores group projects, music, creating posters and likes to use images for interpreting and drawing activities. Reading activities are also an integrated and scheduled part of the school routine, for which constructivism is the model for developing literacy. However, this does not discard the traditional methods for specific situations.

Aspects that Lucila consciously teaches to pupils to be aware of are: using the lines in a notebook as guides for writing (vertical and horizontal), the location of headings in exercises, paragraph markings, and leaving enough space to answer questions in the notebook. She understands that paragraph marking and the appropriate use of uppercase for nouns and at the beginning of a sentence is mandatory knowledge for pupils to move on to the next school year. Therefore, she is always aware and corrects pupils' productions individually, asking them to repeat the writing under her supervision. Nonetheless, pupils are free to configure information, as long as they do not alter the content. The main problems she observes are legibility of handwriting and a lack of separation between notes on different topics in the diary.

Lucila perceives her influence in pupils mainly in handwriting, in the way they write letters. She says that pupils take notice of the way she writes on the board: with continuous movements and with few interruptions in the writing. They say she 'doesn't take the pen from the whiteboard'. As she realises how they are attentive to her work, she tries to write the majority of activities on the whiteboard to develop their handwriting skills. After this period, in the second

semester, she says that she usually dictates activities. They also notice certain elements that she uses to highlight some of the texts, which they become interested in reproducing. She also notices that they receive influence from the other classmates.

3.1.4.3 About the class

The class was made up of 14 pupils, 11 of whom have been together for a long period. With the exception of Vanderlei and another pupil who did not participate in this research, all pupils were able to read and write – the two abovementioned pupils have special needs and are assisted permanently in the classroom by Eliana, a teaching assistant who dedicates her time mainly to Vanderlei, as the girl is more independent in her activities. These two pupils use different study books to the rest of class and to each other, more suited to their skills and knowledge.

	Participants	Additional comment
1	Benício	
2	Benjamin	
3	Ciro	
4	Danilo	
5	Diego	New in the school
6	Everaldo	
7	George	
8	Hélida	New in the school
9	Ítalo	
10	Laura	
11	Célia	
12	Vanderlei	Vanderlei is autistic and has studied in this class for many years
13	Vicente	

Table 12. List of pupils participating in the research

3.1.4.4 Classroom routine

The weekly routine for this class is very diversified, not only by disciplines ministered by other teachers – such as arts, dance, English and physical education – but also with scheduled activities promoted by teacher Lucila. These tasks are: selecting a book from the library for weekend reading to discuss on the following Monday; a day where they have a short time to play with toys that they bring from home; a moment, on Fridays, to play games kept in the classroom. In addition, they present a monthly project for other classes on the primary level, in a project called ‘Novelty Time’.

Class starts at 8.00 and ends at 12.10, with a long 45-minute break – during which children spend 15 minutes inside the classroom, where collective meals are served, and 30 minutes in the school parks and playgrounds, where they are free to play. In school, this breaktime is valued as a learning moment for pupils, for which a professional member of staff is on hand to mediate any conflicts.

3.1.4.5 About the period

Observation in this school took place between March 16 and 29, in other words, during the second month of classes. This was a request from the coordination team, since during the first month pupils are still adapting to school, especially the new ones. This period was not a month that involved preparations in school for any festivity, but first discussions between the teacher and pupils took place regarding a project for the literary fair that would be held during this period. The theme chosen by Lucila for that year was the work of a poet and writer called Roseana Murray.

3.1.4.6 Detailing the activities

With just a quick glance at this diagram, it is possible to observe less colours than the two previous diagrams (schools ED and CB) as well as a greater density of icons. This tells us that the activities did not vary very much in nature: there is a lot of blue, but also lot of pink from the breaktime and a lot of green from activities that did not involve graphic artefacts – dance classes, physical education classes and other activities such as playing with toys and discussions. We also see little purple, as in the other two diagrams, which denotes that free time is very restricted.

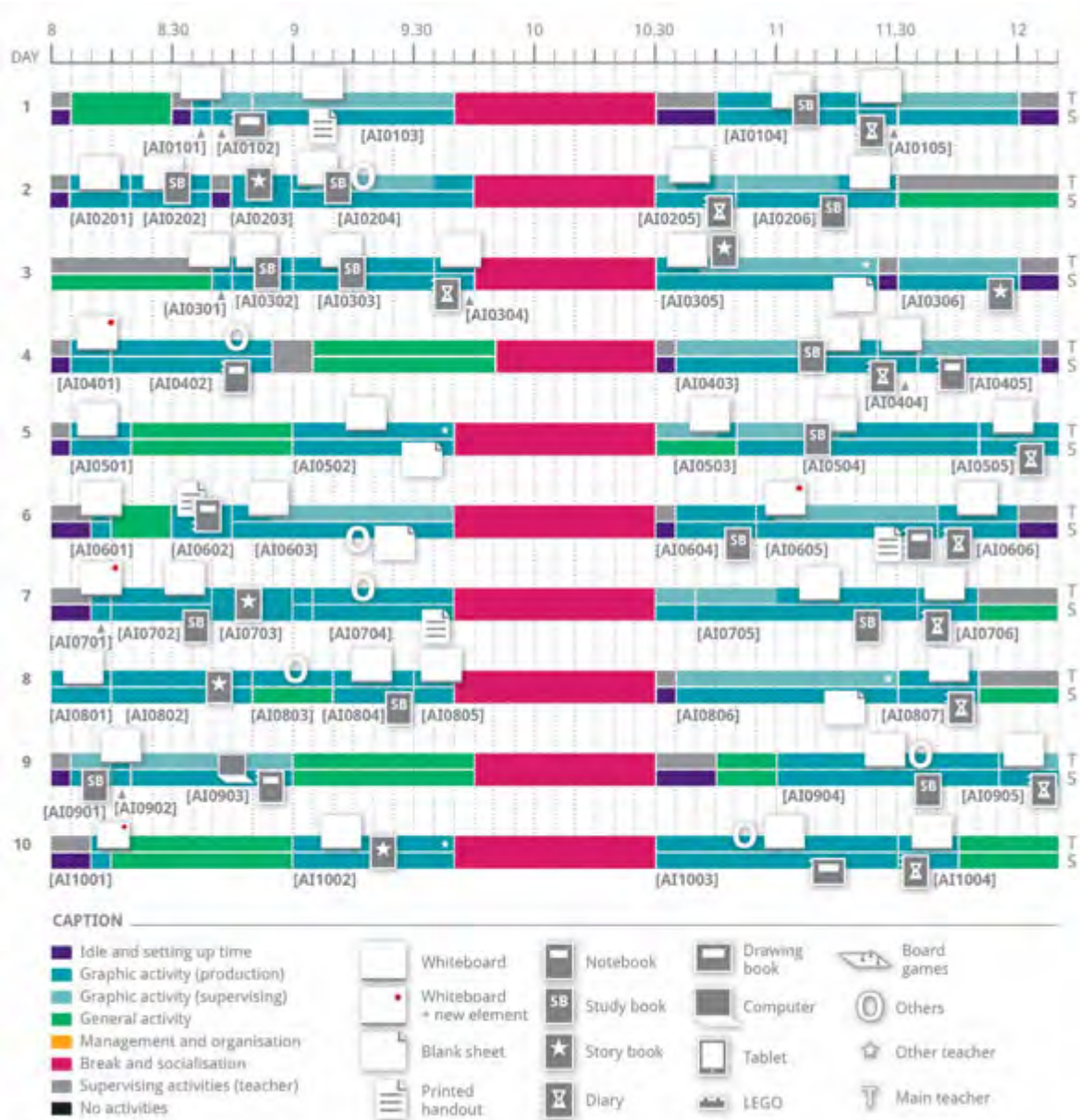


Figure 16. Timelines schematising the 10 days of observation.

The density of the icons is due to a great quantity of activities – 55 (while thus far, the highest number has been 33). In addition, a large variety of artefacts was used, so the notebook, the most used object in the previous two schools, was only used for the first time on the 4th day of observation. Amongst the artefacts, the diary is important since it appears daily, which was not observed in the municipal schools, since such an object is not part of the material that pupils receive. Study books also make part of the daily life in the classroom.

Another activity, which is repeated daily, is writing a guide listing all the planned activities for that day. There is even a separate part of the white board dedicated just for these guides. Given that lists are created in a number of situations, one of the tools that was requested by Lucila to add to her toolbox

was a different visual cue for the elements of a list – and she decided to use small hearts and tick marks. It was agreed that she would create a different way of highlighting a title in text creation.

The recurrence of the icon in the shape of an ‘O’ demonstrates that unusual tools (compared to the more common ones in other schools) have been explored. Amongst them, we notice the use of graphic material appears other than the shiny white board: the teacher used printed posters that she collects from different didactic material, handmade posters in colourful paper (to attract their attention, and used to interact with what was on the whiteboard) and printed pictures, such as photographs of school for a specific project.

Classes also explored digital tools in a different way to that witnessed thus far. While in other schools there were only tablets, in this school the pupils conducted research in a computer lab, Lucila presented a slideshow about geometric solids, and she also used a digital camera to photograph them for a future project. It is still a punctual use of technology, but, in this case, more integrated to educative projects and purposes.

3.1.5 The Santa Rita de Cássia Institute (RC)

3.1.5.1 The school

The Santa Rita de Cássia Institute⁹ is a private school that has been in operation for more than 40 years in a neighbourhood in the southern region of Recife called Ibura. It is a family business, managed by two siblings following in their parents' footsteps, the school founders. There are other professionals working in the school who are also their relatives or have a personal relationship.

SANTA RITA DE CÁSSIA INSTITUTE		Type	Private
Location	Ibura	PAR	6
Levels offered	8 kindergarten classes (Nursery and Groups I to III) 10 primary classes (Year 1 to Year 5) 8 secondary classes (Year 6 to Year 9)	Number of Pupils	Not informed
Shifts	Morning and Afternoon	Number of Staff	29

Table 13. Summary of school structure.

The school has two units, one for secondary pupils in another building nearby, and one for younger children, also used by older pupils as it has a gymnasium where they attend physical education classes and practice sports. Apart from the large gym, the classroom area is quite small and pupils have only their classroom and a small courtyard in which to circulate. Therefore, all classes, ministered by the main teacher or by other teachers, take place in the classroom.

According to the school's Political-Pedagogical Project, education is conceived as an active process that relies on the engagement of pupils, who are human beings that think critically. The director of the school, Rosália, commented that the school tries to strengthen the relationship with the pupils' families, and that, generally she is able to count on them for projects developed within the school – except when it involves financial resources. Pupils live in Ibura or in nearby neighbourhoods, which are working class communities.

Finance is, according to the director, one of the main issues at the school and it is sometimes hard to balance the interests of the families with the structural needs of the school. This problem also affects collaboration with part of the staff. Learning, Rosália says, needs involvement from families, and some are not willing to participate in their children's education, leaving all the responsibility to the school.

⁹ Named after the Catholic icon Saint Rita of Cascia.

3.1.5.2 About the period

Observation was carried out in the two 3rd year groups of the SRC Institute, those from the morning and the afternoon, from March 30 to April 12. This last day of observation was just before the Easter holiday, so it was the theme of activities witnessed, such as preparations and rehearsals for a presentation scheduled to take place on the night of April 12.

Following the routine of both classes meant that the researcher needed to stay at the school for both shifts, participating in the staff routine during their breaktime, which resulted in a more immersive experience of the schools' reality.

3.1.5.3 Classroom routines

The routine of the observed groups was very similar, as they followed the same curriculum and teachers planned the classes together. The main teachers minister subjects such as maths, Portuguese, history, science, geography and they conducted a project on time and career managing with the help of specific didactic material¹⁰. Subjects taught by other teachers are physical education, arts and English. These last two subjects are the responsibility of a teacher who did not allow the researcher to observe her classes¹¹.

Classes in the morning shift start at 07.10 until 11.10, with a break at around 08.40 – lasting until 09.10. In the afternoon shift, classes last for the same four-hour period (from 13.10 pm to 17.10 pm), also with a 30-minute break (around 14.40 pm). It is also part of the routine for pupils, at the beginning of every shift, to go to the gymnasium, where they pray¹² and, sometimes sing songs or celebrate a birthday.

3.1.5.4 About the teacher (Morning)

Rosália introduced both the morning and afternoon teachers as new to the 3rd year, with very diverse profiles. While teacher Paula has been working for many years with pupils from the last two years of primary school – years 4 and 5 –, teacher Amanda has thus far only worked with the kindergarten classes, specifically Group I, where pupils are 3 years old. Due to modifications in the school's staff, both teachers were moved onto this level, a challenge for both professionals.

¹⁰ The book the pupils use is based in a self-help book called 'The 7 Habits of Highly Effective People', by Stephen Covey. Along with the didactic material, teachers were trained on how to work with the material.

¹¹ Rosália, the director, commented that the English and arts teacher has been facing a long period of depression and that she is struggling to overcome it, and this has caused certain problems at school, some even involving pupils.

¹² The school's name is a clue to its Catholic orientation, but it welcomes pupils from other religious backgrounds too – but some of them are not allowed to participate in some of the school celebrations by their families if they are of a religious nature, such as Easter celebrations which were being prepared while the researcher was present.

Name	Paula	Age	40 years
How many years teaching	21 years	How long in this school	20 years
Occupation	Works as a teacher on the morning shift At night, she is an undergraduate law student	Education	Initial teaching training Graduated in Education

Table 14. Personal data of the teacher.

Although she is young, teacher Paula is very experienced, and even before starting her 21 years of formally working in the field she worked informally in education. Her motivation to begin another graduation course comes from her interest in the field of law that may possibly provide her with better career opportunities and even a position in the civil service.

She does not consider herself very talented in manual work because she is left-handed, which was an issue during her basic education. During the initial teaching training, she had to face this limitation, because some of the class subjects required her to make didactic material. There was little discussion regarding the form of those materials. For instance, when producing posters, how the alphabet should be used carefully according to the literacy level of pupils and how they should be hung giving consideration to the pupils' sightlines. However, she did state that looking into this matter with more depth and qualification was ultimately up to the teacher.

Paula stated that her style of writing is the same both in her private and professional life and that her professional practice has turned her into someone whose handwriting is appreciated in the new course she is studying. Paula commented that her work has been, for many years, with older and more autonomous pupils than the 3rd years – and she says there is a demand for teachers in first schooling years to be skilled in manual activities.

Teachers Paula and Amanda coordinate their activities, and plan activities together for the whole week. This they do at the weekend just before they alternate being in charge each week. Paula likes to work with printed handouts, individual and group projects, games, debates and activities in the study book. These, along with the notebook and some printed material, are the main artefacts, but sometimes she uses others, which may even include digital devices, such as her mobile phone (digital devices are not available in the school).

The school has adopted a calligraphy book, but she does not fully agree with pushing the pupils to develop manual skills because she does not consider it a core part of what they should be doing at school. She says that they are free to search for their own identities in what they do – but they also have to show a minimum amount of organisation and comprehensibility in what they are

doing, because it has to be legible for her and for the families to follow what is being done.

She verifies pupils' work individually and considers that one of the problems in their organisation is the use of space, as sometimes pupils crowd the information into a small area. These difficulties can be overcome with her intervention, as the pupils become more mature. Therefore, she says she is able to notice her influence in the pupils' writing along with other influences such as with electronic games.

3.1.5.5 About the class (Morning)

The classroom had 21 pupils and, amongst them, there was an autistic pupil who does not attend classes very often. Except for this pupil, all the pupils are able to read and write. Only nine pupils were authorised by their families to participate in the research, as the consent forms were rushed out to families only a few days before the start of observation, with little opportunity to explain how the investigation would be conducted at the school.

Participants	Additional comment
1 Erika	
2 Germana	
3 Isaac	Son of the owner and director of the school, Rosália
4 Marina	
5 Melissa	
6 Rosa	A new pupil and has some literacy problems
7 Taís	
8 Tales	
9 Ynara	

Table 15. List of pupils participating in the research

3.1.5.6 Detailing the activities (Morning)

On a daily basis, at the beginning of every class, teacher Paula takes pupils for a community moment in the school gymnasium and, at the end of the day, finishes activities by registering in the diary the exercises that the pupils are supposed to do at home. During the observed period, there were some exceptional occasions of rehearsing for the Easter presentation, which made it different in relation to other times of the year.

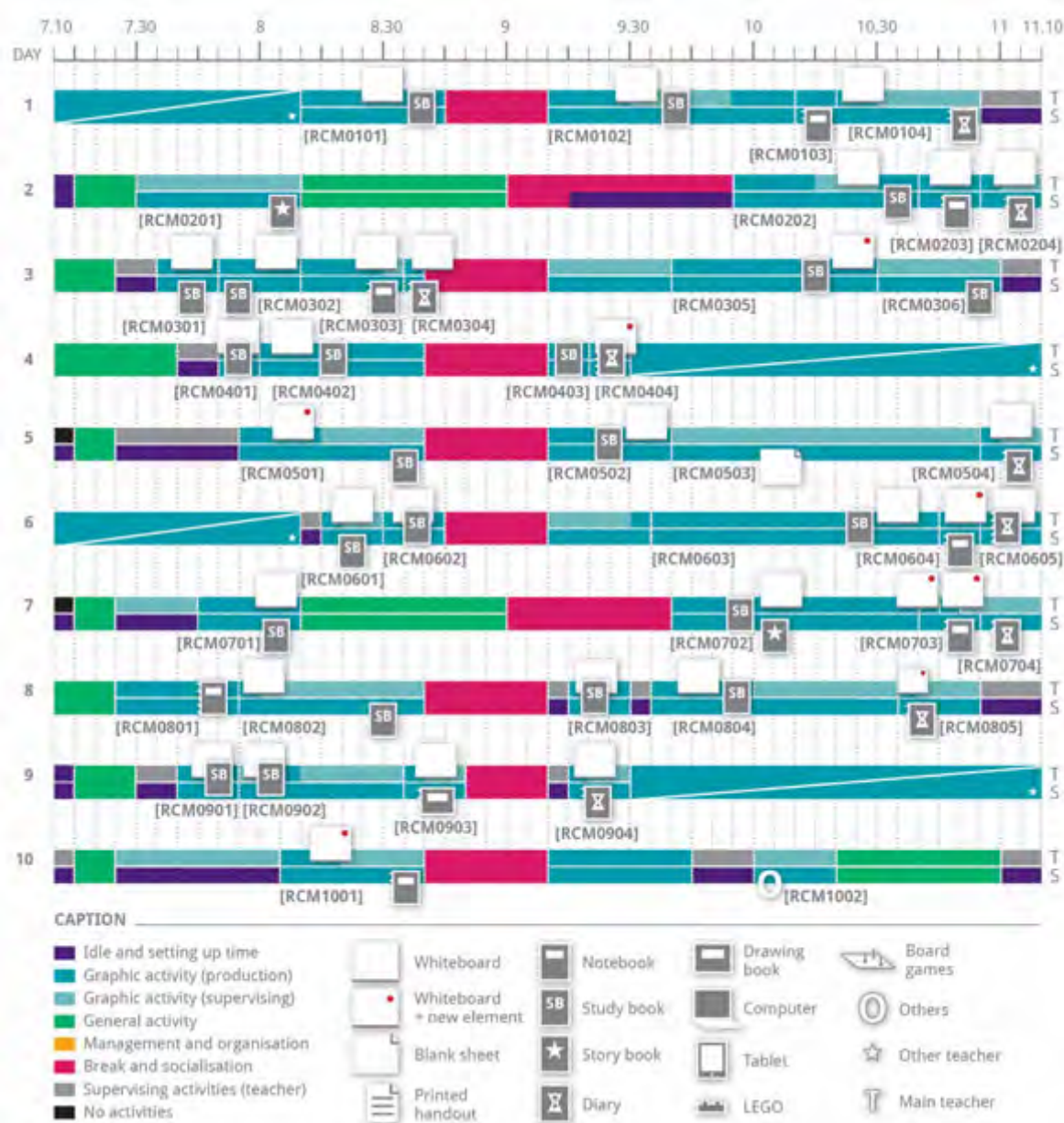


Figure 17. Timelines schematising the 10 days of observation.

There were 42 graphic activities registered and the resources employed by teacher Paula were among the most used in the observed schools: study books, notebook, drawing book, diary, storybook, whiteboard and, occasionally, other different resources. In the observed period, pupils did not use digital tools, even if they were part of their life, as some of them even possess mobile phones.

Amongst these, the 15 selected activities for analysis were completed in the notebook and in the diary, as many activities were handwritten. We did not see printed exercises created or reproduced by the teacher, and the main printed material was the study book, which was the most used didactic artefact.

It is important to record that she and other teachers from private schools complain about the pressure of having to use the entire study book. Since it is an expensive item and a kind of a guarantee that they have studied the

expected content, parents and, consequently, schools, demand that the teacher use the entire book. Teachers, on the other hand, sometimes do not agree with the approach used by the study book and would like to work on the subject through other strategies. Moreover, there are also time restrictions, as there are many other activities to get done inside the classroom.

It was agreed with teacher Paula that she could add to her graphic practice with a different way of highlighting titles in any text that she writes: the suggestion was that she should use a wavy coloured frame, different from the coloured underline she always used in her practice. It may be observed through the red dots in the diagram that she has employed this new tool in many situations.

3.1.5.7 About the teacher (Afternoon)

Teacher Amanda had never worked with the primary pupils before: her 10 years of teaching (if we consider 3 years as an intern) were always in the kindergarten.

Name	Amanda	Age	30 years
How many years teaching	7 years	How long in this school	7 years
Occupation	Works only in this school: mornings in the kindergarten and afternoon in the 3 rd year	Education	Graduated in Education

Table 16. Personal data of the teacher.

She claims that during graduation, in some seminars, students tried to work with visual language through their own initiative, without formal orientation on the theme. She notices that she has been influenced by some of her teachers from school, especially the one with whom she learned to read and write. She stated that in her family there are many teachers. Examples of guidelines for creating graphic language, in her point of view, are paying attention to legible handwriting and its organisation, and being aware of the printed margins in the notebook.

Amanda says that there is a difference in her writing between her public life and her professional activity, as she tries to be more careful about what she does in class. The main activities she develops with pupils are group projects, debates, expository classes, and she explores different materials in order to help pupils make some concepts concrete, such as math blocks. The main didactic resources she employs are the study book, the notebook, the whiteboard, posters and so on.

Regarding writing assignments, the teacher tries to watch the development of cursive writing, punctuation, the use of margins, and how pupils space information. The process of correcting the notebooks is carried out on an individual basis and encompasses evaluation for the 'attitudinal' part of it,

while the other, the conceptual evaluation, is measured through tests. In the written texts, Amanda says the main problems observed are in spelling and text composition, and the biggest visual difficulties are in producing legible handwriting.

Teacher Amanda says that she can see her influence on pupils in many aspects of their life, even in kindergarten. In terms of writing, she says that they try to copy the teacher's arrangement of a text, forcing line breaks when there is space for them to organise the writing in a different way. She also notices that children influence one another a lot, sometimes developing a small culture amongst themselves with practices in a specific group of pupils. One example she gave of this is that some girls replace the 'X' sign she uses to inform that a line should be skipped, with a small heart. By imitating one another, the trend has spread through a small group of pupils.

3.1.5.8 About the class (Afternoon)

The classroom had 18 pupils who were very active and curious – many of them showing a lot of interest in the research, in the materials used, even if they were not participating. All pupils were able to read and write and only 9 pupils were allowed to take part in the research.

Participants	Additional comment
1 Aline	
2 Alessandra	
3 Edson	New to the classroom, as previously, he used to be in the morning group
4 Letícia	
5 Lia	
6 Manuela	
7 Saulo	
8 Téó	
9 Yvone	

Table 17. List of pupils participating in the research

3.1.5.9 Detailing the activities (Afternoon)

Besides planning classes with Paula, teacher Amanda had her own way of dealing with activities and engaging differently in the school, which has led to a different diagram than the one for the Morning classroom. Amanda is deeply involved in school events, so, on some occasions in the observed period, she took pupils to the rehearsals for the Easter celebration. Teacher Rute, who works with the 4th and 5th years, twice replaced her: once on day 7, when she left early due to a scheduled trip, and again on the last day, when she was helping to make costumes for the presentation.

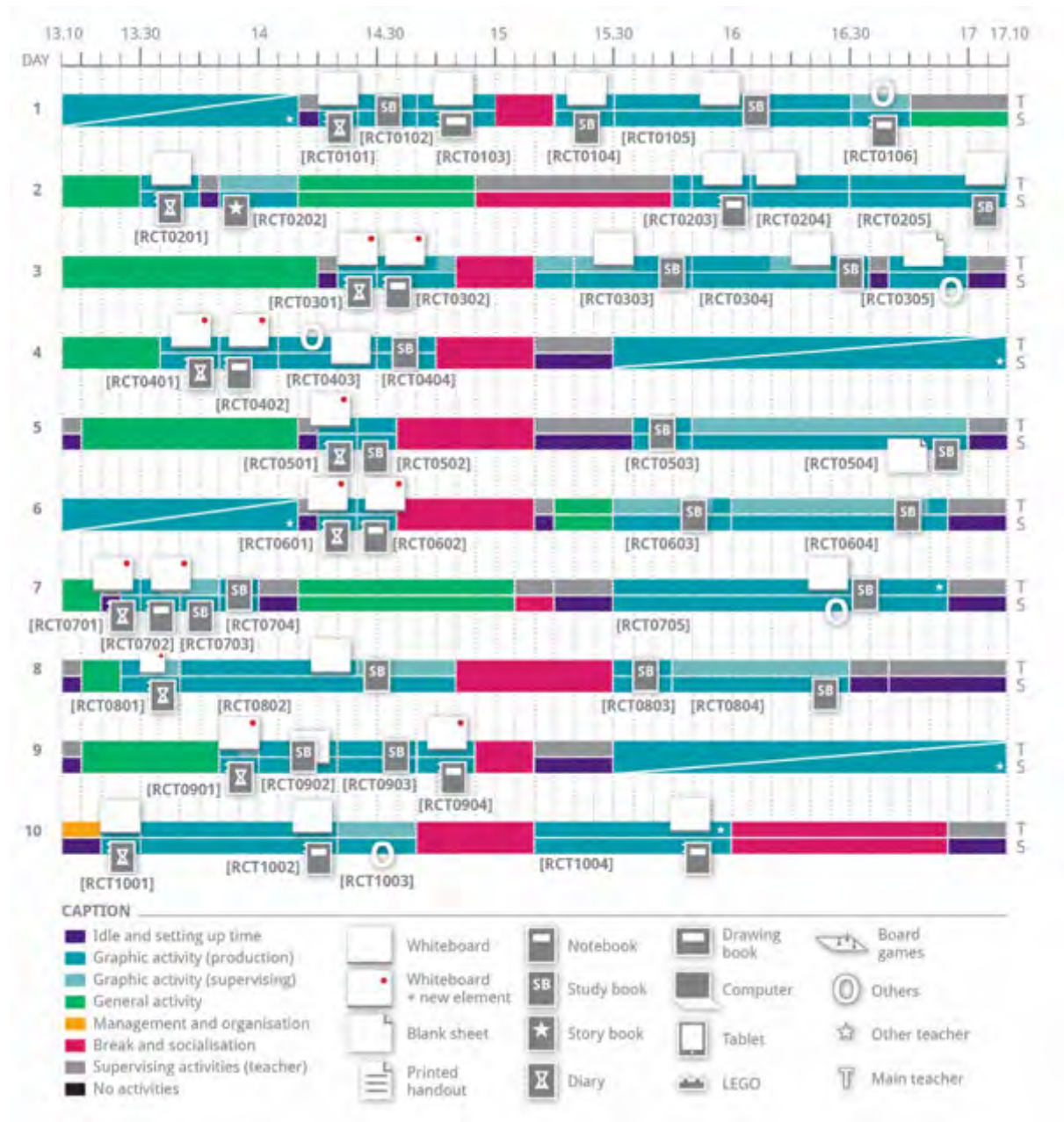


Figure 18. Timelines schematising the 10 days of observation.

The meetings at the beginning of every class were longer due to the Easter celebration and maybe because the staff – which is mostly the same for both shifts – was a bit more tired and there were problems to be discussed and solved during this time. Teacher Amanda's first activity in the classroom, therefore, was to write the diary and the homework to be copied in the notebook, if there was any. Only after this routine would she start the planned class activities of the day.

There were 45 registered activities and the resources teacher Amanda used were basically the same as Patricia: study books, whiteboard, diary and notebook being the most frequently used, and others such as drawing book, blank paper and story books. What differentiates the teachers that share similar structures is that teacher Amanda tried slightly harder to use different artefacts and that she made different uses of the same artefacts, for instance, when she invited pupils to write on the whiteboard during a game. The selected 16 activities were, as in the morning classes, mainly texts written in the diary and the notebook.

Amanda's style in writing was very succinct and clean: she writes just the essential, with few visual cues or decoration, and with very large handwriting. For example, usually, she does not write the entire header, only the date, but expects the pupils to be autonomous and write more information in their notebooks: the type of the activity and the name of the city. Consequently, it was agreed for her to separate and highlight the date, framing it with a box.

3.1.6 The Lubienska Educational Centre (LB)

3.1.6.1 The school

The Lubienska Educational Centre is a school that has developed from the Helena Lubienska Institute, one of the first institutions in the city to study and practice principles of constructivism, in the 1980s, while before they had followed principles from the work of the Italian educator Maria Montessori. In other words, education in this school has always been based in the principles of autonomy and respecting the differences and individuality of pupils. Nowadays, the school considers itself as being guided by the principles of interactionist socio-constructivism – the belief that knowledge is built and systematised from the knowledge that the pupils take to school, which are structured in the relations with the community and through mediation with those more experienced, in this case, the teachers.

LUBIENSKA EDUCATIONAL CENTRE		Type	Private
Location	Torre	PAR	4
Levels offered	5 kindergarten classes (Nursery and Groups I to III) 5 primary classes (Year 1 to Year 5) 4 secondary classes (Year 6 to Year 9) 3 high school classes (Year 1 to Year 3) 6 special education classes	Number of Pupils	450 pupils
Shifts	Morning Afternoon (Special Education)	Number of Staff	Not informed

Table 18. Summary of the school structure.

According to the coordinator Suely, the school community is formed by pupils whose parents are self-employed professionals and university professors or teachers - people who are willing to invest highly in good quality education.

The school has adopted a bilingual approach, although not all subjects are taught in English, but there is a bigger workload for this subject than in most other schools. Moreover, in the English classes, teachers actually use the English language, which is also different from what occurs in many other schools. The signs in the school are also bilingual.

The school is very big and has a covered, open courtyard, playgrounds, a gymnasium and a sports court, a dance classroom, a multimedia classroom dedicated to robotics, and a library, amongst other spaces. Classrooms are equipped with air-conditioning and a digital projector, which is used almost every day to exhibit the digital version of the didactic material being used, with the aid of a tablet.

For three years, the school has adopted books from the publisher UNO, which is not a teaching system. All the study books¹³ adopted, however, are from that

¹³ Broadly speaking, private schools select study books from a variety of publishers, and parents are required to buy them in bookstores. These books are selected according to the adequacy of their approach in relation to the school' and teaching

same editor, which also provides other resources. This change was progressively discussed within the school community, and the parents who did not agree with this idea removed their children from the school. Suely said that the main difficulties, besides the continuous search for achieving a financial balance in the school, is, in terms of staff, making sure that teachers are always up-to-date through continuous training and formation, although many of them do not have enough time to do so.

3.1.6.2 About the teacher

Teacher Cecília has a vast experience in education and at this school, where she has worked ever since her graduation. She has worked for many years with the first year of the primary school, in charge of teaching how to read and write. She then spent many years teaching the last years of the primary school and has been teaching the third year for two years.

Name	Cecília	Age	59 years
How many years teaching	34 years	How long in this school	34 years
Occupation	Works at the school in the morning In the afternoon, she is a freelance private teacher	Education	Initial teaching training Graduated in History (bachelor degree plus emphasis on teaching)

Table 19. Personal data of the teacher.

Teacher Cecília states that her own education was very straight, as she attended an all-girls Catholic school during the military dictatorship in Brazil – a very strict, rigid period of the country’s history. All the practices at her school were very controlled, including writing, and there was a huge demand to follow rules, such as using upper case at the beginning of nouns, the need to keep writing tidy and organised by writing on the lines, and creating drawings on the pages that separated sections inside the notebook. She mentions that there was an element of control in all subjects during her teacher training, including one called ‘Social study didactics’, which guided the production of teaching resources and included visual guidelines – such as the need for clear, organised handwriting, since most of the material used in a classroom was handmade by the teachers. This experience marked her beginnings in a negative manner, since she created a tense relationship with writing, which only turned into something more mature later on in her personal and professional life.

One important influence on her teaching practice has been her studies in anthroposophy¹⁴ that took place in the school more than a decade ago. With

practices, therefore, it is natural that they come from different suppliers. When a school chooses to follow a ‘teaching system’, it signifies that they adopt a package of products created by this publishing house and the kits may only include study books, but others are more ‘complete’, including other materials and even teaching guidelines, such as tests, teaching initiatives and support etc. It is like ‘franchising’ education in some cases, thus some parents often reject this more standardised option.

¹⁴ Anthroposophy was created by Rudolf Steiner and is a philosophy that mixes science and spiritualism aiming at inner development to reach a spiritual world. The Waldorf education, which is based on these principles, is focused on the emotional, spiritual and cognitive development of children through active methods.

this, she worked with methods whereby pupils explored and learned to relate to materials such as pottery and crayons in order to express themselves.. As a result, teacher Cecília values an expressive, less controlled form of working, but also admits that her practice has a touch of the formality from her own education, which she has tried to tame.

The school maintains certain standards for the artworks, which are developed, and controls their exhibition. Thus, Teacher Cecília, being in charge of art education, has to intervene so that the works are relatively in line with the original purpose. Because of this, she sometimes has to ask them to repeat the work – and provided an example of one exercise in which pupils were asked to draw their mothers, and those who had drawn very small pictures were asked to draw them again. On other occasions, she had to make them use complex techniques, but often pupils would complicate things and ruin the artwork. In the graphic practices of everyday life, she says the teachers have more freedom, but the coordinator supervises tests and printed handouts so that they follow the school standards. There are no clear guidelines tied to these standards, so it is up to the coordinator Suely to approve them, providing teachers with feedback on what to do and how to improve it.

The everyday classroom dynamics are the collective correction of exercises, some reading, exposing new content and group work. The teacher says she likes to explore the development of pupil drawings in all the subjects. For her, in the 3rd year, there are still some skills and knowledge regarding literacy development that need to evolve, such as movements in handwriting and consolidating the phonemes.

The main resources she uses are the study book, the notebook and the drawing book – in which she complements the subjects of the study books for geography and history regarding local specificities. The whiteboard is part of her routine too, but she says that she uses the digital projector a lot to ‘mirror’ the content presented in the study book.

Teacher Cecília says that she is constantly attentive to the way pupils write, checking for mistakes and misspelling, also looking for legibility and the use of the guidelines in the notebook (which work as a kind of organisational guarantee). In the third year, demands on writing are progressive: pupils must demonstrate that they are able to link the norms when composing a text, such as the use of uppercase, paragraphs and punctuation. The teacher is in charge of the everyday teaching of these rules through correcting and asking pupils to write them again, so that they become aware of their mistakes and do it correctly the second time. Therefore, the work of teacher Cecília is not about sitting behind a desk in front of the pupils dictating what they should do, but in circulating around their desks to check what they are doing and immediately alerting them of what could be better. These problems are usually connected to illegible handwriting, a disorganised use of space, and sometimes the wrong

choice of lettering: uppercase when it should be cursive letters and not using uppercase when appropriate.

Apart from the guidelines, Cecília says that pupils are free to organise the information, according to their interests. She notices her influence over the pupils, but is always apprehensive about not restricting their style, especially in their drawings. Regarding writing, she says that she notices her influence in the shapes and proportion of letters.

3.1.6.3 About the class

The class is composed of 19 pupils, almost all of whom participated in the research – except for one who failed to give the consent form to the parents and another who has cerebral palsy.

The pupils with special needs were the only ones that were unable to read and write, and professionals hired by their families, privately, assist them both. In the case of Paulo, who attends school weekly, the assistant Carolina researches, organises and develops the activities he has to do in many notebooks – she pastes activities in the notebooks or brings printed handouts, which are collected in folders –, with the aid of teacher Cecília. Carolina is a teacher too, graduated in education and completing a specialisation course in inclusive education. Thus, the routine of Paulo differs from the other pupils, as his activities are tailored to his needs.

Participants	Additional comment
1 Alice	
2 Celso	
3 Dário	
4 Gisele	
5 Iago	
6 José	
7 Jonas	
8 Joana	
9 Juliane	
10 Lídia	
11 Levi	
12 Maitê	
13 Milena	
14 Mateus	
15 Paulo	He has Down Syndrome and cannot yet read
16 Renan	
17 Vinícius	

Table 20. List of pupils participating in the research.

3.1.6.4 Classroom routine

Pupils stay at school from 07.20 until 12.00, signifying that these 4 hours and 40 minutes are expressively more than in the other schools. Their breaktime is also longer, 40 minutes, but there is a bigger workload to accommodate the great variety of activities planned on the pupils' curriculum.

Besides the disciplines normally ministered by the main schoolteacher, Cecília also teaches arts, usually integrated to other subjects. They read a lot in their everyday activities, and, on Fridays, they are allowed to read books they find more fun as well as comics. During the week, pupils have other subjects with specific teachers such as: music, dance, physical education, English, and every 15 days, robotics classes.

3.1.6.5 About the period

Observation began on a Tuesday just after a holiday, between May 2 and May 13. Therefore, activities related to Mother's Day were included, as this celebration commonly receives attention in schools. During the observation period, we witnessed activities in which pupils created objects for their mothers: they decorated a fabric mobile phone case with a drawing; they created a card containing a drawing and a small text, and they also made a book mark with a text in English. For an exhibition in the school, the pupils produced drawings of their mothers based on the Da Vinci painting *Mona Lisa*.

3.1.6.6 Detailing the activities

Because classes at this school last longer, consequently, more activities were undertaken, resulting in 71 graphic activities, which included many exercises and homework correction in the study books, drawings, the everyday creation of activity guides and notations in the diary. Apart from the usual activities, there were also many drawing tasks on a variety of surfaces (such as the objects created as a gift for their mothers), games and readings.

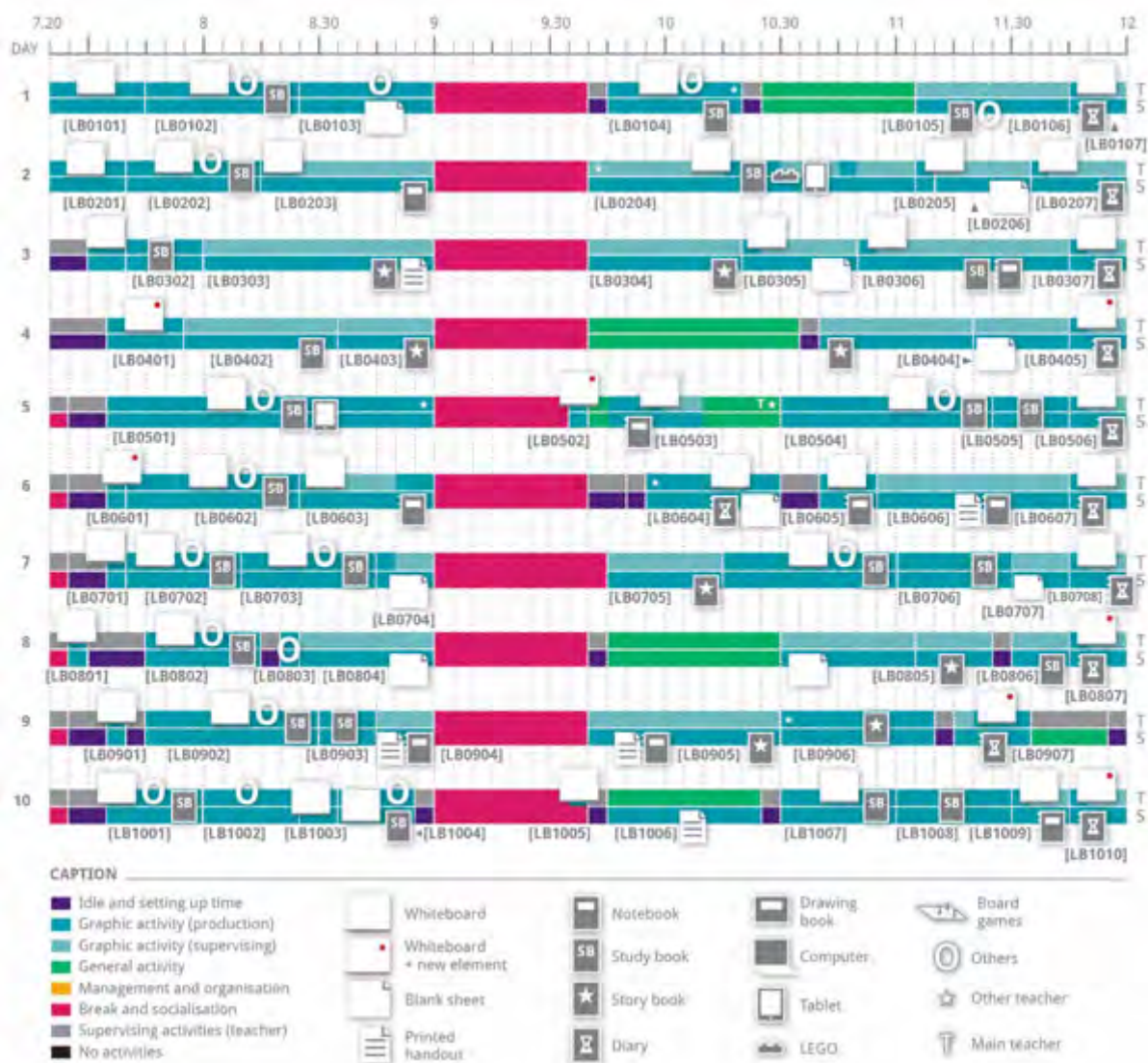


Figure 19. Timelines schematising the 10 days of observation.

This class makes greater use of digital tools in their everyday activities than the others, since the classrooms (including the English class) have a digital projector, which the teachers use to display content. In the robotics classes, pupils use plastic *Lego* blocks to build mechanisms, and tablets to program their movements (all with the aid of specific booklets). Nevertheless, in terms of graphic practice, it was all very passive for the teacher and pupils, since while they read and, at most, interact with certain apps, they do not use them to create graphic material with digital tools.

Unlike other schools, where diaries are acquired by the families, and therefore differ in terms of theme and structure, in this school all pupils use the same diary, designed exclusively for the school. Therefore, organisational differences in the text, due to the layout of the diary, do not occur in this school.

Teacher Cecília employed a wide variety of materials, so although many of the exercises were conducted in the study books, notebooks and blank paper were

also often used to create drawings and texts. In addition, storybooks were also widely used.

On the 4th day of observation, teacher Cecília agreed to introduce certain changes into her graphic practices: replacing visual cues with arrows in the guidelines for activities; and a frame with a wavy line for the number of the activities in the diary. In her case, unlike most of the other teachers, she was requested to do something specific and it was not given to her as option. However, within a few days, she had returned to her practice or had mixed up the instructions, and was using arrows in the diary, for example.

3.1.7 The Dom Helder Câmara Municipal School (DH)

3.1.7.1 The school

The Dom Helder Câmara Municipal School cannot be described as a typical municipal school, since it uses the building of a Catholic fraternity that provides part of its structure and some of the school activities, such as music and ethics classes, as well as supervision by a psychologist. It is, then, a public-private partnership.

DOM HELDER CÂMARA MUNICIPAL SCHOOL		Type	Municipal
Location	Espinheiro	PAR	2
Levels offered	5 kindergarten classes (Groups IV to V) 12 primary classes (Year 1 to Year 5)	Number of Pupils	310 pupils
Shifts	Morning and Afternoon	Number of Staff	30 (teachers and management)

Table 21. Summary of the school structure.

The conception on the development of knowledge at this school is no different to that of other municipal schools. The relationship however, between family and school has an extra entity for working as a mediator through the Catholic fraternity. It therefore acts as a provider and promotes, for example, events that bring some of the pupils' families together.

The school has a library, a resource room with two specialist teachers dedicated to accessible education, a service also offered to pupils from other institutions. There is also a room with a number of multimedia artefacts, such as educational interactive tables. It also has a small sports court, a small internal courtyard, an external courtyard and a small playground. The manager Sandra, complains about the lack of continuity in some of the projects from the Municipal Secretary of Education, which for example, installs an item of equipment and then abandons it – as with the interactive tables, the *Lego* robotics project and the tablets.

The manager says that many pupils enrol at this school for the 4th year, and as they have come from different types of formation in their former schools, it was sometimes difficult to manage all the various colliding school cultures. Occasionally, pupils who live in rival communities bring that sense of rivalry to the school. In terms of staff, she says that they face certain difficulties in managing the teachers and their power struggles. This culture of violence reverberates throughout the school and both physical and human resources are needed in order to deal with it, even with the collaboration of the families either inside the school or at home. For Sandra, not having a proper environment to study at home is one of the main factors that affects the educational process of the poorer pupils.

With regard to the school structure, she complains that the Catholic organisation has not been renovating or maintaining the building in working order as it is supposed to do, because the Secretariat of Education has not kept to its part of the deal – which is to cut taxes on the property owned by the fraternity.

3.1.7.2 About the period

Observation in the school did not begin on the same day for both classes, as the families had not been contacted in the morning group as to when the research was due to start. Therefore, the research began with the afternoon group between May 16 and May 30 (the class was suspended on the 29th); and from May 17 until May 30 with the morning class. This period was slightly after the evaluation of the first unit, one of the modules into which the school year is divided. In addition, during the observed period we saw a number of activities related to the bicentenary of the Revolution in Pernambuco¹⁵.

3.1.7.3 Classroom routines

Unlike other municipal schools, the partnership established with the fraternity has guaranteed pupils the right to attend ethics and music classes. Moreover, the afternoon pupils also have weekly activities in the library, as a librarian is available in the afternoons. The physical education classes take place in the morning for the afternoon pupils and vice versa, with the project *Segundo Tempo*.

In comparison to other municipal schools, the workload at this school is greater, since classes last for 4 hours and 30 minutes, instead of the usual 4. The morning shift is from 07.30 to 12.00 and the afternoon from 13.30 to 18.00. The time and length of the break periods vary each day, because meals are served to the classes on a rota system, and therefore every so often one class has a longer break, since rest period finishes at the same time for all classes (10.30 for the morning classes and 16.30 for the afternoon classes). Thus, the break may last from between 20 and 50 minutes.

3.1.7.4 About the teacher (Afternoon)

Teacher Jacqueline, after years of working with sales and management, has returned to the career for which she graduated, after being accepted for a permanent position in a selection process for municipal teachers in 2014. Therefore, her teaching experience is relatively recent, mainly for the third year, a level with which she started working in that very year, 2017.

¹⁵ At the time, Brazil was still a Portuguese colony and, for the first time in the country's history, a Revolution declared the independence of a province - Pernambuco - and also established a Republic.

Name	Jaqueline	Age	40 years
How many years teaching	3 years	How long in this school	2 years
Occupation	In the morning shift she works in another municipal school and, in the afternoon, in this school; both classes are 3 rd year	Education	Initial teaching training Graduated in Education

Table 22. Personal data of the teacher.

She commented that during her formation as a teacher there were no instructions on graphic language, neither on a technical nor graduation level. Therefore, she says that she now produces what she learned as a child, such as a header to identify the text in the notebook, and producing drawings and small diagrams, which is something she inherited from her high school days and from university.

She states that the way she writes is the same in both her personal and professional life, and that she was very anxious about her handwriting when she first started teaching, after years of working in jobs that did not require her to be so proficient in handwriting. The school makes no demands regarding guidelines in writing or visual styles.

Jaqueline and the morning shift teacher, Rita, try to plan which subjects they are going to work on more or less simultaneously, but they both have different styles. Jaqueline likes to work with reading, interpretation and writing. She tries to use elements to materialise concepts, especially in maths, and uses multimedia resources such as music and video. She also likes to explore the various spaces of the school, which, as well as being a manner to stimulate the curiosity of the pupils, is a way of making the class routine more dynamic. The artefacts she uses the most are the whiteboard, the notebook, the study book and storybooks.

In terms of graphic language, she was teaching the pupils to create tables and graphics (which at the time was the content they were working on). She added that they should do the complete header and mark the beginning of paragraphs. She does not evaluate the notebooks one by one, not until the end of a school unit, but tends to do so when pupils write on paper and printed handouts that are kept with her. She says that in the second semester, when pupils are more adapted to her everyday routine and do more homework, she intends to keep closer track of their writing and on an individual basis. She says that some pupils do not take good care of their notebooks, and sometimes tear out pages, which causes them to lose a record of what they have done so far.

The biggest problems listed by the teacher regarding the pupils' writing are spatial organisation in order to make the writing clear and legible, and illegible handwriting. Pupils have some freedom to write and be creative according to the type of the activity - on some occasions she requires them to write in a

similar manner to herself. Regarding her influence over them, Jaqueline says that pupils use some of the elements she adopts, such as underlining and decoration, and that they follow the structure of the header that she uses, even when they are not copying.

3.1.7.5 About the class (Afternoon)

The afternoon class was composed of 19 pupils, who were very lively when compared to the morning group. In general, the pupils were more undisciplined, bringing their experiences of violence to the classroom. Therefore, this signifies that teachers must make a greater effort in keeping them interested in the activities and content. From amongst the 19 pupils, most participated in the research, as teacher Janaína had explained the purposes of the study and had collected the signatures in a meeting she had held with families the previous week.

Participants	Additional comment
1 Alex	
2 Carla	She could not read yet
3 Conrado	
4 Davi	He could not read yet
5 Elias	
6 Eloá	
7 Fernando	
8 Giovana	
9 Janaína	Although she was dedicated and had clear handwriting, she could not read yet
10 Mariana	
11 Maya	She has difficulties in reading and writing
12 Patrick	
13 Rafaela	She had missed more than a month of classes as her family was going to move away, but as they have not done so, she returned to school on the 4 th day of observation

Table 23. List of pupils participating in the research

3.1.7.6 Detailing the activities (Afternoon)

The black parts in the diagram below demonstrates that the observed classes were not fully completed, due to certain issues such electrical repairs and a celebration for Mother's Day. There were 39 graphic activities registered, as they were also used even in the music and ethics classes.

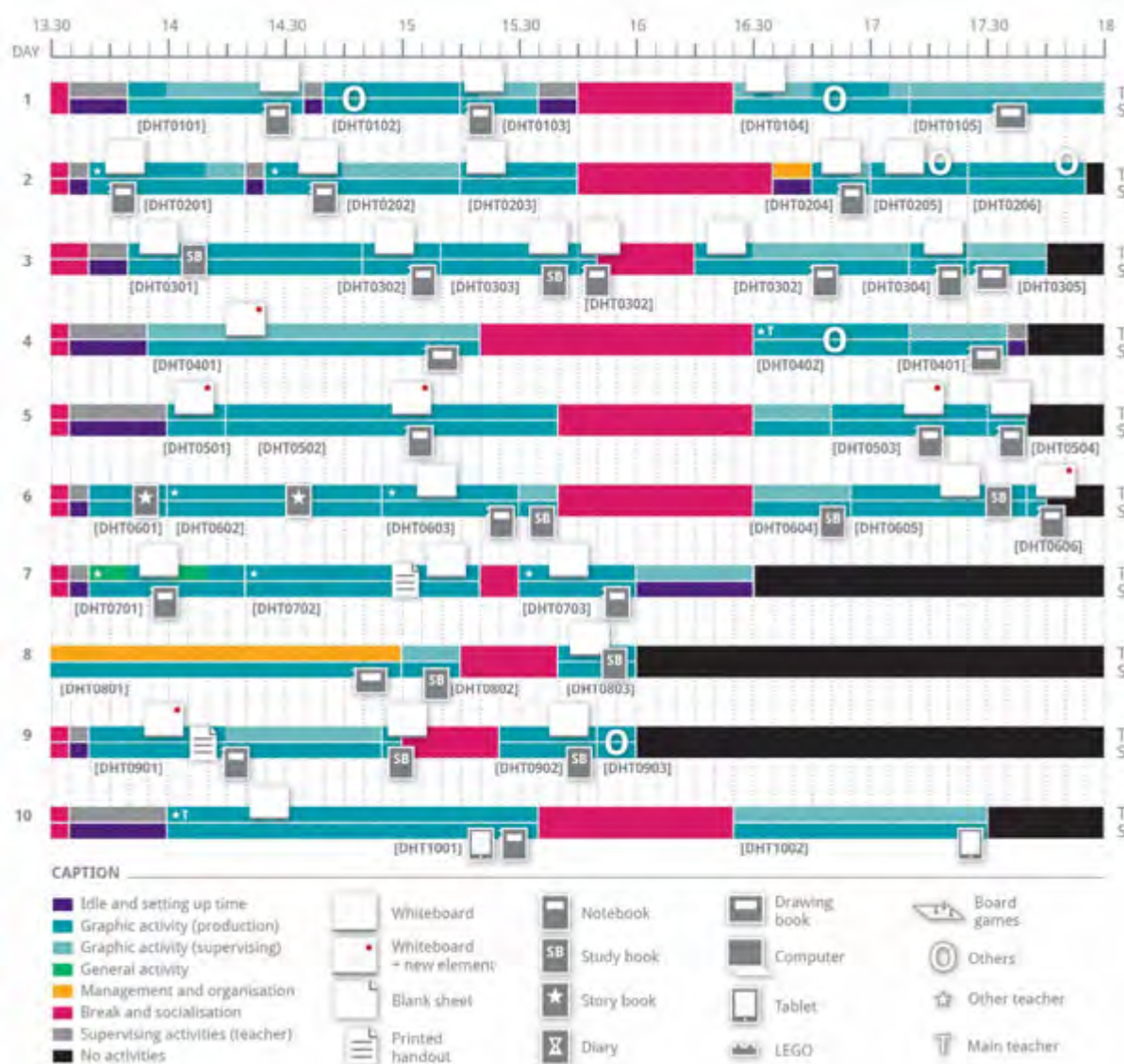


Figure 20. Timelines schematising the 10 days of observation.

Teacher Jaqueline used some digital tools in her practice, such as a laptop on which she very often presented videos for pupils. She said that she prefers to use the laptop because the school's digital projector is not always available and is not very easy to set up. She also used a tablet in an activity she developed with the librarian for pupils to conduct research on a project about the Brazilian painter Tarsila do Amaral.

The main artefact used was the notebook together with the whiteboard, although the teacher made considerable use of the study books, as well as some storybooks and the drawing book. Since the pupils do not have a diary, Jaqueline uses the notebooks to make them write notes about what they should do for homework. It is interesting, nevertheless, that the resulting text is a blend of two genres: it has a header like the exercises and texts written in the notebook, and the body of the text is a list of notes, like those written in the diary, but with the layout of a list of questions.

The header is a very important part of the activities written by teacher Jaqueline, so she usually writes the header on the whiteboard and keeps it for many activities during the day, erasing the rest of the text but keeping the header information. The title of the activity changes whether it is schoolwork, homework or an indicated school subject (maths, Portuguese language, etc). The added tool agreed with the teacher was to draw two lines underneath the titles as a way of highlighting them, instead of framing them, as she usually did.

3.1.7.7 About the teacher (Morning)

Teacher Rita has worked as a teacher for almost 20 years, mainly in small private institutions. She claims that these are the best place to learn about didactics and to develop visual and manual skills, since teachers there are required to decorate classrooms and produce a number of objects, such as small gifts to distribute at celebrations.

Name	Rita	Age	45 years
How many years teaching	About 15 years working in private schools 3 years working in municipal schools	How long in this school	3 years
Occupation	Works both shifts at this school	Education	Initial teaching training Graduated in Education Specialisation course in Psychopedagogy

Table 24. Personal data of the teacher.

In the interview, the teacher highlighted that the seminars she had to produce as a student were an opportunity for her to test ways that she could represent and present information, which included content and visual language, and for which she received feedback from the teachers. Rita says that she has learned a lot through research and collecting references from her own professional practice and from her colleagues. She likes to design digital presentations for pupils, something that she did a lot during her graduation and specialisation courses.

In her professional life, Rita says that her handwriting requires more care in relation to her personal life, in terms of content and format. The main resources she uses are the notebook and the whiteboard, although her teaching is not limited only to these, and she tries out many other activities, including a lot of discussion on themes.

For her, the 3rd year is an important step in consolidating writing, a moment in which pupils begin to widen their experiences and find meaning for their writing. Other resources used to help this path are printed handouts, videos, games and other instruments to solidify concepts.

In writing, Rita requires pupils to use correct punctuation and capitals and to separate syllables according to the norm and to write with clear legible

handwriting. She believes that using the header is important to identify the activity and for pupils to exercise writing their own names. She does not evaluate the notebooks individually every day, only when needed.

Pupils are relatively free with regard to writing, as long as they achieve the goals of the activity, without misrepresenting the expectations of the genre. She sees her influence over pupils, but she also recognises the influence of the family, of other teachers and of elements such as games and cartoons.

3.1.7.8 About the class (Morning)

The classroom has 20 pupils who, compared with the afternoon pupils, are more participative, and there are fewer pupils with reading problems. There were 15 pupils participating in the research.

Participants	Additional comment
1 Andréa	
2 Bárbara	
3 Cíntia	She has difficulties in reading and writing
4 Eduardo	
5 Edna	
6 Ícaro	
7 Joaquim	He could not read yet
8 Kátia	
9 Lucas	
10 Miguel	
11 Márcio	
12 Maria	
13 Murilo	
14 Vitor	
15 Yuri	

Table 25. List of pupils participating in the research

3.1.7.9 Detailing the activities (Morning)

Even being in the same school, the morning and afternoon groups presented very different dynamics. For instance, only the afternoon group has reading activities with the aid of the librarian. Also, a field visit to a museum was planned for pupils on the third day (although in the end, this did not materialise because the Education Secretary did not provide transport). This also occurred with regard to an external science fair on the 7th day of observation, which was not an opportunity offered to the afternoon pupils.

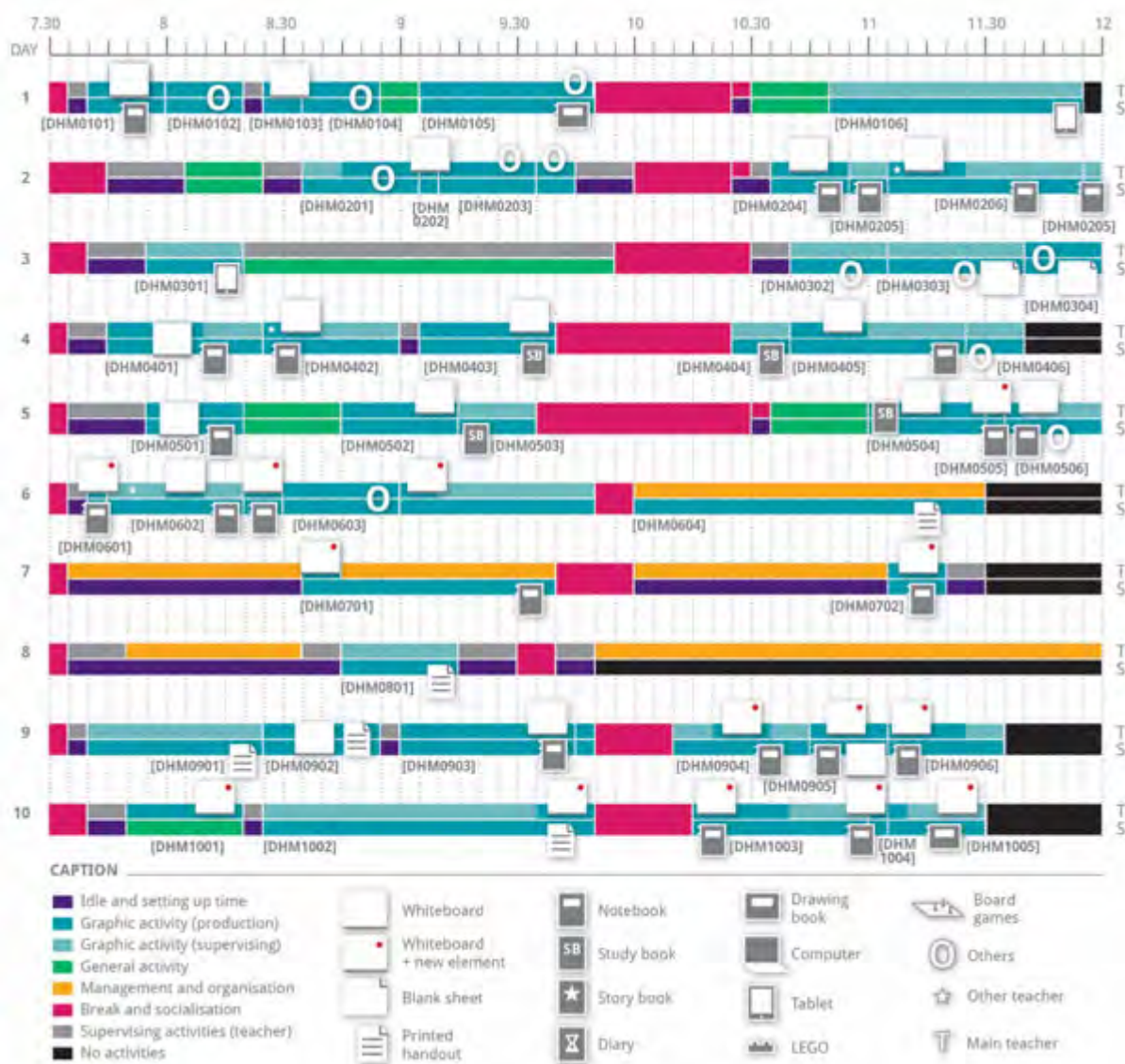


Figure 21. Timelines schematising the 10 days of observation.

Other classes were disrupted by the absence of the teacher, who was required to participate in school meetings. In one situation, pupils remained at school, carrying out classroom activities, and in another, the school requested their parents to pick them up earlier.

Teacher Rita, just like teacher Jaqueline, also uses a laptop to display videos and other content for pupils and, on one occasion, she used the digital projector in the classroom to exhibit a slideshow. Pupils also played with tablets and their educational apps, and, just like with the *Legó*, it was used more for recreation, since it was not tied into any of the contents they were developing.

She mostly employed traditional resources in the activities, especially the white board and the notebook, but also study books and the drawing book. Teacher Rita also used printed handouts in many situations. We observed that she is very spontaneous in terms of the activities she develops, so, under normal conditions (when the class is full and there are no disruptions), she prefers

quick activities to long-lasting, which may on occasions cause confusion for the pupils. The 45 graphic activities registered were not uniformly distributed over the 10 days of observation, and there were many more activities on some days than others.

The added graphic tool agreed with teacher Rita was to frame the title of the activities in a cloud, as she, like teacher Jaqueline, very often uses a header in writing. She does not limit herself only to making this type of decoration for the header, she also uses double underlines and other shapes to highlight the titles.

3.1.8 Discussion

After describing some of the characteristics of the classes observed, including their routines, it is possible to formulate a number of general comments and to highlight certain particular practices.

Classifying the visited schools into public and private institutions explains certain issues regarding their material conditions, although there were also several misconceptions in the belief that private schools have more equipment, human resources and constitute a better space. This was shown to be true for schools AI and LB, which attract pupils from the upper middle-class and have high fees, and also for some of the average municipal schools (ED and CB), which although poorly maintained, provide pupils with a basic structure¹⁶. Exceptions to this were the RC school, a private institution for a lower middle-class public, with a modest structure and no digital devices available for teachers to use – unlike all the visited municipal schools, where devices, such as laptops and tablets are available. The DH school cannot be described as an average municipal school, as the pupils enjoy extra resources provided by a public/private partnership, such as teachers for ethics and music classes.

3.1.8.1 Teachers: background, preferences and beliefs

The participating teachers presented very different profiles, ranging from 3 to 34 years of teaching – half of them had taught for more than 10 years and the other half was newer to the profession. Most of the teachers had undergone initial teaching training, and all of them were graduated – mostly in education, but some in history and social studies. Three teachers had taken part in specialisation courses after graduation. When asked if there had been subjects or prescriptions for creating graphic material, most of them commented that they had learned through projects, where their professors advised them on the use of graphic language. They did not elaborate greatly on the guidelines used, but they mostly seemed to be about the use of big letters, the correct form of alphabet according to the literacy level and vague advice on writing in a clear, organised manner. This signifies that the presentation of a text is of concern throughout the formation of a teacher. It considers functional and aesthetic aspects and the audience to which it is directed, and although it is not systematised, it is embedded in the training of teaching practices.

Most of the teachers comment that they have a similar manner of writing and organising information inside and outside classroom, especially because schools do not provide guidelines regarding these issues that they are required to follow. Teachers Lúcia, Amanda and Rita were exceptions, as they make a conscious effort to be more careful with their writing when it is for pupils. It is also worth noticing that some teachers commented on being anxious about

¹⁶ In the interview, all the municipal school managers we visited complained about the low budget to maintain the school infrastructure.

writing at different moments of their lives. Teacher Paula said that as her lack of manual skills distressed her as a child, she tries to compensate for this with dynamics that do not rely on this in the classroom, she also evaluates the effort of the pupils rather than the manual skills. Cecilia felt that her initial teaching training, in a Catholic school managed by nuns, had created several barriers in her practice, because of the numerous prescriptions and pressure to achieve excellence, which is something she has been trying to deal with for some time. Jaqueline, after years working with management and advertising, became a teacher, so at first, she felt very anxious about not being sufficiently skilled, as she had no longer had much practice in handwriting. This reveals just how much their work still involves (or may be perceived as involving) the display of manual skills, handwriting being one of them.

I was far away from writing for a long time. When I had to do my planning manually, I struggled, as I was mixing cursive with printed handwriting. I no longer knew how to do cursive handwriting. It's been a long time, because in the company where I worked, I used to work on the computer, I barely hand wrote anything. When I started working with advertising, I also didn't touch any paper. So, when I started in the classroom, I was afraid. Do you know that fear? Of misspelling things, especially as we are so used to using the spellcheck. [...]. Report by teacher Jaqueline.

When asked about what they deliberately teach in terms of writing and graphic language, one of the main answers was that they observe grammatical rules, such as punctuation, the use of uppercase, and the correct separation of syllables at the end of lines. In relation to what is not taught in grammar books, many of them said they require pupils to mark the beginning of paragraphs with indentation, to use the header, to demonstrate good, legible handwriting, to follow the horizontal and vertical guides on the paper and to leave enough space for answers. All the requests are very related to practical and functional issues, such as having legible, clear handwriting; a text, which is properly identified with a header; and respect for the guides – which shows a concern not only with legibility, but with harmony and tidiness in the document.

Most of the teachers, except those from DH, said they frequently evaluate notebooks and pupils' writing. Some of the main recurrent inappropriate practices they listed were poor legibility along with condensing a lot of information into a limited space. Teachers Lúcia and Fernanda do not agree with the vertical lines in the ruled notebook being considered as a limit for the text line. Teacher Fernanda is less concerned about what she said is considered a rule, but that often restricts pupils in their writing tasks. The practice of individually evaluating notebooks is one of the ways graphic language is taught by teachers, who endorse accepted practices and correct what is not appropriate.

All the teachers believe that they are able to influence the writing practices of at least some of their pupils. Lucila and Cecília commented that they had noticed

their influence even to the level of shape and proportion of some letters in their pupils' handwriting. This may be one of the reasons why some teachers feel uncomfortable with regard to writing, because they know how much pupils are aware of and pay attention to what they do. Teacher Lúcia even commented that pupils complain when a text is not well organised on the whiteboard. Other things teachers believe to be influential in the graphic repertoire of pupils are cartoons, electronic games and other people such as family and especially colleagues.

3.1.8.2 An overview on the timelines

Timelines are a traditional form of diagram that visually display a sequence of events and how long they lasted – when space or schematic elements are accurately connected to time spans. Throughout this work, timelines were created as a way to understand and rationalise the data, by organising the sequence of activities witnessed inside the classrooms. However, its other attribute of depicting the amount of time dedicated to each activity has proved to be of great interest, deserving further attention. This is why a colour code has been created and applied to representing the events, since it helps to identify patterns regarding what was experienced. When the diagrams for the ten days of observation are placed together, the school routine becomes explicit and, for example, it is possible to see the line demarcating the time when the break between classes ends and how some activities are repeated daily.

The exercise of joining all the timelines from all 8 schools, with the colour coding (Figure 22), while leading to something expected, becomes clearly pronounced: school routines are mostly concerned with the use of graphic language for the teaching and learning processes. It would be reasonable to argue that looking at screens and graphic matter is part of most people's routine, but both assumptions can be seen as actual evidence of the ubiquity of graphic information in contemporary life. This reinforces how important the issue is to society, and that it should receive better attention in schools, which is an environment where graphic language is actually a tool that is part of the teacher's routine as a professional, and for the expression and understanding of pupils.

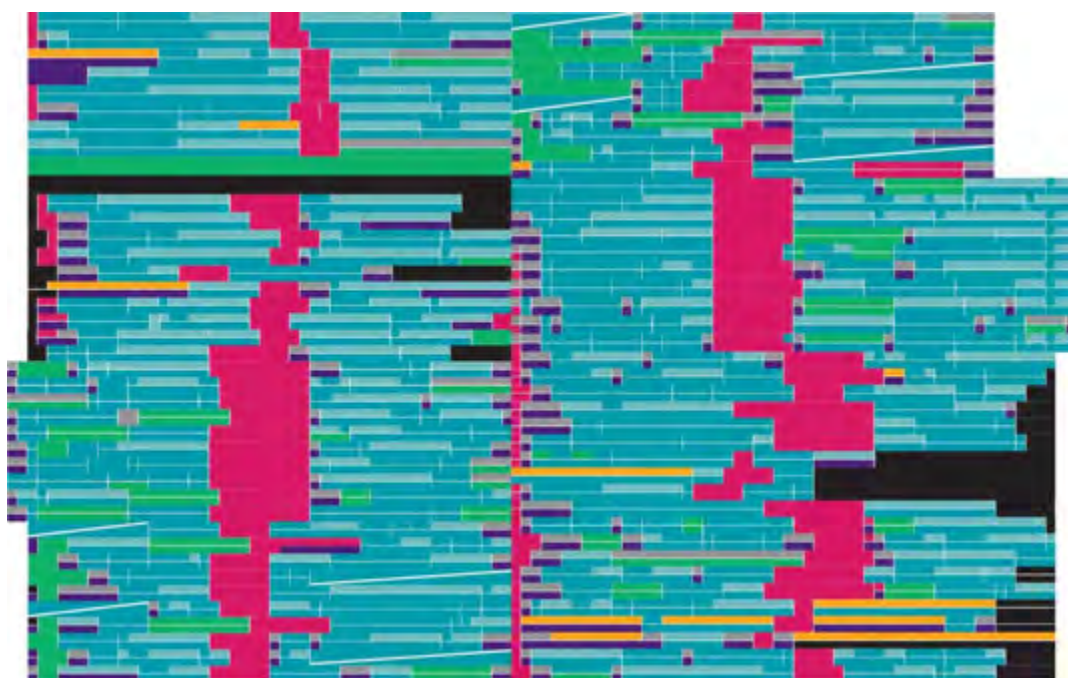


Figure 22. All the 80 timelines joined together.

The second most outstanding colour is pink, which represents the breaktime and socialisation time – a moment that is seen as being necessary for pupils to relax, have something to eat and make exchanges with colleagues, in order to learn social skills. The black areas, which represent the times when pupils have been dismissed and no activities were taking place, are situated at the edges of the timelines of the municipal schools. These provide answers to when the school experiences operational problems due to either external or internal issues, and which might occur more often at certain periods of the year. For example, May, when the last two classes were visited, is usually the time when the teachers' unions are running a campaign to raise wages.

Other colours do not appear regularly throughout, except for green, which had a more substantial presence. This colour was used for the activities that do not use graphic language, such as sports, debating, music, dance and so on and it is interesting to note that the greens were mostly representing activities outside the classroom and in specific classes – music, dance, physical education. Because even activities such as debating or making experiments, such as those undertaken by teacher Lucila and teacher Rita, are mostly accompanied by some kind of written material, they were generally classified as a graphic activity. This indicates a relationship of dependence and reliability (and maybe accommodation too?) regarding graphic records in the schooling practices.

Another interesting outcome from the timeline approach appeared with the observation of icons that represent artefacts, employed by teachers and pupils for graphic tasks. In a general sense, the artefacts were mostly used by pupils under teacher supervision, except for the whiteboard and when the teacher

used the same object as the pupils to guide them in what they were doing. Another exception was the use of tablets in the LB school, with which teachers control what is being displayed by the projector, and have been included in the ‘others’ category. The whiteboard, which is the teachers’ main artefact, is an object that is blank, thereby allowing many configurations of graphic language to occur. This is opposite to the main artefacts used by pupils¹⁷, which have lines, guides, frames and fields that at the same time structure and restrict writing. This means that the teachers have to address this difference in their graphic practices, in a process of ‘translating’ layouts, and will be discussed in the next part of this thesis.

	ED	CB	AI	RCM	RCT	LB	DHT	DHM
WHITEBOARD	29.4%	30.4%	38.3%	37.2%	33.3%	30.5%	32.5%	37.8%
STUDY BOOK	3.9%	1.8%	19.6%	39.4%	36.6%	27.3%	15.7%	5.6%
NOTEBOOK	31.4%	39.3%	4.7%	8.5%	9.7%	5.8%	21.7%	24.4%
OTHERS	2.0%	5.4%	6.5%	1.1%	5.4%	11.7%	12.0%	18.9%
DIARY	–	–	9.3%	9.6%	10.8%	7.1%	–	–
PRINTED HANDOUT	15.7%	3.6%	4.7%	–	–	3.2%	4.8%	6.7%
STORY BOOK	3.9%	–	9.3%	2.1%	1.1%	5.2%	4.8%	–
BLANK PAPER	5.9%	5.4%	3.7%	1.1%	2.2%	5.8%	–	2.2%
TABLET	3.9%	3.6%	–	–	–	2.6%	2.4%	2.2%
DRAWING BOOK	3.9%	7.1%	1.9%	1.1%	1.1%	–	6.0%	2.2%
BOARD GAME	–	3.6%	–	–	–	–	–	–
COMPUTER	–	–	1.9%	–	–	–	–	–
LEGO	–	–	–	–	–	0.6%	–	–

Table 26. Table summarising the use of artefacts in all the observed classrooms.

The most usual artefacts used by pupils were study books, the notebook and the diary. The rate at which these objects participated in the total class varied greatly, and was connected with the type of school and material conditions. Notebooks were more important for municipal schools, where the study books were either inappropriate or had been delivered late, while in private schools, where parents push teachers to complete the book in its entirety, they were used more than the pupils’ notebooks. The diary was only used in private schools. Printed handouts were also related to the material conditions of schools. Some teachers wanted to use them more however, such as teacher Fernanda from CB school, who likes to use these supplementary materials to

¹⁷ Walker (2001) presents the results of a number of studies on the preference for lined or unlined paper in UK for teaching handwriting and, besides the fact that there are mixed opinions regarding both types of artefacts, experimental studies indicate that the use of ruled paper for young children results in better results in terms of legibility.

make up for the deficiency of the study books, but unfortunately did not have photocopying facilities at the school.

Blank paper and the drawing book are artefacts that fulfil the need of enabling pupils to represent concepts freely through graphic language: often they are bigger than the notebook and contain thicker paper, thereby allowing them to use another media. These were used by most classes and when one was used less, the other was used more. Sheets of paper were preferred for projects that would be exhibited, and the drawing book was used for exercises and content that would be restricted if made in the lined notebook.

The use of digital media could be understood as two different trends: when teachers control the projection of data (video, slideshows) and when pupils engage with didactic apps, conduct research and play. In the first case, the control device (computer, tablet) was understood in association with the display (a projector or the laptop itself, in some cases) and categorised under the 'others' description. As there was an intense use of displaying multimedia, especially at LB, DHT and DHM, there was a high rate of 'others'. The other trend was present in all but one of the schools. The digital artefacts were not used to create graphic language of any kind. Neither teachers nor pupils drew, wrote or used them to create projects during the observation period. This therefore indicates the predominance of handwriting and manual practices in the school, even when digital gadgets are available.

On reflection, the classification of artefacts would seem to be defective, since some objects have become a separated category, while many have been grouped under the denomination of 'other'. This has resulted from a misconception of the considered object, which the matrix in Table 26 makes clear. For example, at the Dom Helder Câmara Municipal School, teachers Rita and Jaqueline often used laptops, but as their use was never related to the central activities, but rather as a recreational or secondary artefacts, the practice could not be classified under the computer entry. The same occurred with *Lego*, an available resource at this school, which was used as a toy, and was not allied to the graphic instructions that each *Lego* Kit provides – as in the LB School.

* * *

In this section, the fieldwork has been described, providing the context linked to the outcomes from the next part of this thesis, in which the analysis of data will be presented and discussed.

4

**Reflecting upon
handwriting
organisation**

4 REFLECTING UPON HANDWRITING ORGANISATION

4.1 METHODS AND FRAMEWORK OF ANALYSIS

In this section, first, we present the criteria adopted for selecting the data to be analysed. The framework employed for the analysis will then be described through its relationship with the theoretical background and the procedures it required in order to analyse the selected data.

4.1.1 Selecting the data

As a result of the open, exploratory nature of the ethnological approach of this research, by the end of the fieldwork, a considerable amount of data of varying natures had been amounted. The main focus of the investigation was on the artefacts developed and used in the schools, while the design process of creating graphic language and the non-specialist designers (teachers and pupils) involved were only indirectly accessed.

Therefore, the data gathered over the 80-day observation period in schools not only included records of the graphic practices, but also information and data on many processes and issues that the classes became involved in, e.g. the inclusion of children with special needs, the internal intrigues and secrets of teachers at the school, and so on. Although this information is not of direct relevance to the research, it has nonetheless been considered in order to provide a greater understanding of the participants' behaviour regarding the use and creation of graphic language.

In terms of visual records, it was necessary to make a selection from the collected data and even to reconsider initial research questions. After accompanying the activities of the eight classes, a localised and contextual understanding of what they made was formed – demonstrating, for example, that in all the classes, technology still plays a very limited role. Thus, if at first the intention was to understand issues in the teaching of graphic language at the schools, then the field research has demonstrated that the actual everyday practice is narrower than imagined. Hence, in this section of the thesis, by presenting the criteria used to select the relevant data for analysis, we will also discuss how the research focus evolved according to the direction in which the fieldwork led us.

The composition of the analytical corpus is summarised in the table below, relating it to all the graphic activities identified in the visited classrooms. The selected material was formed from copying activities, in which the pupils were required to reproduce a text created by the teacher, and by free activities, where pupils were asked to create the content and were free to organise it as they wished. The proportion of these two types of activities is presented at the bottom of the table below.

	ED		CB		AI		RCM		RCT		LB		DHT		DHM	
ALL GRAPHIC ACTIVITIES	26		33		55		42		45		71		39		45	
SELECTED MATERIAL	10		15		13		17		18		16		7		10	
	COPY	FREE	COPY	FREE	COPY	FREE	COPY	FREE	COPY	FREE	COPY	FREE	COPY	FREE	COPY	FREE
	9	1	13	2	11	2	15	2	16	2	15	1	7	0	10	2

Table 27. Number of graphic activities in each class and the number of activities that met the criteria and are part of the analytical corpus of this research. The nature of the selected material is also described.

This selection was made according to the following criteria, adopted not only to fulfil the aim of the research, but also to address in a suitable manner the specificities of the collected data and to define a viable corpus regarding the resources (human, time) available for the analytical task.

Focus on the main teacher. At this stage of education, in Brazil, it is common for pupils to have one main teacher in charge of the principal subjects. However, on numerous occasions other teachers took over the classes – some were supply teachers and others were in charge of specific subjects, such as English and music – and who also developed graphic activities. However, as it was the main teachers who had the most representative participation in the education of the children – although the presence of other teachers was not uniform throughout all schools. So, only the work led by the main teacher has been analysed.

Teacher designs only. In an environment where study books, storybooks, games and other didactic material participate strongly in the teaching activities, only texts produced by teachers were considered, since they bring with them their conceptions of writing and graphic organisation. From the graphic activities produced by pupils and teachers, it is possible to establish a continuum of freedom contained within the creation and use of the graphic language. Blank artefacts (such as blank paper or the whiteboard) demonstrate total freedom, while the ruled notebook constrains the graphic organisation of information, and at the other extreme, there is the interaction that occurs with pre-made structures, such as the exercises in the study books. In this case, texts that the teachers had copied or produced entirely by following a layout designed by somebody else were not considered. This occurred with graphic messages they created on the whiteboard in order to correct exercises from the study book (Figure 23), so that pupils were able to follow what was being discussed in their own study books.

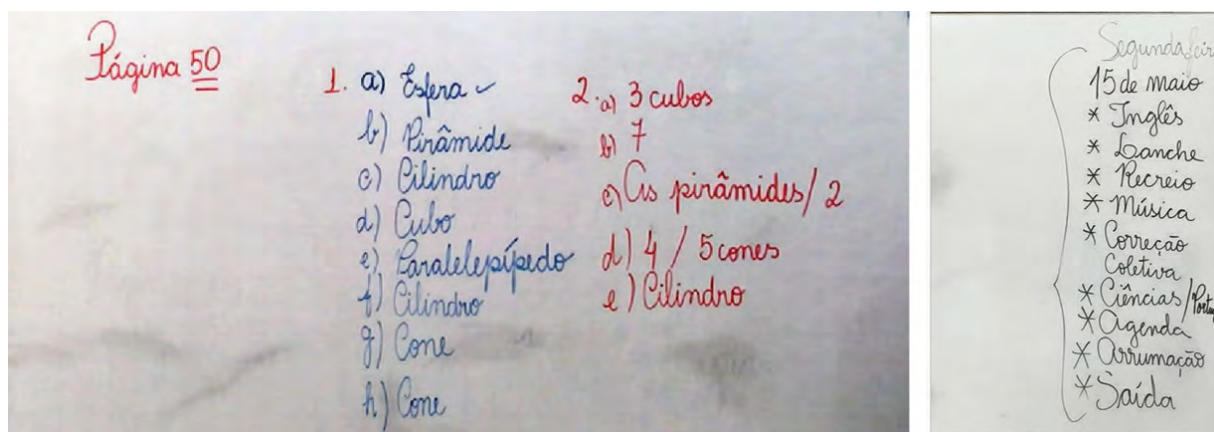


Figure 23. Left image: Text written by teacher Lucila to show the right answers for each item in an exercise in the study book, which followed the text structure and layout. Right image: list of activities planned for that day by teacher Cecília.

Attention to the viewpoint of pupils regarding teacher productions.

Teachers write texts on the whiteboard for pupils to observe or copy. Texts created for observation work support the teacher's explanation, e.g., lists of daily activities that teachers Cecília and Lucila produced at the beginning of the classes, or even the answers for exercises in the study book (as seen in Figure 23). While these texts are also ways of teaching and learning graphic language, they have not been considered in the analysis because they would not allow for the observation of a pupil 'response' to the text. Thus, only texts intended for copying activities have been selected, as the reproduction ensured that the pupils had seen the information represented. This signifies that the teacher's production and its respective copy produced by the pupils became part of the analytical *corpus*.

Copying involves many restrictions that do not generally allow pupils to display their preferences in writing, despite what some teachers had mentioned during the interview about pupils being free to organise the text however they wished. There were restrictions, such as the allotted time, the physical tools involved and especially the requirement for pupils to reproduce the content similarly to what was presented. Thus, another type of activity was also selected involving texts where the content was created entirely by the children, either freely organising the information or following a model produced by the teacher – which we termed 'free activities'. Analysing such productions allows us to observe how pupils deal with the demands of organising specific informational structures – and how those practices relate to what their teachers produce.

The copying activities may be understood as three different genres, according to their structure and objectives:

- *Lesson* – not very common, as most of the important information on the studied subject is concentrated in the study books, but there were occasions on which teachers wrote short texts on some specific subjects for the pupils to copy in their notebooks. These texts function as an information source and, as they were in the notebook, they were usually composed of a header, a title and a text.
- *Exercise* – activities produced by the teachers, intended for copying, and then answered by the pupils in their notebooks. The structure was similar to the lesson, with a header and a title at the beginning, and the body of the text was a list of questions. This was more common in the municipal schools, where teachers rely much less on the study books.
- *Diary* – a list of reminders about the activities that pupils should do at home. This description also reveals its structure: it is mainly a list of items. It was mostly written in the diary, although in the municipal schools, where this artefact is not part of the pupils' didactic material, teachers would write the reminders along with the homework exercise. Thus, under these conditions, it assumed the structure of the exercises.

These genres did not generally coincide with free work, which was more diversified in terms of genres and artefacts – as with the production of texts, posters and cards in artefacts other than the notebook, such as blank paper and the drawing book.

From graphic language to handwriting. The broad conception of graphic language was introduced by Twyman (1979, 1982, 2004) and considers three main expressions that it might assume, called modes of symbolisation¹: verbal-numerical, expression through text and numbers; pictorial, representation through drawings and photographs; and schematic, a mode that is neither pictorial nor verbal-numerical and that includes graphs, diagrams and other graphic elements.

It was observed in the classrooms that texts were the main graphic practice of teachers and pupils, followed by drawings. The researcher witnessed some cases of diagram work, like the pupils at the Dom Hélder Municipal School who were working on developing graphs. Hence, only activities with texts were selected. In addition, as the digital tools used at the schools were not used for the production of texts by pupils or teachers, it is possible to say that the selection was precisely focused on handwriting.

¹ It is important to note that mode of symbolisation for Twyman (1979, 1982, 2004) is a narrower concept than mode for Kress et al (2005), as the first is concerned with visual modes while the latter approaches also sounds, materials, movement and variegated ways of producing meaning.

Concentration on graphic differentiations in handwriting. Along with the multiple manners in which graphic language can be edited for meaning and aesthetic purposes, we are aware that it may also be visually manipulated for reasons of information and meaning. This may apply to the shape of letters, whether they have curly endings or straight strokes, and to the ways we arrange them to occupy the surface. Our concern, therefore, was not with the anatomical issues² related to letters, which is the most frequent approach to handwriting. The term ‘graphic differentiations’, signifying features used to promote the visual organisation of texts, may be an easy manner with which to understand it: that, within the written verbal language, graphic strategies can be applied to enhance the meaning of the text, thereby facilitating access to its parts.

² Many researchers have dedicated themselves to the study of handwriting and how it is learned. Rosemary Sassoon conducted a PhD research on joins in children’s handwriting (1988) and has published several books on the subject, such as *The practical guide to children’s handwriting* (1983) and *Handwriting – The way to teach it* (1990). With regard to research developed in the Brazilian context, Fetter (2011) studied handwriting models that have been taught in Brazil up to the present day, Vidal and Gvirtz (1998) comprised issues about calligraphy in their historical studies on teaching of writing, D’Elboux (2016) studied about the teaching of calligraphy and typography in the old Arts and Crafts lyceum in São Paulo, while Novais and Miranda (2016) have focused on the teaching of canonical calligraphy (with historical interests in the letterforms) in specialised courses.

4.1.2 Methods of analysis

4.1.2.1 *The theoretical basis of the analysis*

Given that the selection from the collected data narrowed the focus towards a deeper analysis on the organisation of handwriting, a relatively unexplored research topic, a number of valuable studies that have covered similar targets in typography were consulted so as to provide an inspirational basis for the analysis. First, we shall discuss the possibilities of classifying such studies, together with their contribution to understanding the analytical task. We will then describe the framework developed, relating its constituent parts to the respective frameworks that support it.

If we consider the departments and fields in which researchers have built their careers, most are within the field of typography studies and visual communication (Walker, 2001; Twyman, 1982; Moys, 2012; Gillieson, 2008; Norrish, 1987; Gilreath, 1993; Waller, 1980, 1987). Some studies have been in the field of linguistics concerned with the semantic dimension of typography (Stöckl, 2005); the graphic aspects of text structure (Bernhardt, 1985); and visual conventions (Kostelnick; 1988, 1990, 1996; Kostelnick & Hassett, 2003). A different viewpoint was also introduced through studies on typographic organisation from the field of psychology (Rivlin, 1987).

Research by Moys (2012), exploring two approaches on typography studies – rhetoric and multimodal – has led to another way with which to classify these theoretical works. This author describes the rhetoric of typography as the path traced by several investigations during the 1980s (Walker, 2001; Twyman, 1982; Norrish, 1987; Bernhardt, 1985; Rivlin, 1987), in which the organisation and relationship of typographic elements were studied, including their relationship with the material aspects of the artefact and how those graphic differentiations may be helpful in reading or evoking affective impressions. Other studies taken into consideration in this research share this same approach on typographic contributions to visual communication (Gilreath, 1993; Gillieson, 2008; Kostelnick; 1988, 1990, 1996; Kostelnick & Hassett, 2003; Moys, 2012).

Moys also discusses multimodal theories as a growing field in typographic analysis, derived from linguistics, and that ultimately view typography not merely as a means to exhibit written text³ (Stöckl, 2005), but as a mode of representation. Multimodal approaches explore the meaning potential of typography through associations with conventions of use and with metaphorical empirical qualities – e.g., a slanted typography that represents speed. Thus, the framework selected from Stöckl's discussion is very close to the rhetoric approaches of describing typographic elements. This and the

³ On this topic, Waller (1991) argued that the non-consideration of typography in modern linguistics is due to its filiation to four theoretical positions: 'the primacy of speech, the restriction to the sentence level (not many typographic events happen within the sentence), the arbitrariness of the linguistic sign, and the linearity of language.' (Waller, 1991, p. 346)

aforementioned contributions of rhetoric to the proposed framework will be discussed further on in this topic.

Another useful classification that may be applied to these theoretical works is derived from Waller's (1987) model of communication, in which the author not only considers the duality of the production/consumption chain of a document, but at least three stances that may be studied. The first is the text production by a writer, who needs to take her/his readers into consideration, presupposing ways of how to interest them and thereby enhance their experience with the document. Second would be the publication of the text, which, through the processes of editing and technical constriction it faces, changes the structure of the text. Finally comes the actual relationship between the reader and the document, through which he/she also relates to the imagined writer of the text.

Except for the work of Moys (2012) and Rivlin (1987), with their studies on readers' impressions and perceptions of typography, all the remaining studies have focused on issues of writing/publishing documents related to typography. Researchers who deal with printed material instead of the very process involved in producing it, often do not separate the writing and publishing phases, since they are generally intrinsically related and hard to distinguish by assessing the final product. In handwriting, especially when it comes to school documents, there is no proper publishing stage, as the physical concretisation of the text occurs at the same moment as the writing process, which does not prevent the writer from facing the need to come up with solutions for the technique and artefact employed. Therefore, in order to discuss the issues involved throughout the process that precedes the textual artefact, we have considered the factors listed by Norrish (1987) and Kostelnick & Hassett (2003), since they deserve further attention.

Patricia Norrish (1987) defined the explanatory schema in her study of the graphic translatability of texts in different technologies – in other words, the adopted solutions to maintain the structure and to access elements of texts produced in different technologies. Although in the documents analysed in this investigation only one system of production was used, the concept of graphic translatability is pertinent, as some adaptations had to be made regarding the artefacts that the teachers and pupils were using – e.g. a blank, horizontal whiteboard and the notebook made of lined, portrait-oriented paper.

Norrish listed factors that affect the graphic presentation of text, organising it in a diagram arranged to illustrate the direct and indirect influences on presentation. Therefore, the main factors directly tied to what a text can become are: the structure of the text with its constituent parts; the technology of the systems employed in its production and reproduction, which are dependent on budget, human skills and an understanding of the users' needs; and the convention of how it should be and how it should look, which is decided on the

basis of what the document is going to be used for, whether for purposes of advertising, religion, instruction or law.

Figure 24. Factors that affect the presentation of text (Norrish, 1987: 3).

The discourse community factors are related to the social grouping that conventions are tied to, assuming that features of the grouping will have an impact on the conventions and how they change, depending on whether the group is big or small and considering the types of relationship and power struggles among the participants. The authors named three types of discourse communities that have a strong influence over text conventions: organisations, such as companies and government agencies with their written manuals, internal rules and social pressure; discipline-specific communities with their peer-regulated manners of sharing information; and cultural influences that every individual is somehow connected to, thereby rendering any efforts to develop a universal message or language very difficult.

The external practical factors are the conventions and rules with their implications for the conventions. The main three are: the technology in which a

text is produced, reproduced or preserved with its features and human resource needs attached to it; the legal factors, assuming that there may be constrictions and regulation for certain types of documents; and the economic factors, as the practicality of certain features (on acquiring, using and so on) must surely have an impact on how conventions are set.

There is a clear equivalence in the factors outlined by both Norrish (1987) and by Kostelnick and Hassett (2003), who organise similar categories in different ways. Even if these factors have not been included in the framework, their premises have certainly provided a grounding for the analysis, as they have helped in understanding which factors might change and which might not. In the documents selected for the analytical corpus, while the system of production is the same (handwriting) and is connected to the skills and economic resources available in the schools, visual adaptations have occurred depending on the media employed (markers on the white board or pencil on paper) and the surface (portrait-oriented notebook with ruled paper or landscape-oriented blank white board). There is a controlled variation of genres within this community (lesson, diary, exercise, posters and so on) as to a certain degree they are governed by the curriculum, but each class may display particular practices related to the institution or the group, thereby establishing conventions. What may tend towards variation however, is indeed the structure of the text, which together with the cultural background of each individual and the imitative practices they engage in, is connected to their expectations.

4.1.2.2 *The metaphor of tools*

In his schema for studying graphic language, Twyman (1979, 2004) conceived that text may be organised in a number of different ways, calling them methods of configuration. He described each of these methods, which differ in terms of the linearity linked to the act of reading, going from the *pure linear* configuration as the most linear – such as a text that takes a spiral form, for example – to experiences in which there is no expressed sequentiality in how the text can be accessed. Between these two extremes, there are more usual methods, such as *lists* and *linear interrupted* (the method used in this very text). Almost everything found in books or magazines is organised in this manner, with the text flow interrupted by line breaks at the edge of the column.

Bernhardt (1985) considered the manners in which the use of visual elements contributes to the control of the reading flow, creating alternatives to the sequentiality of the speech and of texts in prose. To exemplify how visual organisation is enhanced in popular and familiar genres, he placed them in a continuum of visual organisation, as presented in Figure 25.

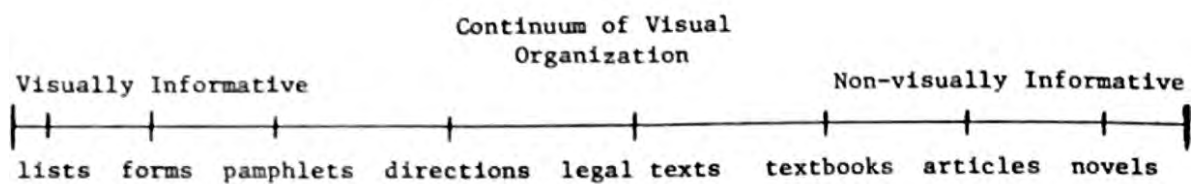


Figure 25. Continuum of Visual Organisation (Bernhardt, 1985, p. 20).

In linear interrupted texts (as in other linear texts), the text contiguity is usually ‘disturbed’ by graphic differentiations positioned in order to provide cues regarding the content of the text, thereby enhancing the meanings. According to Twyman (1986), these visual cues were developed over time and within certain genres in response to new habits of reading and to promote better usability for readers. Naturally, the graphic edition of a text was very connected to the technological possibilities, and interest in providing a better experience for readers has led to the development of technology and aesthetic parameters. One example of this would be the design of nineteenth century advertising posters that, in order to make the texts stand out in the midst of the visual chaos in big cities, saw the proliferation of display typefaces, leading to bolder, sans serif and decorated fonts, and the development of wood types that enabled huge posters to be printed (Meggs & Purvis, 2009).

Interest in understanding the visual organisation of text is linked to the exploration of what can be edited in order to expose the articulation of the text. For example, a title is understood not only by its linguistic structure, but also because it is usually separated from the body of the text and because it might also look different, being written either in bigger letters or in a different typeface. These visual attributes and their relationship to the links of the text, Gilreath (1993) called *textual graphic cues*, an alternative to other terminologies he listed, such as *technology of text*, *text engineering* and *text architecture*. The expression used by Gilreath has influenced the composition of the term **textual graphic tools**, although ‘cue’ has been replaced by ‘tool’.

To refer to the graphic features of a text as tools is to highlight that they are not random visual modifications of the shapes of letters or the layout, but mediators employed in the concretisation of a concept, something that is in between the content of the text and the manner in which it was meant to be perceived. Norrish (1987) discusses the text structure that exists before the text, which we may see by the use of what herein we have called tools:

The final form of the text is the form through which the text is physically realised. It should utilise the graphic and spatial resources of a system so that the different kinds of units are differentiated from each other, while at the same time making clear the relationship between such units. (Norrish, 1987, p. 4)

Another intentional connotation of the word tool relates to its versatility as a device that is able to build different things. In addition, the collection of tools that somebody owns is his/her toolbox, a metaphor of graphic literacy. A

toolbox expands along with the repertoire built by someone learning how to use graphic variations and, as in the physical world, there is no limit for tools – it is always possible to become familiar with a new apparatus related to practices that are unfamiliar. We will also talk about tools shared between teachers and pupils, meaning that they make similar visual compositions, and exclusive tools for what is done differently. Lastly, the exchanges of tools through which a toolbox is built is related to the teaching and learning processes.

4.1.2.3 About the framework

The study of the tools employed in the visual organisation of a handwritten text has inspired four main questions regarding the structure and use of a tool: What is it? What kind of tool is it? What is it used for? Where is it used in the text?

The first question is related to identifying the tool, while the other three dimensions that come after were chosen in order to establish the formal relationships that tools form throughout a document.

This approach has a qualitative nature with descriptive and interpretative aims, and it relies on the quantification of textual graphic tools in order to aid the researcher in the analytical task, providing an objective viewpoint for the observed practices. It is also a preventive measure against the ‘halo effect’ commented by Vianna (2007), in which personal remarks and impressions from the researcher affects the intended evaluation through factors that are unconnected to the proposed goals of an investigation.

4.1.2.3.1 What is it?

One of the principal studies consulted was a research conducted and described by Walker (2001) on letter-writing and its relationship with prescriptions from sources such as house style manuals. Although her focus was not exactly on handwritten material, she studied many samples of this technique from the perspective of visual organisation. Walker’s approach contributes to this research as it differs from many other studies on handwriting (which tend to concentrate on letterforms) or visual organisation (that mostly focus on printed matter).

In order to study letters, the author developed a method using checklists of visual attributes that were likely to occur in letter-writing. This made it possible to identify the range of visual attributes and the frequency with which each particular graphic element was used.

An attempt was made to use Walker’s method in order to analyse the data in this research, but because the documents in our *corpus* belong to different genres and are less standardised, this led to a comparison of model and copy with its over meticulous and unproductive data. To analyse if and how children had copied was a conflicting perspective, not only in terms of the aims of this

research, but also with the theoretical foundations it has followed, in which pupils are considered as something more than mere copyists. Ferreiro and Teberosky (1986:24) believe that children do not make ‘a deformed copy of the adult model, but an original creation’, through which they state that children interpret and reconstruct language in their own way, employing what was selected for being interesting to them.

Therefore, although Walker’s checklist procedure has not been followed in its entirety, it has nonetheless provided the roots for the idea of listing visual features used within specific demands, as well as for observing their frequency. Hence, tools were identified and listed according to their usual names in the practice of handwriting, but when there was no accurate description for them, typographic terminology was borrowed.

4.1.2.3.2 What kind of tool is it?

This question relates to the intention of classifying the tools used according to categories that describe their nature. While the three main modes of symbolisation described by Twyman (1979, 1982, 1985, 2004) – the verbal-numerical, the pictorial and the schematic – were initially considered when selecting activities for the analytical corpus, because they represent a classification of the several possibilities in which graphic language may be expressed, they were not used to classify textual graphic tools in this research. This was decided because the author had considered them to be broad categories that could be used to understand the possibilities of using graphic language, but not – or, at least, he did not demonstrate how – to be used in a detailed analysis of multimodal documents, even if the author understood that they ‘often combined’ (1985: 247) the three modes.

Even a brief analysis of the selected documents illustrates that verbal elements were sometimes combined with schematic elements in order to assist the organisation and provide cues for the textual parts. Pictorial elements were used alongside texts, but not as a tool to aid their understanding. Nevertheless, not only verbal-numerical and schematic tools were important in conveying meaning, as the manipulation of space was regularly employed in the layout so as to support the expression of the textual structure.

The work of Charles Kostelnick (1988, 1990, 1996), with his detailed approach to elements that encode visual language in texts, was also considered, as he developed an appropriate framework for considering visual features within a text. Kostelnick included the *spatial* mode along with the categories of *alphanumeric/symbolic* and *graphic* modes. These are similar to the types of graphic cues that Gilreath (1993) described when cataloguing the available graphic cues used in visually informative texts: *typographic cueing*, *spatial cueing* and *mark cueing* – a dimension that, according to the author, had not

been previously formalised. Thus, inspired by these two approaches, the types of tools used in this investigation were:

- *Alphanumeric* – This includes the use of verbal-numerical glyphs such as letters, numbers, legal and commercial symbols, punctuation marks and mathematical elements. The modifications of these symbols, such as changes in size, colour and shape were also described as alphanumeric. It is important to acknowledge that some non-alphabetic elements are closely related to typographic practice, and are even included in specific fonts (such as arrows, fleurons, tick marks), but they were not included in this category due to their ambiguous nature. Moreover, the terminology excluded the ‘symbolic’ addition that Kostelnick (1988, 1990, 1996) used for the sake of economy.
- *Picto-Schematic* – This category represents the graphic mode considered by Kostelnick (1988, 1990, 1996), which includes shapes, lines, icons and logos, but does not follow Gilreath’s (1993) logic to include enumerators and bullets – which were classified by us as alphanumeric if they displayed any number of letters, because these signs were positioned to signify a specific sequence. Picto-schematic tools describe elements that are not verbal-numerical but are combined with them to aid the organisation of the text. They could be included between letters or in organising phrases of text blocks – such as a heart or a star used as a visual cue in a list. Replacing the word graphic, a terminology used by Kostelnick for the term ‘picto-schematic’ is to avoid inaccuracy, as we are adopting Twyman’s (1982) understanding of graphic language, which is broader than just arrows, lines and shapes, including pictures and letters.
- *Spatial* – The only space in an average text flow of prose is the one between words, so every other manipulation of space may reveal a specific intention. This category, therefore, includes the use of space related to the text, either horizontally, vertically or with rotating elements.

4.1.2.3.3 What is it used for?

The addition of visual elements in a text can enhance or disrupt the meaning, which implies that every tool that is used is an answer to an informational or aesthetic need. The correlation of tool/purpose is not clear-cut or well-defined, because tools are versatile, and may be adapted and changed according to certain cultural practices. This fluidity in the meaning and function of tools is probably one of the reasons why this relation is not often conceptualised and classified. Instead, the usual approach found in typography books generally used in design education (Lupton, 2006; Bringhurst, 2005; Heitlinger, 2006; Kane, 2011) is to present textual graphic tools and demonstrate them in use.

In a very practical book for a lay audience, Moline (1995) proposed activities for exploring graphic language with children in schools. It is a kind of a guide addressed to teachers and covers multimodal and diversified genres such as maps, graphs, timelines. When discussing information organisation to support reading, the author presented some of the graphic features that could be used to fulfil organisational needs.

We can:	By using:
highlight	colour
connect	arrows or numbers
group into hierarchies	headings and subheadings
organise	columns
separate	white space
cross reference	asterisks(*) and footnotes

Table 28. Table with correlation between 'features of graphic design and the purposes to which these features are put' (Moline, 1995:13)

Even in this introductory approach, Moline's proposal is interesting insofar as it delineates some of the functions that graphic differentiations answer to, such as organising and connecting information. Waller (1980) discussed the functions of textual and graphic elements that affect the structure of the text or the artefact in which it is presented – e.g. *introduction*, which can be made with a foreword, an introduction or a preface; and *emphasis*, made by features like underline and italics. However, most of the functions Waller cited were connected to editorial solutions rather than typographic manipulation of the text.

From a more concise perspective, Rivlin (1987) conceived three organisational functions of typography by analysing similarities in the approach of four relevant authors to graphic communication studies, one of them being Waller's (1980). The functions Rivlin lists may be employed to fulfil any of the designer's purposes, including aesthetic. The functions are: *association*, which creates clear combinations between units; *succession*, in which sequential order is depicted; and *attention*, which denote importance between elements.

Similar functions to these may also be found in the work of Mijksenaar (1997), who organized the variables described by Bertin (1967[2010]) into three categories, framing them into the usual applications for informational purposes. The first variables would be those that are *distinguishing*, which classify the information in relation to its category and type, usually with changes in colour and form, such as using illustrations or a variation of colour, column width and typeface. The second variables are the *hierarchical*, which implies a difference in terms of importance, guiding the flow of the reading. These are usually represented through variations in size and emphasis, such as the sequential position, the position on the page, the type size and weight, and line spacing. A third category would be the *supporting* variables, designated to organise and accentuate the information, but that may also express differences in type or importance. These are: areas of colour and shading; lines and boxes; symbols, logos and illustrations; and text attributes (italic, small caps). Although the point he makes is clear – whereby changes in type colour are usually to distinguish things and changes in type weight to indicate importance –, and, to some extent, fair, it is of little sense to lock these variables into rigid functions,

because the practice of a graphic designer is fluid and she/he is always attempting new means to express information creatively.

Kostelnick and Hassett (2003) conceived that text conventions can serve either as *referential* or *non-referential* functions. The former concerns functions that are more straightforward in relation to diverse, dense meaning, leaving little space for polysemy, such as corporative symbols and topographic maps, while the latter is not tied down to defined, restricted meanings. The non-referential functions were subdivided into four types, to which textual conventions might relate. They are: *structure*, linked to the organisation and sequencing of information; *emphasis*, defining what is more important; *trust*, connected to the respective representation of authority; and *tone*, which brings the designer's attitude to the document.

These functions have provided inspiration for defining the categories of functions used in this research, except for trust, because in the selected documents (exercises, diary and projects) the need for a display of authority was not particularly explored, as they were meant to be consumed under restricted conditions. Some practices, such as parents signing the diary and official documents issued by the school could explore tools to fulfil the need to establish trust, but as these objects or relationships were not part of the research topic, this function was not considered in the following categories.

The collected tools were grouped according to what they were indicating in the text:

- *Belonging* – this is equivalent to what Kostelnick and Hassett (2003) understand as structure, Mijksenaar (1997) sees in what he calls distinguishing and supporting features, Rivlin (1987) views as both association and succession, and Moline (1995) lists in connecting, grouping into hierarchy, organising and separating. The tools that indicate belonging are meant to define the structure of a document by visually delimitating its parts. As the same tools, which separate chunks of text are those which create small groups of it, the choice for the expression 'indicate belonging' seems more accurate than to call them separating or grouping tools. Therefore, for example, numbering questions within a document serves to group those items, which may be considered as being equivalent, as they receive the same treatment, and also serves to separate each of these items from one another. In Figure 26, presenting a text on the whiteboard indicating the answers to an assignment in the study book, the teacher has represented two hierarchical levels: the questions and the items of a same question. On the extreme left, the numbers followed by a full stop indicate the two different questions, and this was also signalled by the line break. On the second level, with the subquestions, the two questions were organised differently: the first was signaled by both the same indentation and the line break; and in the second, it was represented by slashes separating the different answers. Again, it is necessary to mention that these are visual means of coordinating elements, but it could alternatively be represented verbally, as when the names Ana, Fábio and Carolina are listed by using the comma and the conjunction 'e' (which means 'and').

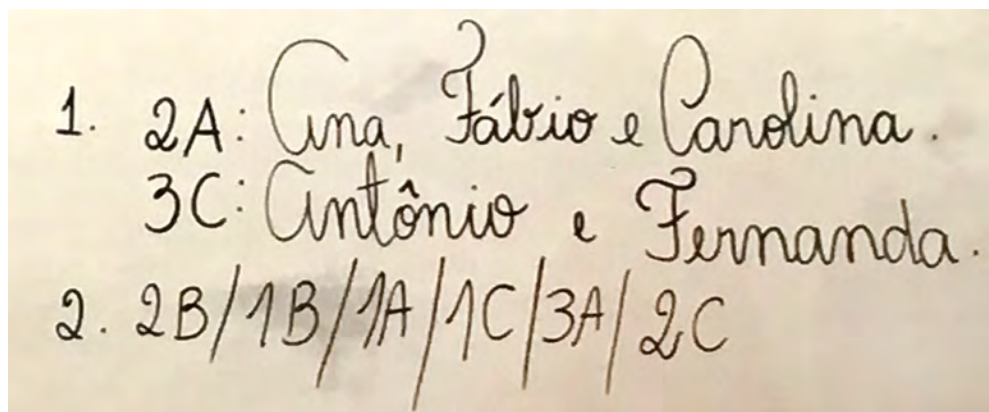


Figure 26. Example of several tools that indicate belonging, used by teacher Lucila, at the Arco Íris School.

- *Importance* – while hierarchisation is an indication of belonging by, for example, indicating different levels of parts and subparts in a text, it also serves to cue the key ideas of a document, to guide the sequence of reading and even to generate interest. Therefore, it may be said that many tools indicating importance serve to indicate belonging, although the opposite is not true. Figure 27 is an example of the use of tools to highlight content through the use of different kinds of frames. The pointy frame indicates the title of the entire lesson, while the curvy frame indicates the title of the following list of words – both are highlighted in relation to the rest of text. Colour is usually used to emphasise, as Mijksenaar (1997) states, but not in this case, since it serves to differentiate the information – being classified as a tool to indicate belonging.

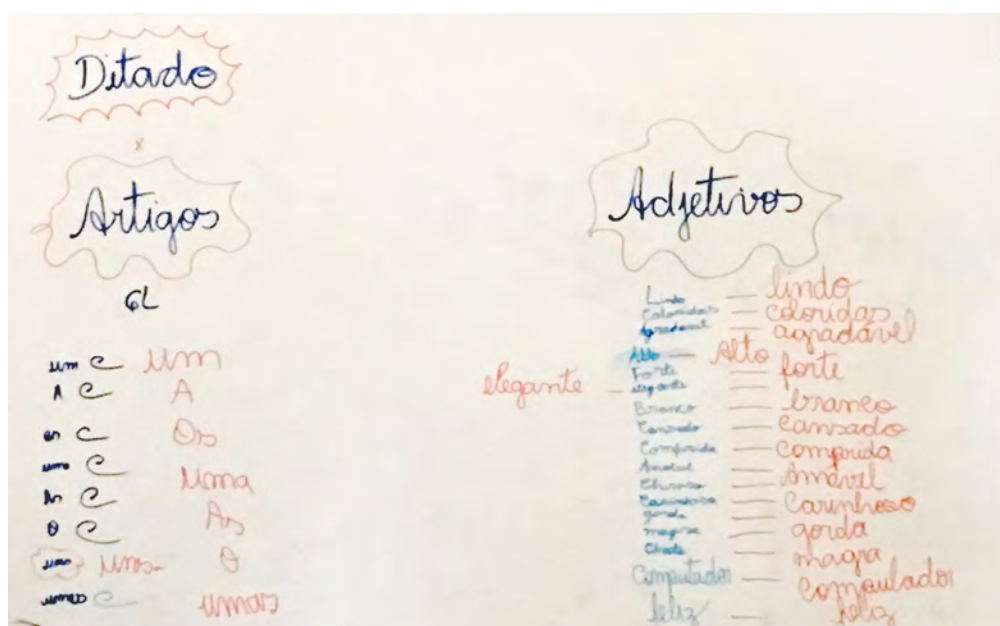


Figure 27. Example of tools indicating importance, used by teacher Rita, at the Dom Helder School.

- *Meaning* – it should be noted that textual graphic tools may reduce the effort involved in reading and writing by visually exposing relationships that could be textually described but that were graphically displayed instead. This, ultimately, reduces the effort at both ends of the communication string – writers and readers. The tools that indicate meaning are also used as shortcuts, but they relate to more complex concepts, being equivalent to what Kostelnick and Hassett (2003) termed referential functions. While these authors understood referential function as often being destined to a specific, trained audience, such as cartographers and their visual codes, we refer to some tools that are used for creating notations and coding in writing. They may either be generalised conventions,

such as the use of bars to represent dates, or more particular codes developed by a small group, which is appropriate in documents analysed in this research due to their limited circulation. An example in Figure 27 is the 'x' sign under the word 'Ditado', a symbol which means that pupils should skip a line in their ruled notebooks. This is a very common code used when copying texts from the board, within a context where children are developing their first writing practices.

- *Tone* – borrowing Kostelnick and Hassett's (2003) terminology, this category brings together tools used for setting the information 'scene', exposing the indirect and sometimes striking meanings that decorative elements can bring. Therefore, these tools may sometimes not be strictly connected to the content of the text, but are concerned with its consumption, enhancing the meanings indirectly. Thus, we understand these tools as those placed for aesthetic purposes and those for which the informational purpose is unclear; therefore, the assumption is that the writer has used them in order to establish a tone, providing a certain 'atmosphere' to the graphic composition. The fuzzy nature of tools that indicate tone makes it the most speculative of the categories, because its relationship to the text is not as clear as in the other categories, and the participant subjects were not consulted about their intentions in using them. Hence, if some elements in graphic design are arbitrary, resulting from technical constraints, or if they were chosen to communicate indirectly on purpose, most of them will be included in this category⁴. For example, in Figure 28, the pink lines added to separate the lines of text have no informational reason to be there, the child probably added them in order to aid writing on a blank piece of paper and/or to decorate and fill it.

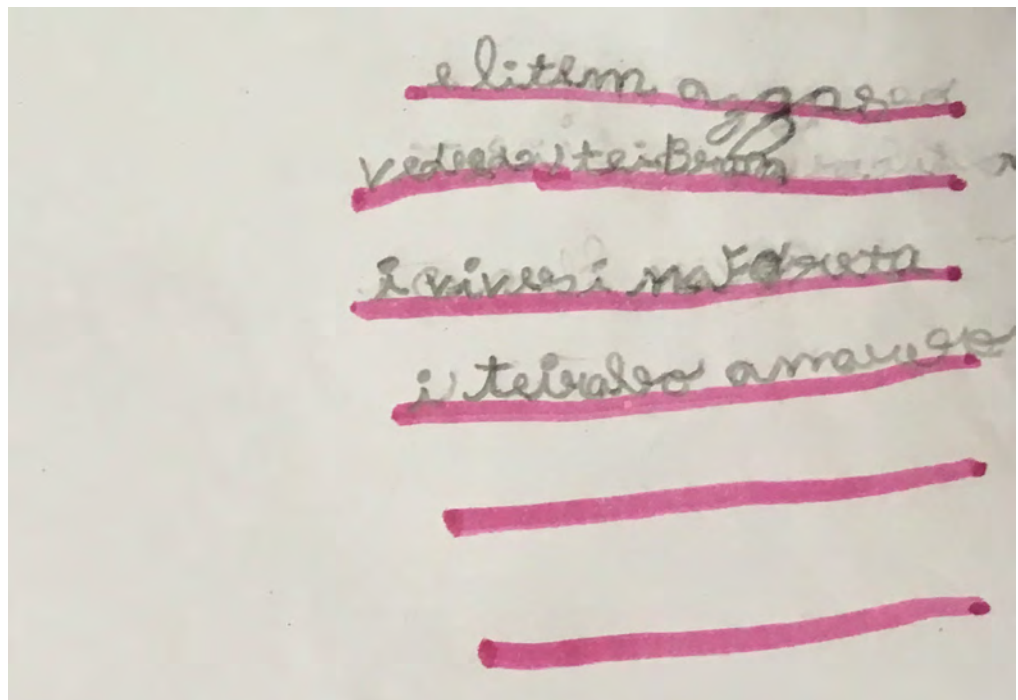


Figure 28. Example of a tool indicating tone used by the pupil Jéssica, at the Campina do Barreto School.

⁴ According to Waller (1987), it is not always easy through mere analysis of the graphic object to tell the intentions of the designer, who also underlies the interference of the process of publication in the final form of the object.

4.1.2.3.4 Where is it used in the text?

Another acknowledged feature of tools was the numerous dimensions of text organisation into which they could be introduced, such as: the phrase, the block of text or the page. In a theoretical review, it was observed that different authors have adopted different positions regarding this issue, and were taken into consideration before defining the categories for this investigation.

Twyman (1982), when discussing features of the visual presentation of information content, makes a simple distinction in the verbal features: they could either be *intrinsic* or *extrinsic*. Intrinsic features are related to the characters themselves, e.g. the character set; variations such as italics, bold etc; typeface; and size of letterforms. Extrinsic features are modifications that may be made to letters, including: changes of configuration, micro spacing (at the letter and word level), macro spacing (at phrases and text level) and the addition of colour.

These categories, then, were not exactly appropriate for describing handwriting because intrinsic features were explored much in the handwritten material – even if there were no constraints such as the limitation of glyphs and shapes that another means of production would display, like a typewriter. In addition, the single category of the extrinsic level for describing the typographic expressions observed did not accordingly address the variations.

With the intention of studying the semantic aspect of typography, Stöckl (2005) segmented the possibilities of graphically manipulating text into four domains, where it can impact meaning. *Microtypography* refers to the design of fonts and glyphs, their colour, size, style; *Mesotypography* relates to graphic modifications in lines and text blocks; *Macrotypography* discusses the structure of the document as a whole; and *Paratypography* considers the materials and techniques involved in the graphic production. Those domains make complete sense for Stöckl's purpose, as they illustrate that typography is able to create meaning on many levels, from the shapes of the letters to the way they are grouped and positioned on the surface – indicating that it is more than a mere 'instrument for encoding language' (Stöckl, 2005: 205).

Although this idea of zooming in and out of the typographic levels is interesting for our intentions, we have found it very difficult to apply to analytical purposes. This is because the features – or, as Stöckl calls them, the building blocks – described for each domain, cannot always be classified as belonging only to that domain, and the author does not develop reasons as to why some of those properties were grouped in that way. For example, does the use of bold mean that a piece of information is an important example of microtypography (being a different style) or macrotypography (representing typographic emphasis)? These issues have discouraged the application of Stöckl's

‘framework’, along with the fact that domains such as the paratypography and microtypography were not appropriate for the aims of this research.

Katherine Gillieson (2008) employed a similar terminology in her categorisation of graphic features in books, organised into three levels – the *micro*, the *macro* and the *meta* levels. The micro level was related to the irreducible parts of design: text, image, diagrams; the macro focused on how the elemental parts of a book were grouped; and the meta level was concerned with the principles and guidelines that structure the design of books. Even if this is not applicable to handwriting, Gillieson provides a significant manner of viewing complex graphic features in a non-static way, and considers the shifting relations that the combinations of elements might bring. This has definitely contributed greatly to defining the levels of influence considered in this work, because early analysis of typographic features has demonstrated that it may be used to reach different levels of a graphic message depending on where and how it is used.

However, we have taken into consideration Moys’ (2012) warning with regard to the recurrence of the ‘micro’ and ‘macro’ terminology with a diversity of meanings in typographic research. While she based this analysis on the frameworks by Stöckl (2005) and Gillieson (2008), she also included work by Hochuli (2008) and Kunz (2002). In her own framework, Moys sought more popular, recognisable terms, encountered in editorial software such as *Adobe InDesign*, to describe categories of attributes, which are: *character attributes*, which relate to the choice of font and style; *paragraph attributes*, regarding the organisation of texts in lines and paragraphs; *display attributes*, related to the arrangement of graphic elements in the visual field; *physicality attributes*, which describe the materiality of the document; *anatomical attributes*, which are the issues involved in the constitution of letterforms; and *object attributes*, which relate to the presentation of graphic features other than text (Moys, 2012).

Furthermore, as in Stöckl’s framework, the categories described by Moys go beyond the aims of this research as her work considers more dimensions in the typographic work, such as the anatomical and object attributes. The inappropriateness of so many frameworks for our analytical corpus illustrates the problems encountered in employing them for the specificities of handwriting. The difficulty in producing a wide range of character graphic features forces the language to explore the spatial organisation⁵ more. This shift in the intrinsic/extrinsic features to overcome technical constraints is a phenomenon described by Twyman (1982). It has been observed that these two

⁵ Walker (2001) discovered in an experiment on letter writing in schools that there were more shared practices regarding layout features (extrinsic), while house style practices (intrinsic) were more diversified and less consistent. She correlated this outcome with her analysis on the prescriptions displayed in manuals on this genre, which dedicated more effort to extrinsic features. Although the author did not relate this finding to handwriting (and it is not clear if the manuals she mentions are restricted to handwritten letters), it provides evidence on this feature of handwriting, inasmuch as it is consistent with what Twyman (1982) postulates on the technological constraints that affect shifts in extrinsic/intrinsic attributes.

categories he described are appropriate for the analysis of some technologies (thus far existent and implemented) with their constrictions. For example, colour is considered an extrinsic feature because it is only posteriorly applied in production/printing systems such as lithography and metal type, but in some digital production/printing systems, colour is a physical attribute of the text from the layout stages. Moys (2012) framework, conceived 30 years later, updated the study of typographic attributes, reflecting on design practice in the core of desktop publishing technology. Thus, the consideration of these attempts in describing the instances of verbal articulation reveals how contextual they are, from which any framework delineated in this research could not escape.

Moys received influence from the work of Kostelnick (1988, 1996) that proposed four levels on which the elements that encode language (alphanumeric/symbolic, graphic and spatial) can operate: *intra-textual*, *inter-textual*, *extra-textual* and *supra-textual*. Intra-textual level relates to local features at the level of characters and words; inter-textual level includes textual structure and layout features; extra-textual level is connected to pictorial elements and diagrams harmonised to a text; and supra-textual level is concerned with the consistency of the entire document. Although this conceptualisation of categories differs little from what has been exposed so far, the terminology employed by the author has triggered the observation that the best way of describing the effect of typographic features might be relational rather than domain based.

In other words, the following categories describe text levels using its content structure as a parameter, while the other frameworks discuss different levels according to the type of graphic modification. Therefore, while the previous approaches can be seen as concerned with the numerous morphological domains in which a text can be manipulated, we are proposing to observe textual graphic tools from a syntactic viewpoint. The inspiration was found in the work of Norrish (1987), whose method of describing textual organisation was to build tree-shaped diagrams with the constituent parts of the documents and pose questions about them according to the features that they displayed. Even if her method has not been employed in this research, its rationale of departing from the structure of the text has been maintained.

Exemplifying the difference between the cited approaches may be achieved in one example: the analysis of the use of bold type in a title. This was seen as an intrinsic feature by Twyman (1982), a microtypographic building block by Stöckl (2005), a character attribute by Moys (2012) or an intra-textual element by Kostelnick (1988, 1996). Put another way, the effect of such bolder letters in the structuring of a text is neither an occasional nor decorative feature, but aims to expose one of the text's main components. Therefore, bearing these components in mind, the proposed levels that may be affected by the tools are:

- *Document level* – tools that affect the entire text in organisation and navigation, such as the use of columns in a layout to avail the space and organise the text flow or a frame that brings the text in tighter and does not allow it to mix with other content that might be close by.
- *Grouping level* – even the purest prose with its continuous flow has some constituent parts such as chapter titles, footnotes, and the title of the text; thus, other genres of texts rely on many constituent parts that structure them. This level approaches the main parts within a text.
- *Subgrouping level* – throughout textual parts it is often necessary to link different subparts, for example, the body matter in a manifesto is not a continuous text, but rather is composed of several statements. Tools employed to articulate the subparts within a structural component of a text are classified in this group. In addition, whether a tool will be classified as affecting the groupings or subgroupings level is defined by acknowledging the genre and by considering the relationship between its parts. For example, in analysing a text of which the genre is unknown, the recurrence of visual tools in textual blocks signals that they are equivalent and might be understood as constituting a bigger grouping. Yet, some features in the subgroupings cannot be identified by analysing repetition, such as the indentation in citations that are placed inside continuous prose. This happens just once, but may still be understood as a tool applied to a subgrouping level, and in this case the body of text is the bigger grouping.
- *Word level* – this is the level of tools that will not affect the structure of a text, but that will still be used as a means of visual cue, aesthetic purposes and so on. In this very text, we can see italicised words that do not constitute a separate part of the text nor link different parts, but they are a fundamental element for indicating key concepts.

4.1.3 Practical Procedures in the Analysis

After selecting the activities that compose the analytical corpus and defining the framework as described above, the actual analysis took place with the aid of a computer, as neither the pictures (visual records of the writing) nor the forms were printed, for the sake of economy and practicality.

If the analysis forms had been physically produced, they would have looked like Figure 29, which displays a summary of the commented features of the textual graphic tools. This prototype was created just to indicate what had been observed, because the actual analytical activity took place with the aid of *Microsoft Excel* spreadsheets.

Activity Identification		School		Author	
AI0105		Arco iris School		Lucila	
Type of activity		<input checked="" type="checkbox"/> Copy <input type="checkbox"/> Free		Role <input checked="" type="checkbox"/> Teacher <input type="checkbox"/> Pupil	
Tool	Type of tool	It indicates	Level affected	Further comments	
Midpoint	<input checked="" type="checkbox"/> Alphanumeric	<input checked="" type="checkbox"/> Belonging	<input type="checkbox"/> Words	-	
Context of use	<input type="checkbox"/> Picto-Schematic	<input type="checkbox"/> Importance	<input checked="" type="checkbox"/> Subgroupings		
Used to list items	<input type="checkbox"/> Spatial	<input type="checkbox"/> Meaning	<input type="checkbox"/> Groupings		
		<input type="checkbox"/> Tone	<input type="checkbox"/> Document		
Tool	Type of tool	It indicates	Level affected	Further comments	

Figure 29. Representation of how a physical form with the proposed framework would look with all the considered dimensions of the analysis. It is cropped at the bottom to indicate that every activity usually presented more than one tool, and each tool was individually scrutinised.

The analysis of every activity began by considering the teachers' 'model', when it involved copied texts. This model provided a parameter of the textual structure and layout that would probably be present in the copied texts of the pupils, even if they decided to choose other ways to organise it visually.

During the analysis, as some elements did not fit easily into the designed framework, we tailored certain criteria regarding how to proceed in such cases, as indicated below.

Visual tools that were an integrated part of the textual practice, largely ruled by grammars and that cannot be expressed differently were not considered. For example, the use of capitals at the beginning of a sentence helps to visually articulate the discourse, as much as commas and periods, but none of these were included. Gilreath (1993) also excluded them from his graphic analysis, considering them part of ordinary prose. Tools such as punctuation were only analysed if they replaced other ways of manipulating information, such as space or another tool expected in such a situation. For example, full stops were only considered textual graphic tools when placed between numbers when denoting dates (e.g. 8.2.2018) or when items on a list were not organised one beneath the other, vertically, but in a paragraph with periods separating them.

Another issue in the analysis is that the repetition of the same tool used for a similar purpose has not been considered. For example, an extra space if used to separate the header from the title and the title from the body of the text has been included just once, as these two incidences could be classified in exactly the same way: a spatial tool used to indicate belonging to the grouping level. However, if extra space was also used to link items of a list within the body matter, it would be included again, because it affects a different level (subgroupings).

The effort of equalising documents written in artefacts other than the ruled notebook might not have properly described modifications in the text beyond the orthogonal filling of the page. The flow of a text on a ruled page is very different to that on a blank page. The latter allows more arrangements and freedom to organise the text, but features such as the position of the text on the page, were not considered.

The following topics in this fourth part are dedicated to describing and analysing the documents from the analytical corpus from three viewpoints: the toolbox, the relationship between tools and functions; and the relationship between tools and levels. In all of them, the uses and practices of both teacher and pupils will be described and compared in each observed class, considering the tool types, plus to finish, an analysis of the general practices.

* * *

After presenting the framework, we concentrate on the results of the analysis in sections 4.2, 4.3 and 4.4. They will be presented and discussed for each of the eight classes. Three main dimensions that emerged from the analysis were used in the presentation of the results: the toolboxes (section 4.2); the tools and their functions (section 4.3); and the tools and their levels (section 4.4).

4.2 TOOLBOXES

In this topic, we analyse the graphic tools that both teachers and pupils used in the collected data, providing a detailed account by discussing what was done in each classroom together with a general idea of the preferences in organising handwriting. To understand the data in each visited class, a graph that summarises most information was developed for each and, for the sake of brevity, will only receive an explanation after the first example.

4.2.1 Emídio Dantas Barreto Municipal School

This school presented the lowest number of graphic exercises, partly because the activities were very long-running, which could be related to the mixed levels of writing skills among the pupils, and partly because there were two days with no classroom activities. In broad terms, the average graphic activity in this class involved pupils using their notebooks to copy exercises that the teacher had written on the whiteboard – and these were the only examples analysed in this collection. There were 10 selected activities (from a total of 26) that were eligible for analysis according to the previously discussed criteria, amongst which only one was a free activity.

The graph below provides information on what was witnessed and registered in this school in terms of graphic differentiation in handwriting, and it demonstrates the following aspects:

- *Teacher and Pupils tools* – The column on the left presents the graphic tools used by the teacher and on the right, those used by the pupils – both in the selected 10 activities that complied with the criteria.
- *Frequency* – The graphic tools are arranged in a list following the criteria of frequency: those most used are at the top and those less used at the bottom. The data has not been treated statistically, nor does this graph make proportional use of the space to represent quantities – the items are just listed one after the other. Thus, the representative percentage of each tool in the total amount for each group is also described to clarify that at times the location in the frequency span was for practical rather than semantic reasons.
- *Shared tools* – The coloured lines in the middle connect tools that were used by the teacher and pupils, which may present a direct relation to coping a specific text or just a coincidence/influence, i.e. when the pupils use that tool in other contexts. Even if the length of the lines does not accurately illustrate how different the usage was for each group, it at least indicates that the tool was preferred by one and not the other, considering that they are in an order according to the usage. For example, the line that connects the tool *line* is one of the longest, as a result of being very recurrent in the teacher's toolbox, although it was not one of the tools preferred by the pupils.
- *Copying and free work* – The pupils' column in the graph presents a list of tools used in copywork and free work, and the graphic tools that were used in the latter are highlighted and in white letters. The order of these graphic tools might not coincide with the order of a list made only with the tools used in free work. Clearly, the highlighted words are only displayed in the pupils' column, representing the tools chosen by the pupils to use, not because they were supposed to copy.

- *Added tools* – The tool that the teacher was requested to add to her practice in a specific context has been placed in the yellow frame. This does not signify that because it appears in the pupils' toolbox it was only because they had copied it: they might have used it for other purposes.
- *The type of the tools* – the colour coding marks how each tool can be categorised: picto-schematic, such as *lines*; alphanumeric, such as differentiation in letters and numbers (e.g. *size* and *upper case*) and also non-alphabetical glyphs; or spatial, which refers to the modification in the occupation of the space by the text.

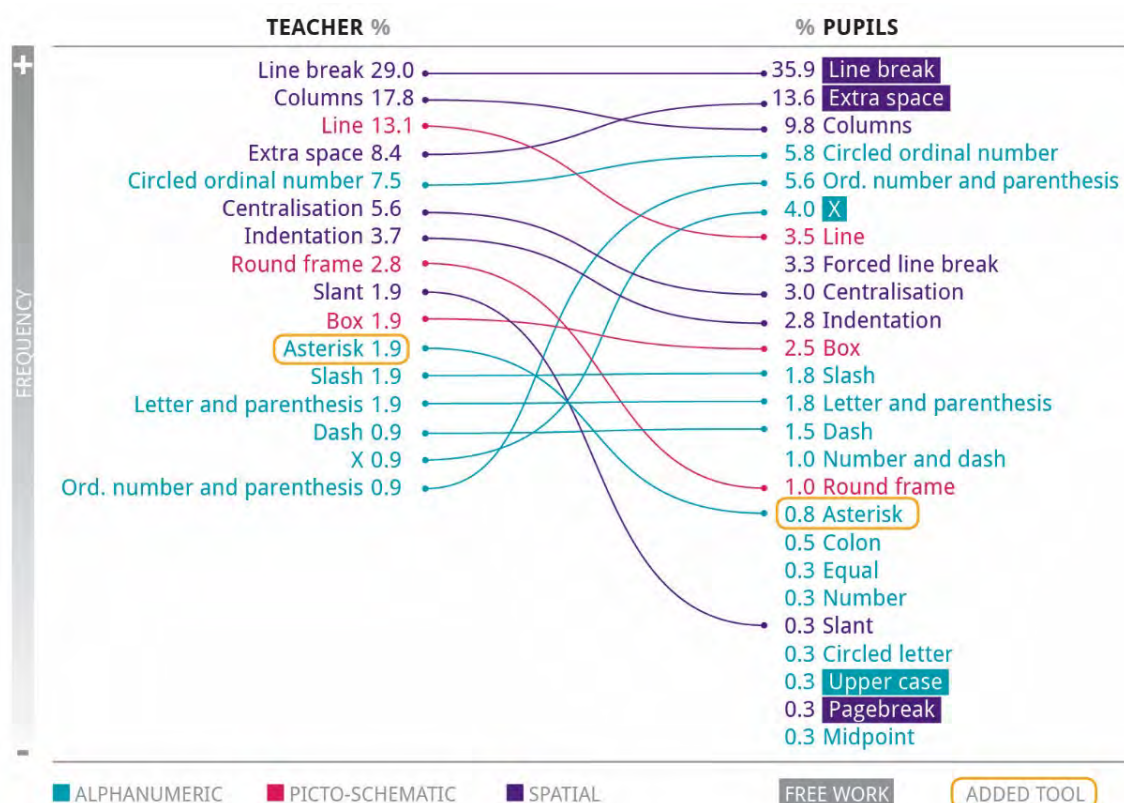


Figure 30. Teacher and pupil toolboxes at the ED School.

At first glance we can see that all the tools used by the teacher were also used by the pupils. Being a group of eight, the pupils' toolbox is naturally bigger, considering the many influences and preferences they have.

The tools that are not shared are mostly glyphs and alternatives to *circled ordinal numbers* – the way that the teacher preferred to ordinate questions and sub-questions in an exercise –, which includes other treatment for numbers such as *number and dash*. Some tools are there as a result of developing literacy, such as the use of *upper case* when pupils are still a little uncomfortable with cursive writing, and the *forced line break* (Figure 31), which is caused by not understanding that the pauses in the text appear because it has reached a margin. The same kind of misjudgement probably occurs in the *page break*.

Analysing what is more frequent reveals that the most commonly used tools are spatial, meaning that information differentiation is mostly represented by the placement of the text in the space. The *line break*, for both groups, is used at least 3 times more than the next tool. On the other hand, the tools used the least

are very different in both groups: the pupils' ones are not used by the teacher at all and the teacher's ones are popular among the pupils. This is the case of the ordinal number followed by a parenthesis (Figure 31), which is not often used by the teacher, but is an alternative to the *circled ordinal number* for the pupils. They often requested the use of an X (which can either be the letter or the multiplication sign) to mark the blank lines that help to distinguish text blocks. But the teacher's practice of underlining (Figure 31) important information is rarely used by the pupils – which is represented by the *line* tool, that covers vertical and horizontal lines.

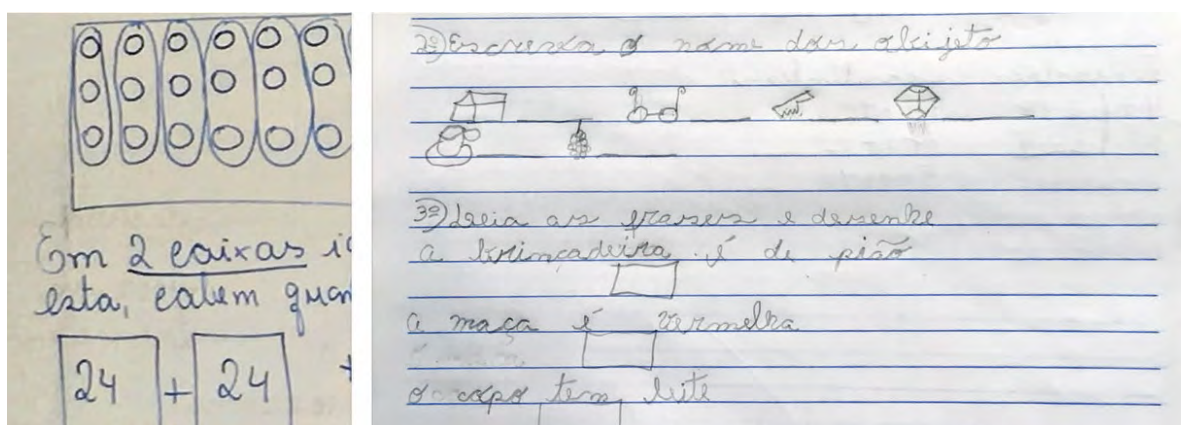


Figure 31. Left image: a **line** used to underline information. Right image: Example of **forced line break**, as the text line will not reach the right margin, and of questions numbered with **ordinal number and parenthesis**.

Most of the least used tools were alphanumeric, including the tool that was added at the request of the researcher as a visual cue in the teacher's toolbox, an *asterisk*. Teacher Lúcia used it twice for different purposes, but when she used it as a visual cue in lists, as requested, it was not reproduced by the pupils. Maybe it was inconsistently used because it was rivalling another tool, signifying that the asterisks that appear in the pupils' toolbox were used for a different purpose: they were adopted as an equivalent tool for the X in a previous situation.

Analysing the free work, it is possible to notice that the students called on the tools they were most familiar with and which were also similar to those most frequently used by the teachers. The others were tools they are familiar with (the X, writing in capitals) and, in broad terms, they were mostly spatial – plus the X, a visual aid related to the spatial manner of organising information.

4.2.2 Campina do Barreto Municipal School

At this school, 33 activities were registered, but only 15 were in accordance with the designated criteria for analysis (2 of which were free work). The diagram summarising the teacher and pupil toolboxes is presented below:

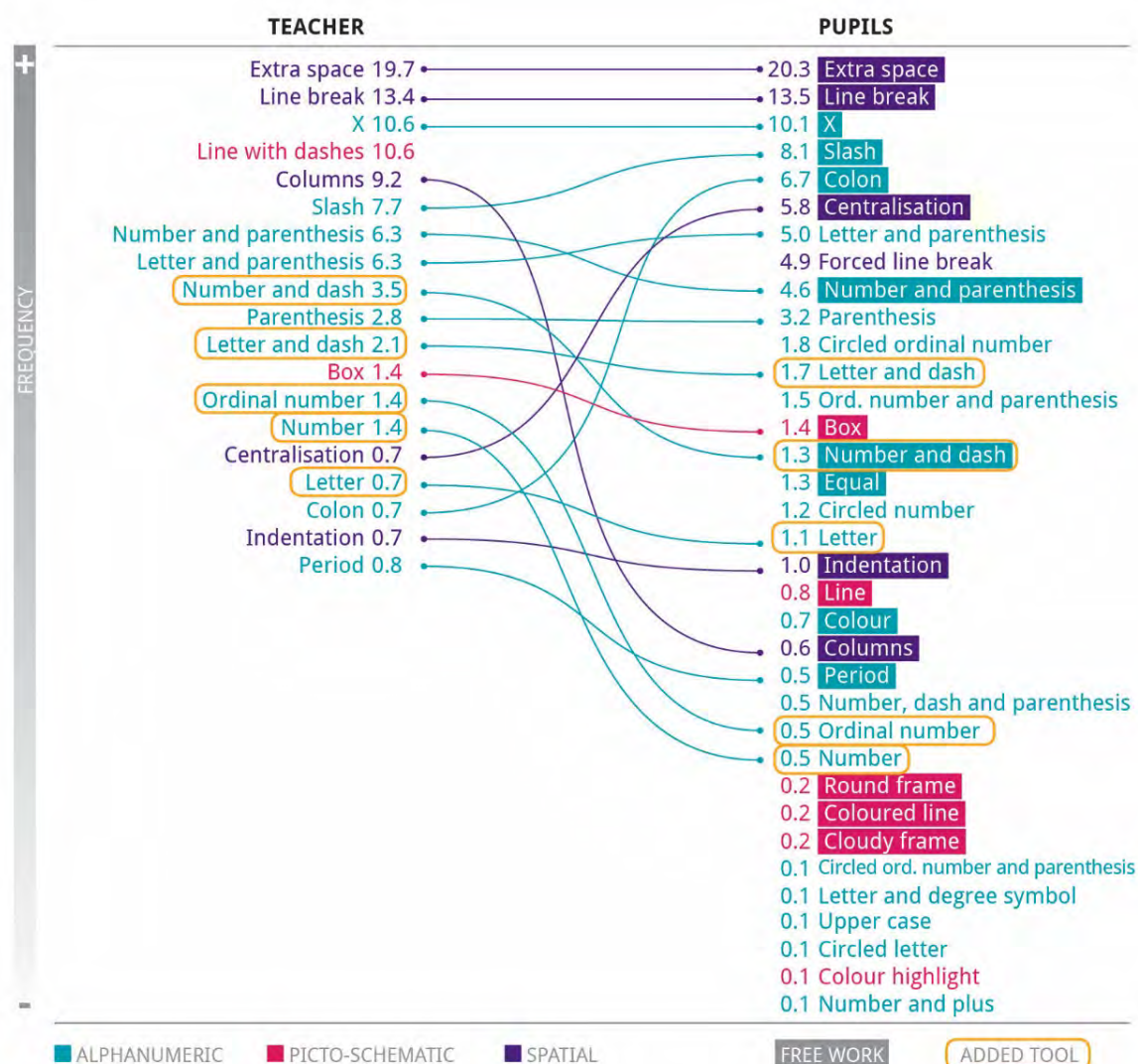


Figure 32. Teacher and pupil toolboxes at the CB School.

The pupils used more tools than teacher Fernanda, whose tools were almost totally shared with the exception of one, the *line with dashes* that she used to organise writing on the whiteboard. Most of the pupils' tools were alternatives for numbering questions and sub-questions (Figure 33). There were also picto-schematic and spatial tools, such as the *columns* they observe almost every day in the teacher's use of the whiteboard space.

The frequency was quite similar in both toolboxes, except for the diversified alternatives for numbering and the more frequent use of the *colon* by the pupils (Figure 33), as a manner of connecting information within a line of text, and of the *centralisation* of text to emphasise that information.

When focusing on the tool categories, in both toolboxes there is a frequency prevalence of spatial tools – around one third of the tools used – and of the variety of the alphanumeric. Pupils displayed a greater diversity of picto-schematic tools, and the only different spatial tool was *forced line break*, which was very frequent although problematic, since it is linked to an understanding of the writing procedures that must be constructed by the pupils.

In the free work, the pupils opted mostly for tools shared with the teacher, and also the most frequent tools in their own toolboxes. However, they also explored other tools, some often connected to the media they have used: *colour*, which comes from coloured pens, *lines* and *columns* (Figure 33) employed to help them with writing on blank paper. All the new tools that were added were properly copied by the pupils.

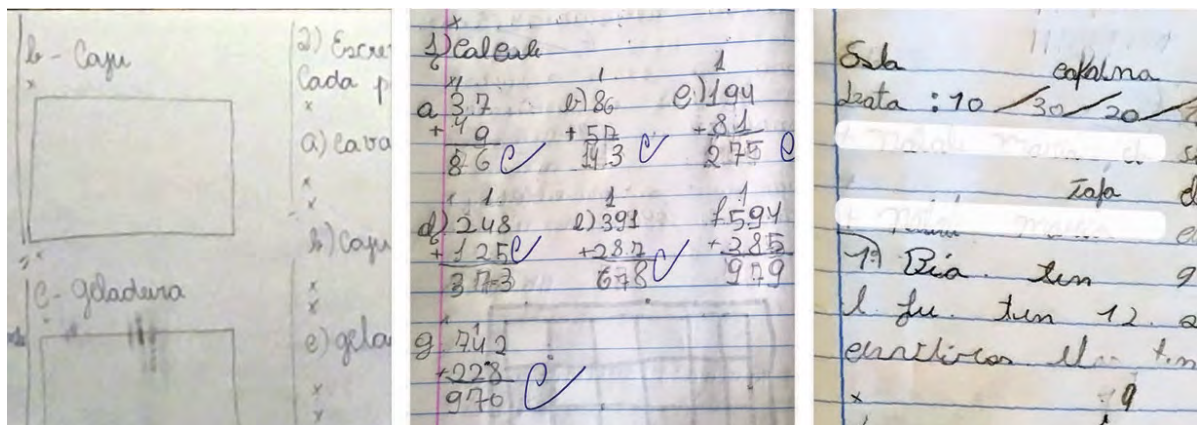


Figure 33. Left image: teacher Fernanda used two ways of sequencing with letters: **letter with dash** and **letter with parenthesis**. Centre image: although not in the free work, **columns** were used to arrange items and subitems by some pupils. Right image: the **colon** was used either to connect or separate the label and the date.

4.2.3 Arco Íris School

The 13 activities analysed in this school were unlike those described at the municipal schools, as they belong to a different genre. While in the previous schools the activities analysed were mainly notebook exercises, here the focus was mostly on diary texts – which were completed every day and complied with the selected criteria. The other three activities analysed were notebook exercises, two of which were free activities.

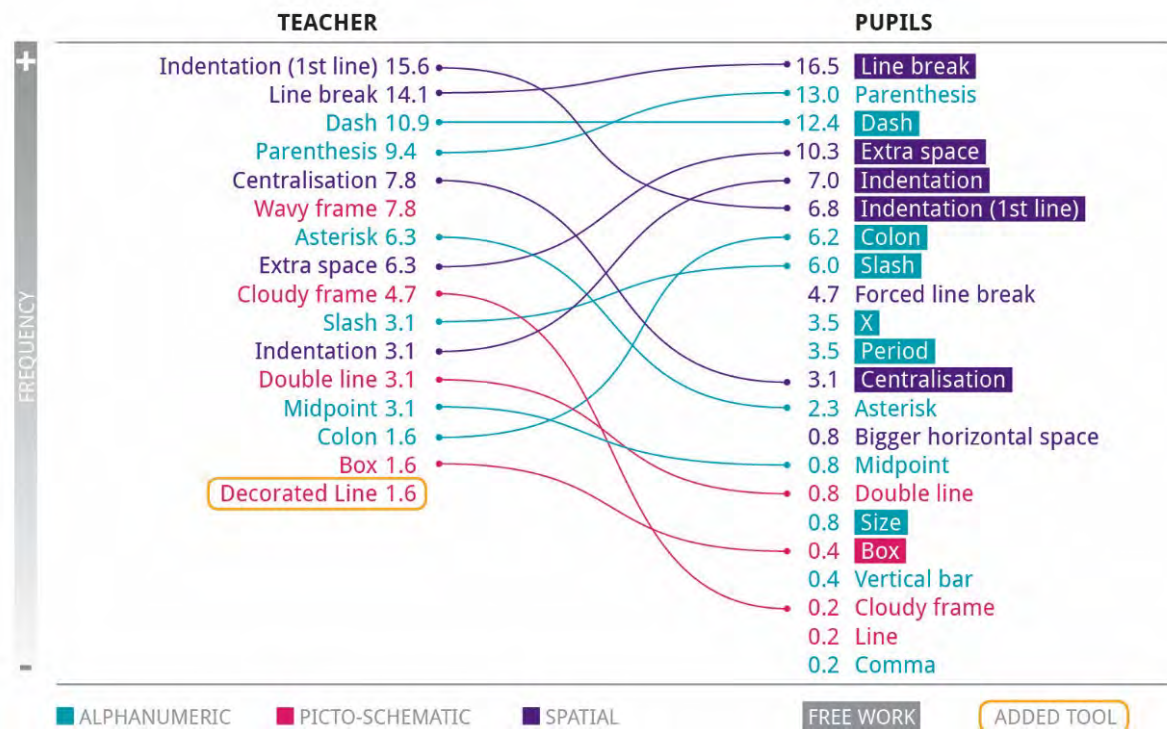


Figure 34. Teacher and pupil toolboxes at the AI School.

The text structure in the diary is usually different from the genres written in the notebook, which generally have a header, a title discriminating the subject or the purpose of the text, and the body of the exercise, containing questions. The diary text is structurally simpler, as it is mostly composed of a list of tasks that need to be completed by the pupil. Hence, most of the tools described in the diagram above depict ways of arranging those tasks in order to make them different and, at the same time, give the impression that they belong to the same category.

The simplicity of the diary text might be an explanation as to why the pupils' toolbox is bigger than the teacher's, although not as big as those in the previous classes. Almost all the tools used by Lucila were used by the pupils, except for the tactics of highlighting information through the use of a *decorated line*. While the pupils displayed frequent tools like *X* and *forced line break*, they also used alternatives for the vertical exhibition of items in a list, using *comma* and *period*

(Figure 35), and for the vertical linking of text groupings, leaving a *bigger horizontal space* between parts.

One of the first issues worthy of mention in the diagram is that there is a more balanced distribution of the frequency of tools than in the previous examples. There, tools used for organising different parts such as *line break* represented almost a third of the tools used. This was not the case in Lucila's toolbox because some of the activities were composed of only one text grouping, which signifies that it did not have to be linked with another. That said, the pupils mostly used *line break* although the rate was not so high compared to other tools, which thereby demonstrates a variety of tools actually being used.

An analysis of the frequency illustrates that the tools most used are similar in both groups, but the others have divergent rates. When looking at the colours, we note that the spatial tools are more often found in the upper half, while the picto-schematic tools are more often in the bottom half, especially for the pupils, as they did not very often emphasise or frame (Figure 35) the information. Since they tended to concentrate on the core of the information, the alphanumeric tools that cannot be easily replaced by other tools are at the top of their toolboxes.

In the free work, most of the tools used by the pupils were among the most frequent – but not the frequent tools that were linked to information usually contained in the diary (*parenthesis* is used to depict questions that should be solved in the study books) and to the activity of copying (*forced line break*). The added tool was not repeated by the pupils.

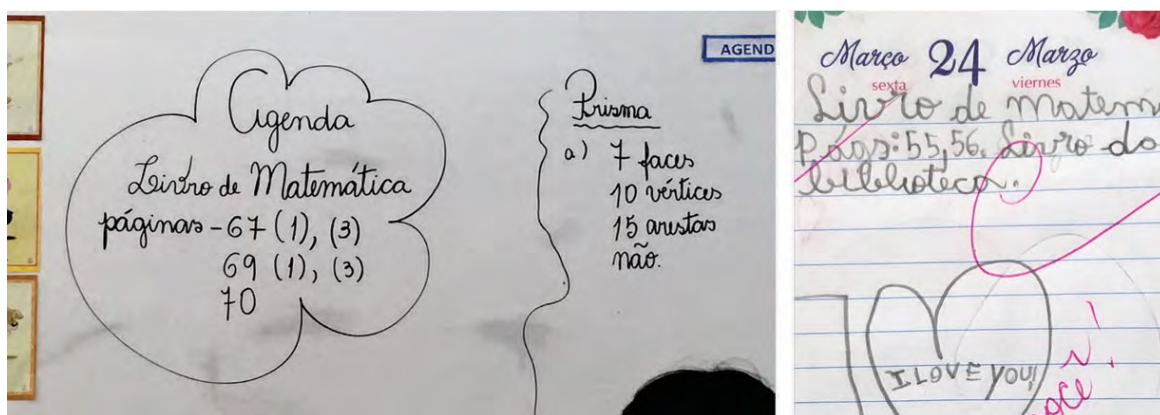


Figure 35. Left image: a **cloudy frame** was used to separate a specific text from other information on the whiteboard, and spatial tools like **indentation** and **line break** were used to organise and hierarchize information. Right image: Instead of using line break to separate items in a list of tasks to do at home, Laura preferred a **period** (after the number 56), listing items one after the other.

4.2.4 Santa Rita de Cássia Institute – Morning

The regular use of the diary and notebook in the activities conducted by teacher Paula guaranteed 15 activities for analysis, all of which were copying activities. There were also two free activities: one of which was an Easter greetings card and the other a poster.

The poster was not exactly a free activity, as the teacher suggested a layout on the whiteboard (this is why there are highlighted tools in the teacher's column in the diagram below) – but the information the pupils were given was for them to create. Another issue regarding this activity was that it was conducted as a group activity and not individually, like all the others. Even with these particularities, it was nonetheless analysed because it was an opportunity to compare it with the same activity undertaken by the afternoon class. In the analysis, the tools were those considered to be used by each member of the group individually.

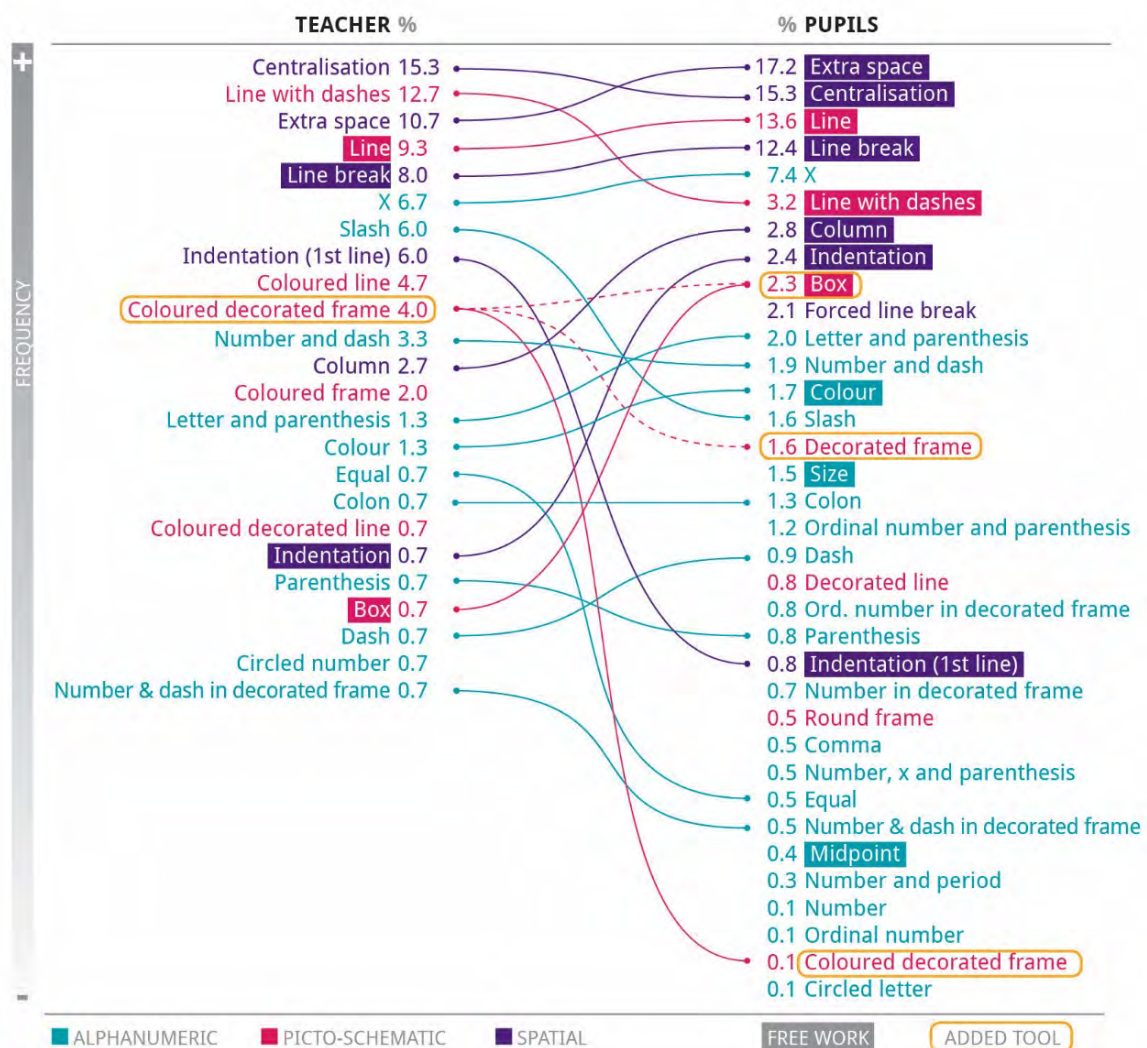


Figure 36. Teacher and pupil toolboxes from the morning classroom at the RC School.

Both toolboxes are very diverse and that of the pupils would be even more diverse if similar tools had not been grouped under a more generic description. For instance, pupils made lines with different patterns which were classified as *decorated lines*, and this also occurred with frames, irrespective of whether it had a curly or a wavy pattern (Figure 37). There were many variations in the coloured frames (squared, round, cloudy and wavy) and lines (straight, curly and wavy), so, when any were different from the usual straight or geometric shapes (*box*, *round frame*) they were summarised as *coloured decorated frame* or *coloured decorated lines*.

There is a lot of *colour* in the teacher's toolbox, but this was not generally followed by the pupils, due to material restrictions, as they mainly used a pencil. Opportunities for them to use other colours arose in projects where they were given more time and freedom to explore other types of pens and pencils.

Pupils and teacher share the same top six tools, but at different rates. For example, in many situations Paula used *line with dashes* to divide the whiteboard into narrow columns, which is something the pupils did not need to do. Any differences in the frequency of use may be explained through colour: pupils replaced *coloured decorated frames* with *decorated frames* and even just *boxes*. In terms of frequency differences, pupils rarely used the *indentation of the first line* to mark a paragraph and, conversely, they often used *indentation* – but mostly without any informational purpose, as the pupils Tales very often did.

Most tool variation was linked to alternatives for numbering questions: both in the character used after the number and the picto-schematic element used to highlight it. These formed the majority of the alphanumeric tools at the bottom of the toolboxes. At the top, there are the usual spatial tools sharing the space with picto-schematic tools, especially in the teacher's toolbox.

In the free work, most of the tools were shared with the teacher's toolbox and were the core of the tool repertoire used by the pupils. In the 'poster' project, they followed Paula's suggestion for the layout, but they also employed tools that created alternatives to what had been taught, such as the use of bigger letters to emphasise titles and *midpoints* to separate items on a list. The added tool was rarely copied correctly by the pupils because of the *colour*, although there were alternatives in the monochrome possibilities of a pencil, and its use as a substitute was represented in the diagram with dashed lines. Hence, dashed lines were employed to represent subtle differences between the tools in the diagrams which describe the teacher and pupils' toolboxes.

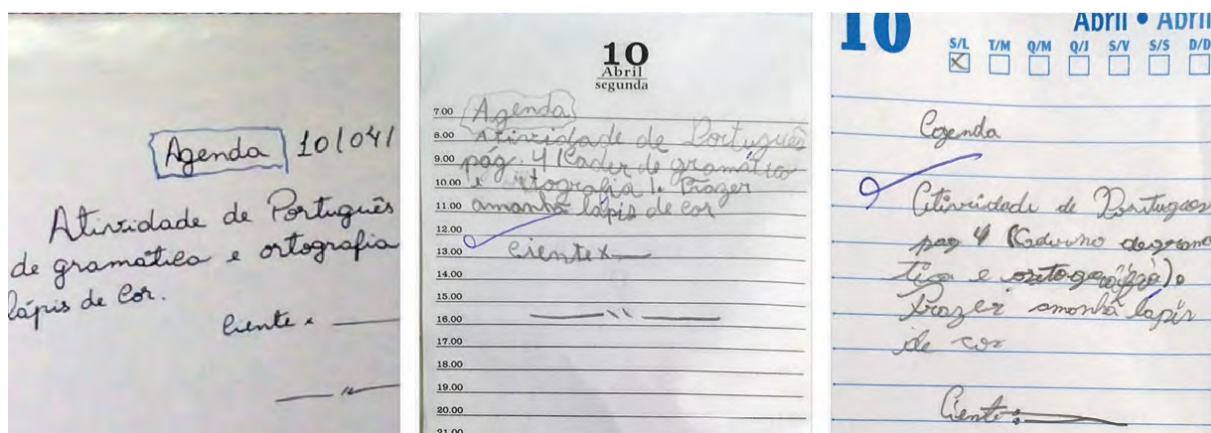


Figure 37. Left image: teacher Paula used a blue marker to make a **coloured decorated frame**. Centre image: When copying, Tais made a **decorated frame** without the colour. Right image: **Indentation** was a resource used by Tales for stylistic reasons.

4.2.5 Santa Rita de Cássia Institute – Afternoon

In the 18 analysed activities, teacher Amanda had written little in her texts and there were very few graphic differentiations. The pupils displayed a huge diversity of tools, although some were used more than others – e.g., *extra space* accounted for almost a third of the tools used.

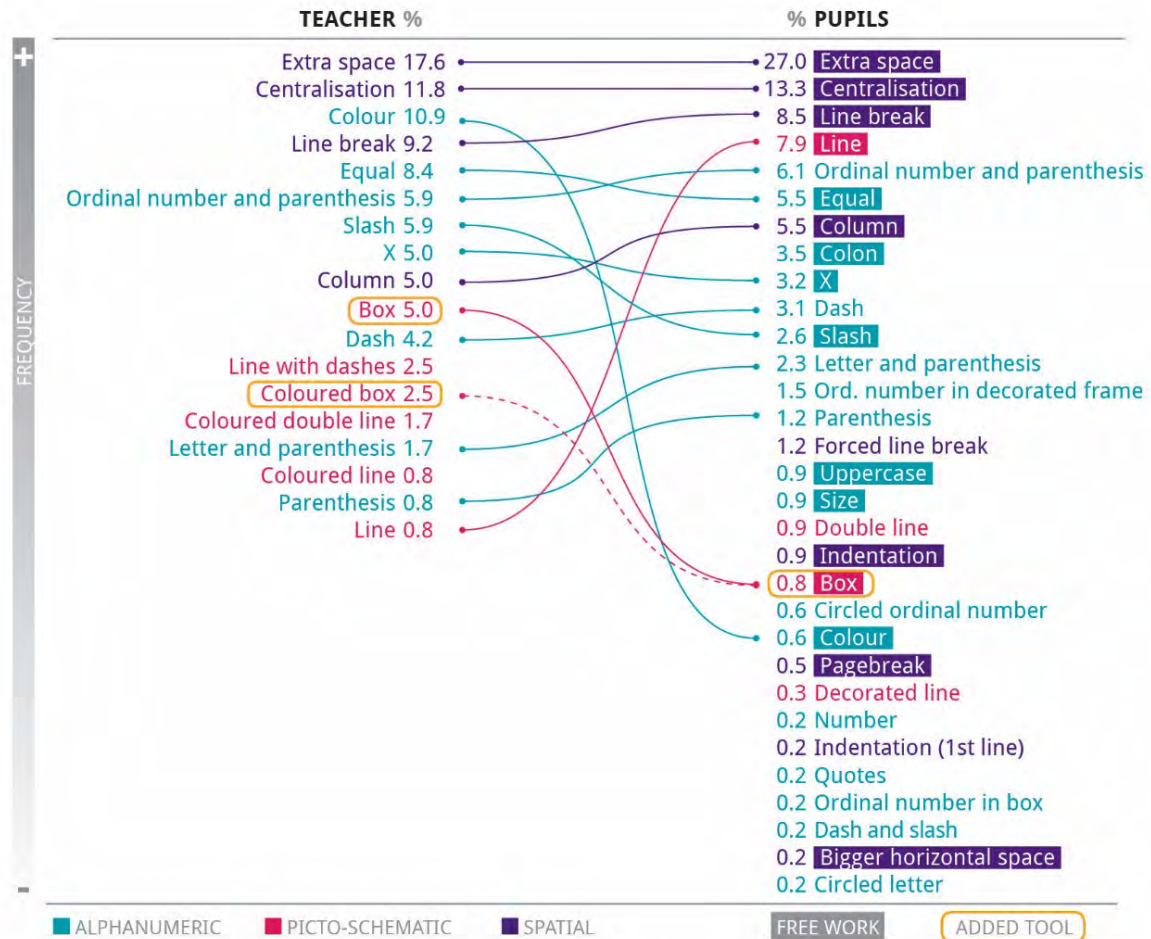


Figure 38. Teacher and pupil toolboxes from the afternoon class at the RC School.

Similar tools have been grouped under one description in order to summarise the toolboxes. For example, the tool *ordinal number in decorated frame* brings together various shapes of frames, such as hearts, semi squares and so on. Even so, there was a vast diversity of alternatives in numbering lists of questions.

Much like the previous class, *colour* represented a prominent element of difference between the toolboxes. Apart from this, the three spatial tools at the top of the pupils' toolbox were also used very often by the teacher (Figure 39).

Rates were similar in both toolboxes when *colour* was not involved. One great difference was the use of the *line*, an important tool for the pupils, who used it a lot in the free work and some of them traced lines for their parents to sign their diaries, indicating they had seen it. Besides this, picto-schematic tools had a

small share of both the teacher and pupils' toolboxes, which demonstrated a great variety of alphanumeric tools and a prevalence of spatial tools.

The free work was the same as in the morning group: posters and Easter greeting cards, but this time, completely free, with no suggested layout. Pupils therefore displayed other types of organisation, and one idea used by one of the groups was followed by the others. In the free work, the tools explored were along the same lines as the everyday toolbox displayed by the pupils, with a few small variations in the way they emphasised titles, using *upper case* and *size* (Figure 39). These strategies were adopted more than the added tool, which suggested framing as a way of highlighting.

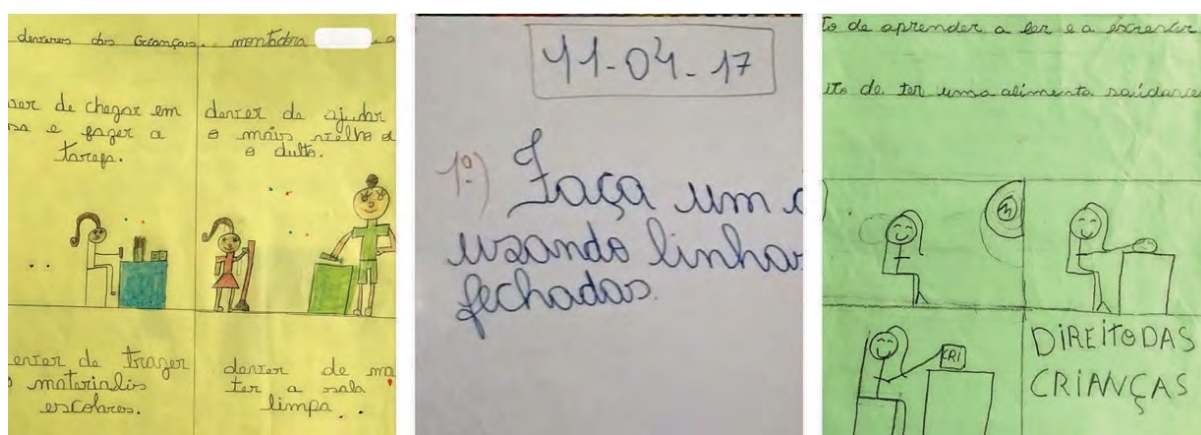


Figure 39. Left image: Pupils linked a list of phrases and drawings in **columns** and rows and influenced other groups of pupils. Centre image: teacher Amanda used **ordinal number and parenthesis** and **colour** was used to indicate that number and text were different types of information. Right image: In this poster, the pupil wrote using letters in a larger **size** and in **upper case** to highlight the title.

4.2.6 Lubenska Educational Centre

Of the 71 graphic activities registered, 16 were eligible for analysis according to the established criteria. Amongst these, only one was a free activity, because in this school pupil production is very regulated by teacher Cecília. The activities were mainly texts in the diary – which, as we have seen thus far, has few different components –, notebook exercises and a card for Mother's Day, which was the free activity.

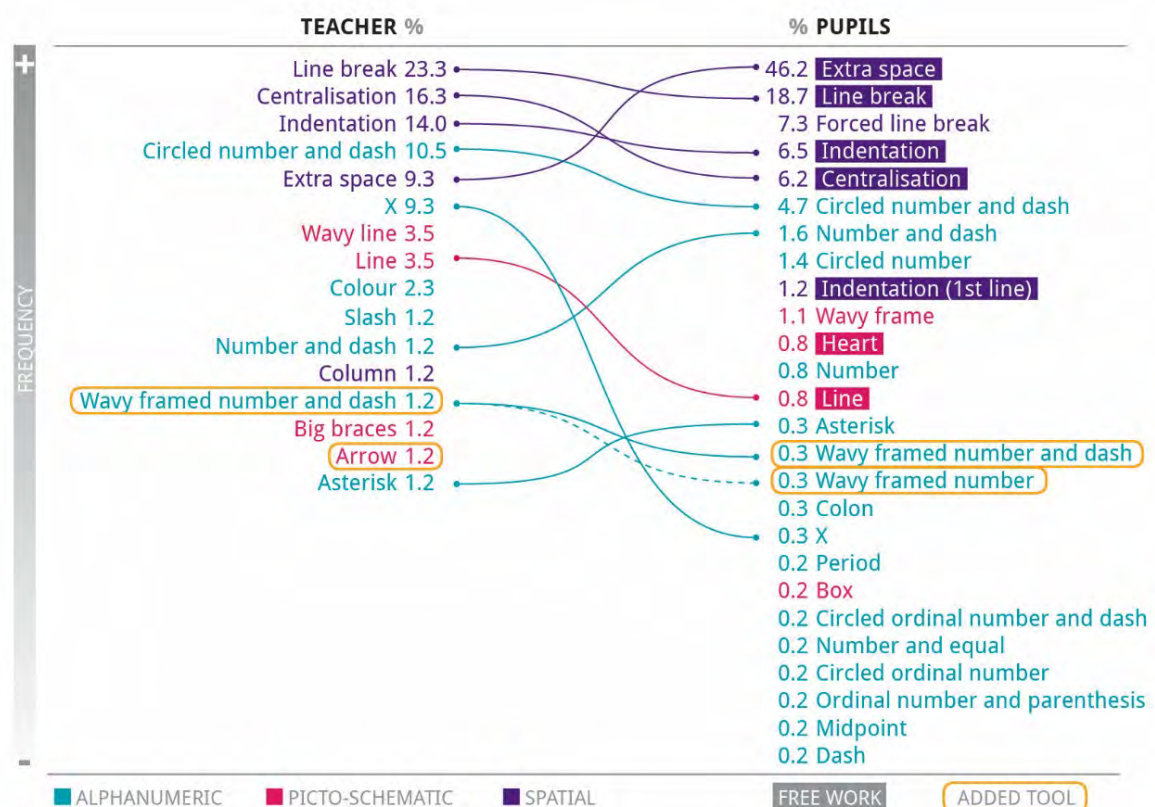


Figure 40. Teacher and pupil toolboxes at the LB School.

The proportional difference between the teacher and pupil toolboxes is similar to other classes, and it should be noted that many tools were not shared. While most are connected to the organisation of writing on the whiteboard (*lines*, *big braces* and *columns*), others have simply not been used by the pupils – like the *arrow* used as a visual cue in lists, which is a text structure they use every day in their diaries (Figure 41). On the pupil side, most of the tools that are not shared by Cecília are alternatives for numbering lists which stay at the bottom of the list, while those used the most are similar for both groups, e.g. *circled number and dash*.

In the main, the spatial tools were used the most and the alphanumeric the least, which although there are many of them, they were used with a low

frequency. There are few picto-schematic tools in these toolboxes, and are more important for the teacher (almost 10% of the uses) than for the pupils.

Most of the tools in the free work were shared and were at the top of the toolbox, while the exclusive ones are circumstantial, tied to the genre that they were used for – a greeting card. In this activity, teacher Cecília asked the pupils to rewrite a message that was initially written on a blank piece of paper, but this time on lined yellow paper that would be pasted onto the Mother's Day card. The teacher reminded the pupils on the whiteboard that they had to use beautiful, clear handwriting, and to start the sentence with a capital letter. In the analysis, strategies used on both cards were registered. The nature of a greeting card signifies having text instead of lists and headers, for which it is conventional to start the first line with indentation. Pupils developed an inventive manner to separate sentences using a *heart* – as if it was a typographical glyph inserted between the lines of text (Figure 41).

In terms of the added tool, pupils only adopted the *wavy framed numbers* (Figure 41), either with or without a dash, but they did not use the *arrows* with which teacher Cecília had marked the lists.

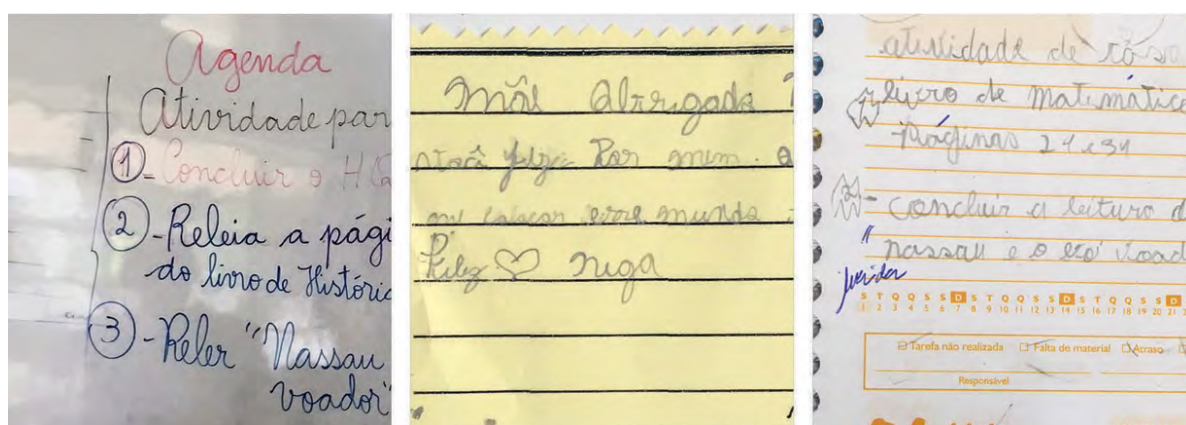


Figure 41. Left image: a '**big brace**' was used to separate and group the text by teacher Cecília. Centre image: a **heart** separated the text from the signature, and on the same text line. Right image: **wavy framed numbers** were copied by the pupil Dário.

4.2.7 Dom Helder Câmara Municipal School – Afternoon

Amongst the 39 activities registered, 7 were eligible for analysis, none of which however, could be considered as free work – except for drawing activities that contained very little or no text. The low number of analysed activities was due to the considerable use of study books and the frequent participation of other teachers in classroom activities.

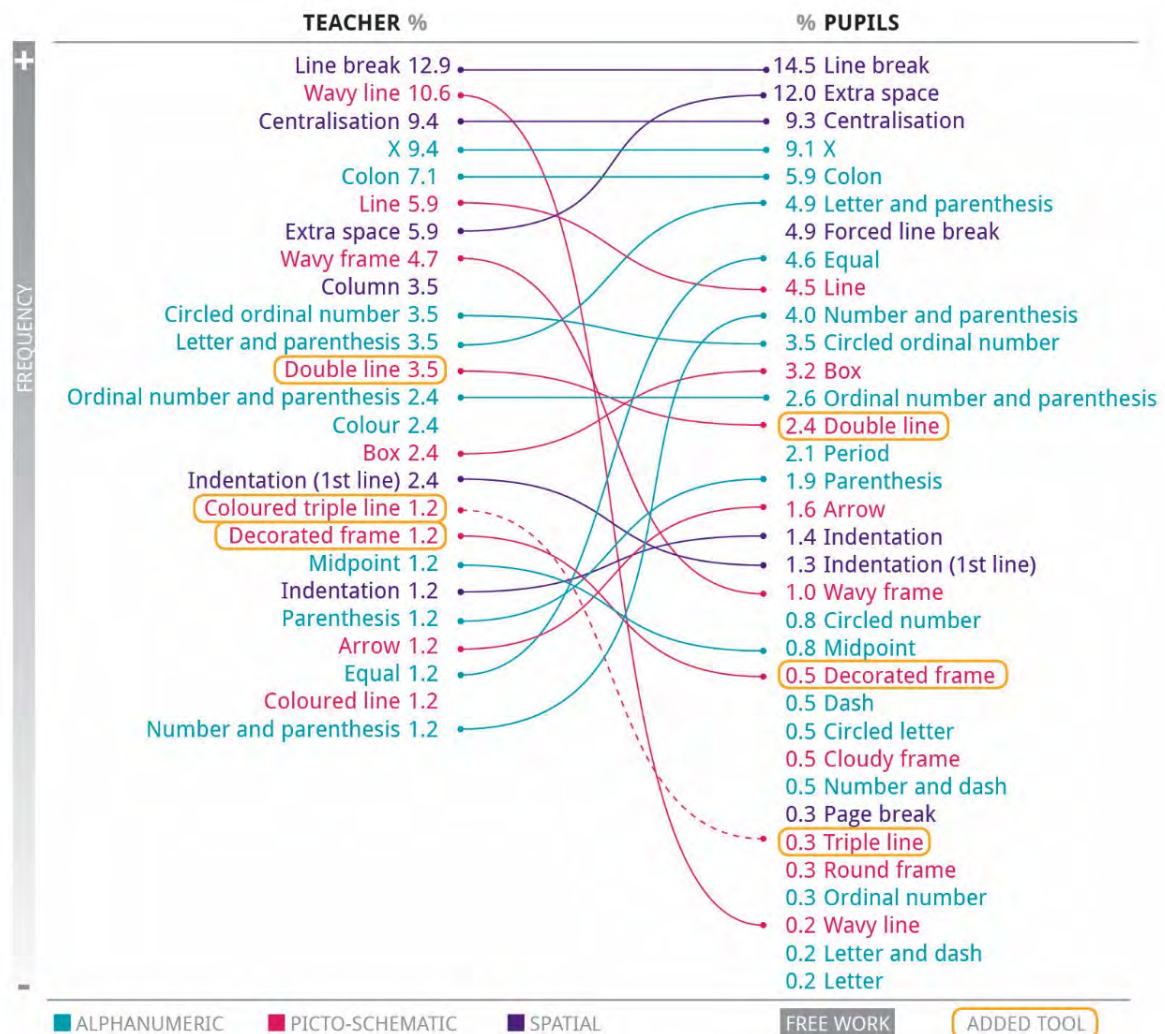


Figure 42. Teacher and pupil toolboxes from the afternoon class at the DH School.

The teacher and pupil toolboxes were comparatively similar in terms of the number and types of tools – the majority were shared, except for 4 used by the teacher and 13 by the pupils. The major difference is the frequency of every tool. We observe that, at the top, there is a similarity in the use of tools, with a divergence of tools such as the use of *wavy lines* and *wavy frames* used to separate respectively, columns and groupings (Figure 43). The biggest differences regarding what the pupils adopted the most were observed in the use of *number and parenthesis* for listing questions and the *equal* sign to connect information on a text line.

Both toolboxes are very diversified in terms of the type of tools, and this diversification runs throughout the entire toolbox. We may notice that spatial tools are used the most, sharing the space with alphanumeric – except for the wavy lines employed by teacher Jaqueline.

The added tools were picto-schematic elements used for highlighting information, which were copied by the pupils or adapted to their material restrictions when it came to the use of *colour* (Figure 43). It was agreed with teacher Jaqueline to use a double line, but in practice, she proved to be more inventive.

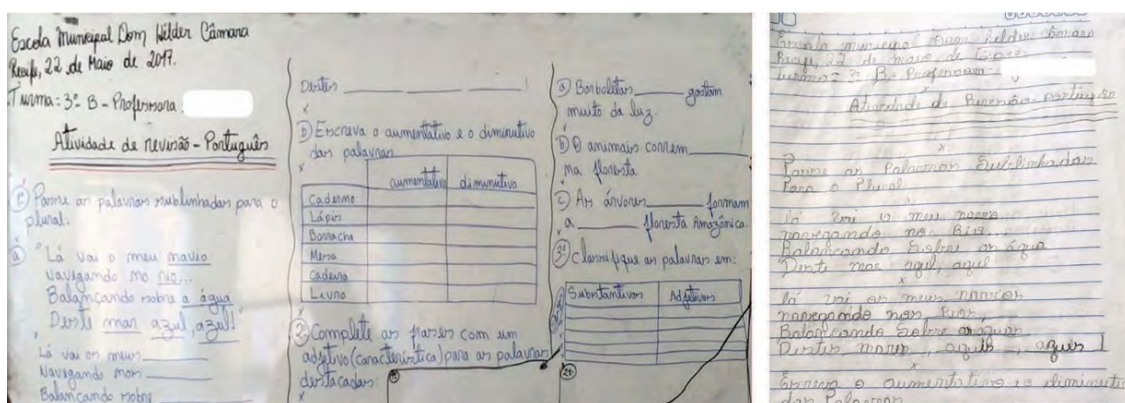


Figure 43, Left image: teacher Jaqueline used a **colourful triple line** to highlight the title and **wavy lines** to separate the columns. Right image: The triple line was reproduced without colours.

4.2.8 Dom Helder Câmara Municipal School – Morning

The 45 graphic activities registered in this class resulted in 12 cases for analysis, 2 of which were free work. One of these was the reproduction of a journalistic article with its constituent parts in the drawing notebook, the other was a dictation of phrases into the notebook.

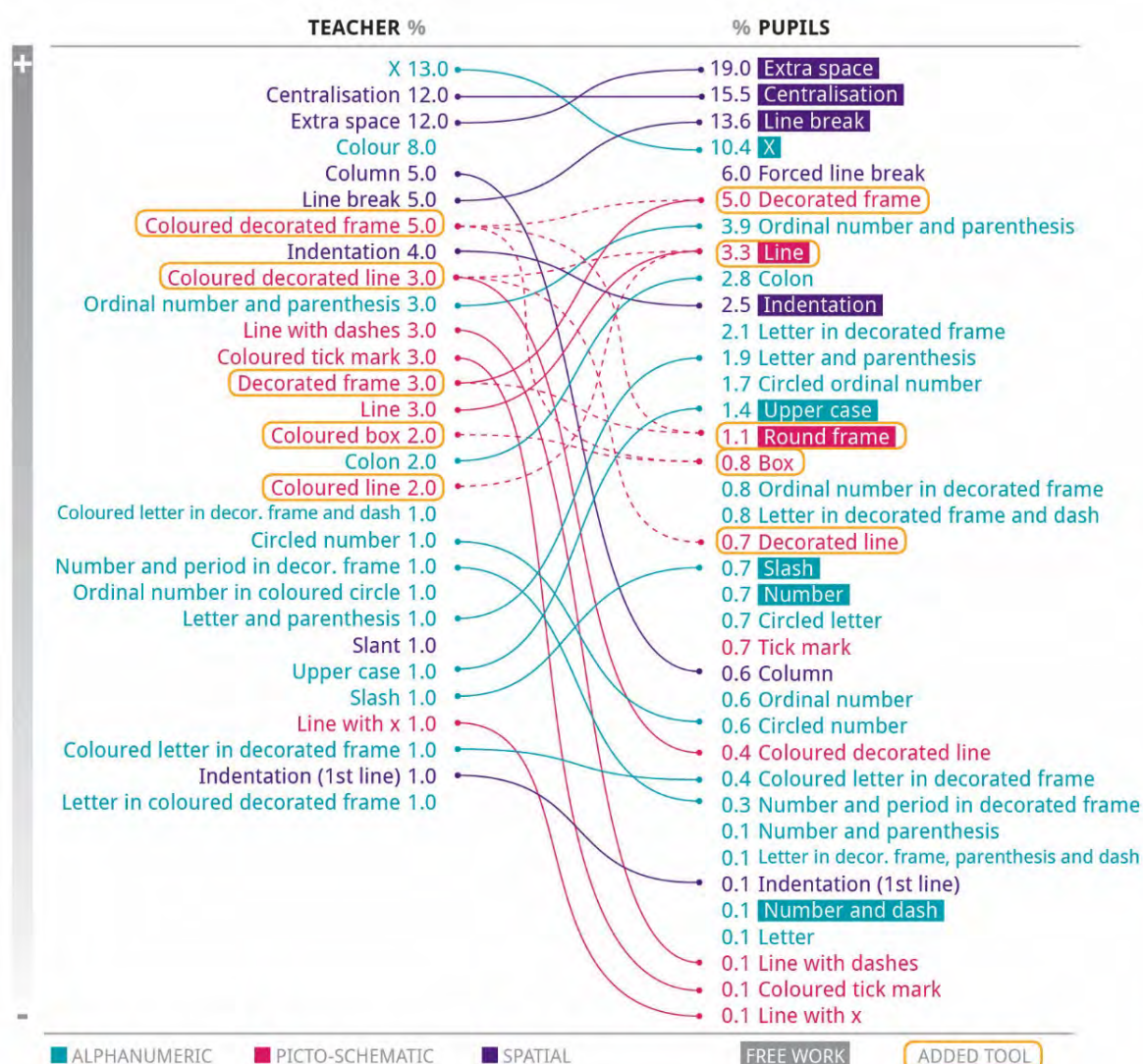


Figure 44. Teacher and pupil toolboxes from the morning class at the DH Schoolroom.

The toolboxes are big, but they could have been bigger if all the small variations in the types of frames and lines had been described. To summarise, the label *decorated frames* groups together wavy, cloudy and pointed frames. This also occurred with the description of line patterns, all grouped under the name *decorated line*. Only the attribute of *colour* has been considered under a different name (Figure 45).

While the tool most used in the teacher's toolbox is the X symbol, to represent a line that pupils should skip in their notebooks, broadly speaking, the more frequent tools were spatial (Figure 45). Teacher Rita liked to use colourful markers in the text or in picto-schematic elements. This must be the greatest

difference between both the toolboxes, since they are not so different in terms of size. The pupils, in their turn, used many variations for numbering and sequencing questions (Figure 45).

There were marking differences in the frequency of many tools, especially the picto-schematic tools that served as auxiliary tools for organising information by teacher Rita. These were not repeated so much by the pupils, and participated less in their toolbox, which could have been bigger, but was mainly dominated by just a few tools – the 3 at the top represented almost half of the tools accounted for.

In the free work, many tools were shared with teacher Rita, many of which were the tools most used. This signifies that pupils relied on tools they had seen in use, which were also very varied, including spatial, picto-schematic and alphanumeric. Pupils represented the added tools either similarly to the way in which Rita had employed them, or in a monochromatic version.

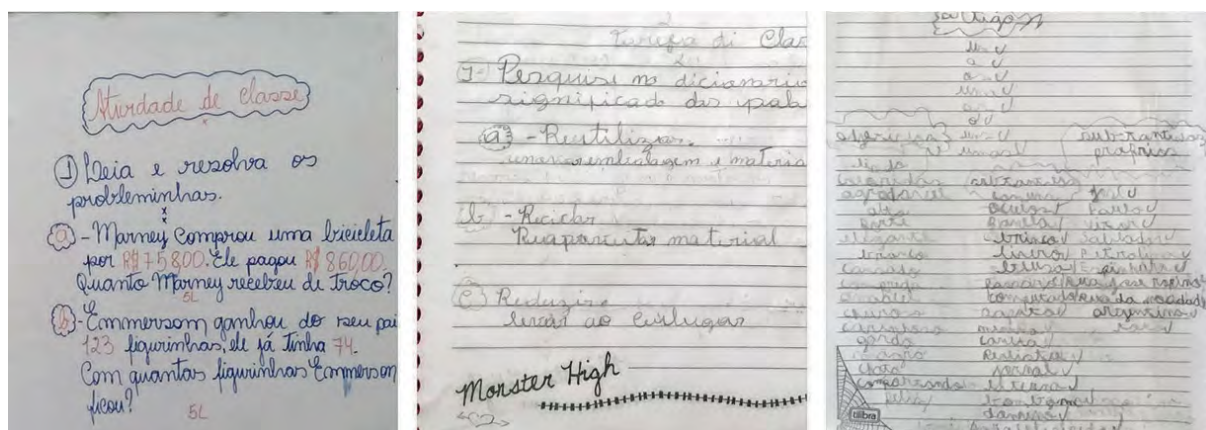


Figure 45. Left image: teacher Rita used **decorated frames** and **colour** to highlight information. Centre image: **letter in decorated frame** was one of the ways the pupils reproduced the picto-schematic tools employed by teacher Rita. Right image: Murilo organised lists of words in **columns**.

4.2.9 General analysis

In order to obtain an understanding of school writing practices, data from the 8 classes is gathered together in the diagram below. Some similar tools have been grouped under one broad description, such as *number as marker* representing *number and dash*, *number and parenthesis* and other variations of the elements used along with numbers.

+ FREQUENT		SIGNIFICATIVE		PUNCTUAL		RESIDUAL		-
1. Extra space	19.93%	7. Forced line break	3.76%	14. Parenthesis	2.13%	19. Period	0.58%	
2. Line break	15.37%	8. Frame	3.59%	15. Dash	1.85%	20. Asterisk	0.38%	
3. Centralisation	9.52%	9. Letter as marker	3.56%	16. Equal	1.61%	21. Size	0.35%	
4. Number as marker	8.67%	10. Colon	3.24%	17. Indentation (1st line)	1.31%	22. Upper case	0.32%	
5. Line	7.00%	11. Slash	2.85%	18. Colour	0.83%	23. Midpoint	0.28%	
6. X	6.54%	12. Indentation	2.85%			24. Arrow	0.20%	
		13. Column	2.60%			25. Tick mark	0.15%	
						26. Page break	0.10%	
						27. Bigger horizontal space	0.08%	
						28. Heart	0.08%	
						29. Comma	0.08%	
						30. Slant	0.07%	
						31. Vertical bar	0.03%	
						32. Dash and slash	0.02%	
						33. Colour highlight	0.02%	
						34. Quotes	0.02%	
						35. Big braces	0.02%	

ALPHANUMERIC PICTO-SCHEMATIC SPATIAL

Figure 46. General toolbox: summary of all 8 toolboxes, including those of the pupils and teachers.

The tools with the most expressive use were *extra space* followed by *line break*, which together represented more than a third of the tools. Extra space and line break are important strategies for separating text groupings in writing produced by any means, as well as being important for handwriting.

Analysis of these tools has exposed the constraints of handwriting, which, in theory, should not be so limited, since there are no technical restrictions as with some other technologies – for example, it is not possible to change size using a typewriter. But the possibilities that a pencil and paper may provide are actually limited by time, skills and genre. Alphanumeric tools registered are mainly glyphs, along with some variations of the letters that occasionally occur, such as *colour*, *size*, *alphabet* (upper case letters instead of cursive writing). Common tools in texts written with a computer – such as different typefaces and variation of type (bold, italic, condensed, expanded) – were not used by the subjects.

The spatial tools registered are also limited when compared to common practices in texts made and reproduced with typography, such as variations in *tracking* or *leading*. Apart from the two main tools, they are mostly horizontal variations applied to entire groupings of text. Finally, few picto-schematic tools were used. In terms of frequency, lines were very often used followed by frames, while the other picto-schematic tools registered a residual participation.

Describing the teacher and pupil toolboxes of 8 classes has led to a number of observations regarding general practices and particular issues, as well as their connections to the respective contexts.

The pupils' toolboxes are bigger than the teachers'. In all the classes studied, the pupils' toolboxes were bigger than their respective teacher's. This could be expected for two practical reasons. The first is that the teacher is just one individual, whereas the pupils form a group, which may bring different personal interests and a diversity of individual influences. The second reason is that the toolboxes also include tools used in the free activities, which were different genres to those conducted by the teachers, therefore they might have required tools that the teachers had no opportunity to use. These issues tend to blur a more detailed investigation into what this (somewhat) unexpected outcome represents, as adults are supposed to have a bigger repertoire of visual solutions. But it well might be their knowledge and experience that makes them more concise in style – which may also be interpreted as being less inventive and loose.

It should be pointed out that the tools used only by the pupils did not all derive from the exercises where they were free to design their layouts. In fact, it was the opposite, as we illustrate in Figure 47: most of the exclusive tools used by the pupils were only used in copying activities, where they were supposed to copy everything from the teacher. Only a small fraction of the pupils' exclusive tools were employed in free work – 40% at the most (for AI School, as can be seen in Figure 47: just 13% of the 33% of exclusive tools was employed in free work).

The higher number of exclusive tools used by schoolchildren in copying texts may be related to the disparity between the frequency of this type of activity and the free activities, as there was a considerably larger sample of the former (as shown in Table 27). Nonetheless, it is possible to state that pupils were developing their own handwriting practices in copying activities, bringing preferences, previous knowledge and influences from other sources.

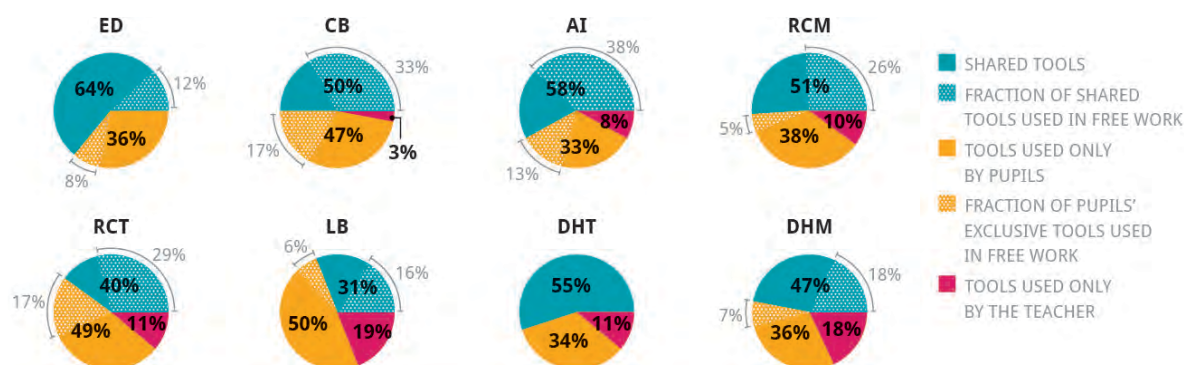


Figure 47. The diagrams demonstrate the percentage of tools, from the totality of the different tools observed in each class, that were shared by teachers and pupils (blue) or from the exclusive use by each of these subjects (yellow and pink).

Pupils usually have more shared tools than exclusive. Having more tools shared with the teacher reveals an expected convergence of practices, since these pupils have been requested to copy. This convergence, however, was also encountered when the pupils were permitted to organise their texts freely – and, even then, they still relied more on the tools they shared with the teacher (as may be observed in Figure 47).

Exceptional cases were recorded at the Lubienska Educational Centre (LB) and the afternoon group at the Santa Rita de Cássia Institute (RCA). Although these are both private schools, there were many differences between the classes, because while teacher Cecília (LB) is the most experienced teacher of all the participants, and works in a very regulated environment, Amanda is one of the newest to the profession and for the first time in her professional life had to deal with writing for the pupils. Thus, the fact that these pupils had more exclusive tools than shared with their teachers might not be due to a lack or an excess of control in their writing activities. It is probably related to other factors, such as the concise style of both the teachers and the particularities in the group of pupils. Both classes were very active and enjoyed watching and replicating what friends were doing. Also, as most of their texts were in the diary, this genre could be another added factor, as it might be perceived by the group as being auxiliary, and that being so, more open to experimentation in the writing – even being a text that has some kind of special attention attached to it, as it is continually supervised by parents.

The use of most of the exclusive tools is residual. Close analysis indicates that there are a number of patterns regarding what the exclusive tools are used for. Sometimes, they were used by mistake, simply because the pupil was unable to reproduce something appropriately. This was the case of the most frequent exclusive tool used by the pupils: the *forced line break* may, at least, be considered an inadequate manner of arranging the lines of a text. It was the most frequently used in all the classes except at the RCT, showing that it was a frequent issue at this point of the pupils' education. With regard to this exceptional class, the most frequent exclusive tool used was the colon, which pupils used in their diaries connecting a label to a line drawn for their parents' signatures. In this class, most of the occurrences of *forced line break* were used by just one pupil.

	ED	CB	AI	RCM	RCT	LB	DHT	DHM
FORCED LINE BREAK RATE	3.3%	4.9%	4.7%	2.1%	1.2%	7.3%	4.9%	6%

Table 29. Comparison of the perceptual use of the tool **Forced line break** in all the studied classes.

The *forced line break* may be an indication of the pupils' understanding of writing and the graphic organisation of text. Surprisingly, the pupils who used this tool the most were from LB, a school that not only provides them with access to many different text genres but also where pupils are used to writing,

even quite long texts. Thus, any idea of linking the frequency of use of the *forced line break* to an incipient literacy was placed into perspective by this result, as other factors may be related to it. Close analysis of the usage of this tool demonstrates that teacher Cecília used to break the lines of text according to meaning units of information⁶, usually in the following manner: homework / which book they should work with / indication of pages. Although the pupils generally followed this structure for placing the line breaks, on other occasions they would break the line anyway, even if the text on the whiteboard had not been divided into units of meaning – much like the very typical understanding of a *forced line break*.

A spatial tool was the most frequently used in almost all the toolboxes. The only exception to this was teacher Rita's toolbox, where *X* was the most frequent tool. Spatial tools were usually at the top of the toolboxes because of their role in differentiating text groupings or subgroupings – a basic need in most of the genres. By analysing all toolboxes, *extra space* was the most used tool, followed by *line break*. While the latter was a common movement for placing text blocks one below the other, the former was more evident on ruled paper, where space may be more easily quantified. Therefore, as pupils used this type of paper for writing more often than blank paper, the prevalence of this tool was not surprising. It also explains why, when only considering the teachers' toolboxes, the most frequent tool was the line break, as they use the whiteboard, which is blank.

In terms of number, the majority of tools were alphanumeric, and displayed a great variety. These were mostly used for sequencing items and in the characters used to connect different content within a text grouping.

The main shared tools are amongst the most frequent. In a broad sense, there was a great diversity of tools shared between teacher and pupils, ranging from what was at the top of the toolboxes or at their bottom – although it mostly included what was at the top, in short, what was more frequently used by both groups. In the comparison between this general toolbox (Figure 38.1) and the toolboxes in every one of the eight classes, it may be noticed that many important items for particular groups did not appear amongst the most frequent. This is the case of certain specific glyphs related to practice that some of the groups had developed, e.g. the use of *parenthesis* by teacher Lucila to save time in writing.

In relation to what the groups did differently – i.e., the exclusive tools –, many of the tools used by the pupils were related to alternative ways of sequencing

⁶ According to Willberg & Forssman (2007), in a project on children's books, lines should not be broken randomly, but considering the meaning of the sentences – as English children's books began to do in the 1920s with the understanding that such a practice was helpful for issues of reading fluidity, according to Walker (2003). Raban (1982), in an experimental test, discovered that when placing line breaks, it was less disrupting to break the line at the end of a phrase end and at its boundaries (the noun, the verb, the object). Therefore, this practice by teacher Cecília and pupils is worth noting, even though it is under other conditions, as it might be interpreted as a comfortable way of dealing with information by such an audience.

lists of questions, sub-questions and notes, which is a terrain where they displayed their preferences in writing. This demonstrates an understanding of the purpose of such an element, and that on most occasions, it may be changed without disturbing the main content of the text. Picto-schematic tools such as lines and frames were mostly used by the teachers as exclusive tools, probably because the pupils did not see the point in using them and teachers rely on them to fulfil their needs of arranging the information related to the artefact they are using – i.e., the whiteboard.

Some tools were either neglected or employed differently by teachers and pupils. When pupils used a specific tool more frequently than the teacher, it did not always signify that they employed it on more occasions other than in the respective copies. For example, to see in Figure 44 that the tool ‘ordinal number and parenthesis’ represented 3% of the uses of the teacher’s toolbox and 3.9% of the schoolchildren’s toolbox did not signify that pupils have used this feature in other texts besides those they copied. As there is a certain distortion in a comparison between an individual and a group, it is necessary to handle the numbers related to the frequency with care. If any tool appeared in the pupils’ toolbox much more than in the teacher’s, this usually meant that they had a bigger share because other tools were not used as often.

One difference noted amongst these numbers was that teachers normally used more picto-schematic and spatial tools, which were probably copied less because they were either less noticed or not considered important as content. Alphanumeric tools were probably less neglected as they can be taken for content.

In terms of what the pupils used more than the teachers, in three classes (at ED, DHT and DHM) this was related to a sequencing symbol (letter, number) plus parenthesis, which might have been used more by other teachers, and was then adopted by the pupils. Other cases were related to glyphs, such as using the *colon* and *equal* to connect different content on the same line of text, and *X* to mark the space. In some classes, pupils also used more spatial tools such as *extra space*, *centralisation* and *indentation*, which were often employed differently from the teacher, such as the way pupil Tales used *indentation* (Figure 5.8).

Pupils did not seem particularly interested in the added tools. The selection and insertion of the added tools was suggested to the teachers. They were not forced to use them, especially remembering that they have a very tight routine where they need to deal with lots of parallel processes. Nevertheless, they all agreed to use the added tool within the determined context, and undoubtedly the presence of the researcher with a camera was also a strong reminder. Some teachers used the added tools less often and less accurately than others, either because it was not always possible to fit the added tool into the context, or they forgot or they did not consider it appropriate.

Pupils made no comments regarding the impact that these tools made on them, nor did they show any surprise in seeing the use of the added tools, which was not because the tool had been unnoticed – most of the added tools were copied. This maybe occurred because they were already familiar with some of these tools, having previously seen or even used them in other contexts. Also, because the literacy process involves being constantly exposed to new elements, such as new words, images and concepts, and it would therefore be no different for graphic language. Thus, because they did not mention it, this may have been an indication of their capacity to infer what the tool was and what it was used for.

4.3 TOOLS AND FUNCTIONS

After describing the toolboxes, by listing the tools with which they were composed and how they may be classified, it is important to bear in mind contextual issues regarding the use of these tools. In other words, we will analyse the demands they are fulfilling and the means by which they comply to this demand.

4.3.1 Emídio Dantas Barreto Municipal School

Once again, the analysis of this school will serve to explain how the graph was designed in order to display the tools that both teacher and pupils used and their functions in the organisation of text:

- *Groups and shared tools* – The columns represent the two groups that we are focusing on: teachers and pupils. The tools they shared are positioned in the column between them.
- *Functions* – The four categories of tools are displayed in rows. Their order, from top to bottom, represents the extent to which they were explored. In the column dedicated to the shared tools, their order considers the total number of tools counted (from both teacher and pupils). Thus, at times it may misrepresent what occurred in just one of the groups – for example, the teacher only used an *ordinal number with parenthesis* once, but as it was very often used by the pupils, it has been placed in the upper part of the list.
- *Colour code* – The same colours from the toolbox diagram were used for the tools in order to show their type, which is informed in the caption above the table.
- *Free work* – Tools that appear in the free work have been highlighted and are in white type.
- *Added tool* – The added tool is highlighted by a yellow frame.

	FUNCTIONS	TEACHER	PUPILS	
FREQUENCY +	Indicate Belonging	Indentation	Line break	Number and dash
		Asterisk	Extra space	Colon
			Columns	Number
			Circled ordinal number	Equal
			Ordinal number and parenthesis	Pagebreak
			Line	Dash
			Letter and parenthesis	Midpoint
			Box	Circled letter
			Slant	
	Indicate Importance		Centralisation	
			Line	
			Round frame	
	Indicate Meaning		Box	
			Indentation	
			X	
		Slash		
		Dash		
Indicate Tone		Indentation		
		Asterisk		
		Columns	Forced line break	
			Indentation	
			Uppercase	

ALPHANUMERIC

PICTO-SCHEMATIC

SPATIAL

FREE WORK

ADDED TOOL

■ ALPHANUMERIC ■ PICTO-SCHEMATIC ■ SPATIAL

FREE WORK

ADDED TOOL

Figure 48. Functions of the tools used by the teacher and pupils at the ED School.

The category of tools to indicate belonging was the most frequent, and contained the highest number of tools. Many of them were shared between pupils and teacher, but both groups possess tools that they used exclusively. This was the case of the alternatives for numbering questions and sub-questions, which were only used by pupils – e.g. *number and dash*, *circled letter*, *number*.

Tools to indicate tone were explored mostly by the pupils, as they had no clear informative purpose. This was the case of the *forced line breaks* which were placed exactly as the teacher's line breaks, indicating great confidence by some pupils in how she organised the text – despite the actual space they have in their notebooks. The use of *upper case* (Figure 49) is another example, because when they needed to write quickly in a dictation, by themselves, the pupils probably felt more proficient in writing using upper case print letters, since cursive writing was still to be practised more.

One interesting outcome is how the use of *indentation* could be versatile. It indicated: belonging, when used for grouping subitems; tone, used for stylistic concerns; importance, when the teacher and pupils used it to emphasise information; and meaning, when it depicted that information should be repeated. Other tools were used for more than one function, like the *asterisk* (Figure 49), which was used as a visual cue by the teacher (the added tool), and on another occasion, used as something similar to the X symbol (Figure 49) by Lúcia and by the pupils, to reinforce the space separating groupings.

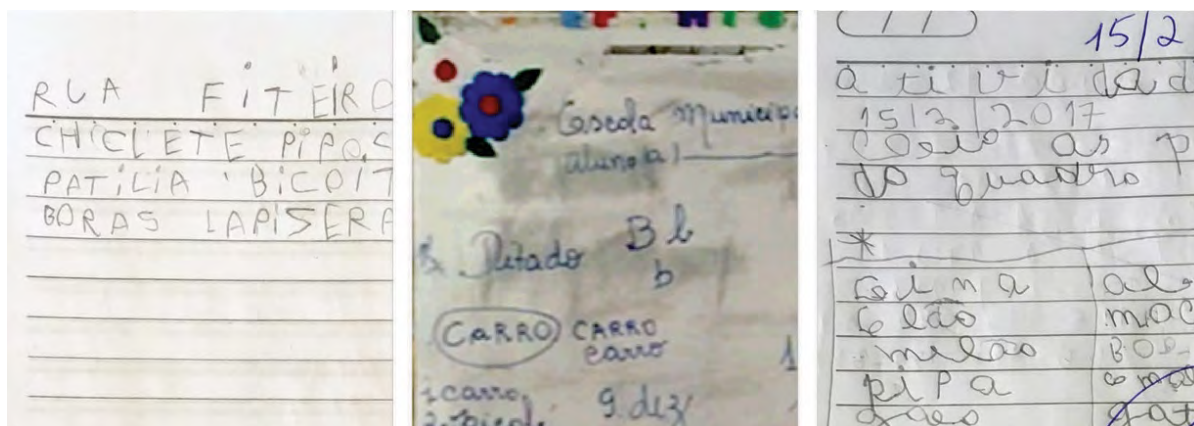


Figure 49. Left image: words from a dictation written in **upper case** by the pupil Márcio. Centre image: It is difficult to see, but before the word 'Ditado' there is an **asterisk** that teacher Lúcia wrote and which has a number and parenthesis beside it. Right image: the **asterisk** being used to reinforce the separation of groupings.

When free, pupils relied on tools they used frequently, mostly those for organising information. With regard to type, in every category there was one predominant type of tool: alphanumeric tools were the most common for indicating belonging or meaning, picto-schematic tools for indicating importance and spatial tools for indicating tone.

4.3.2 Campina do Barreto Municipal School

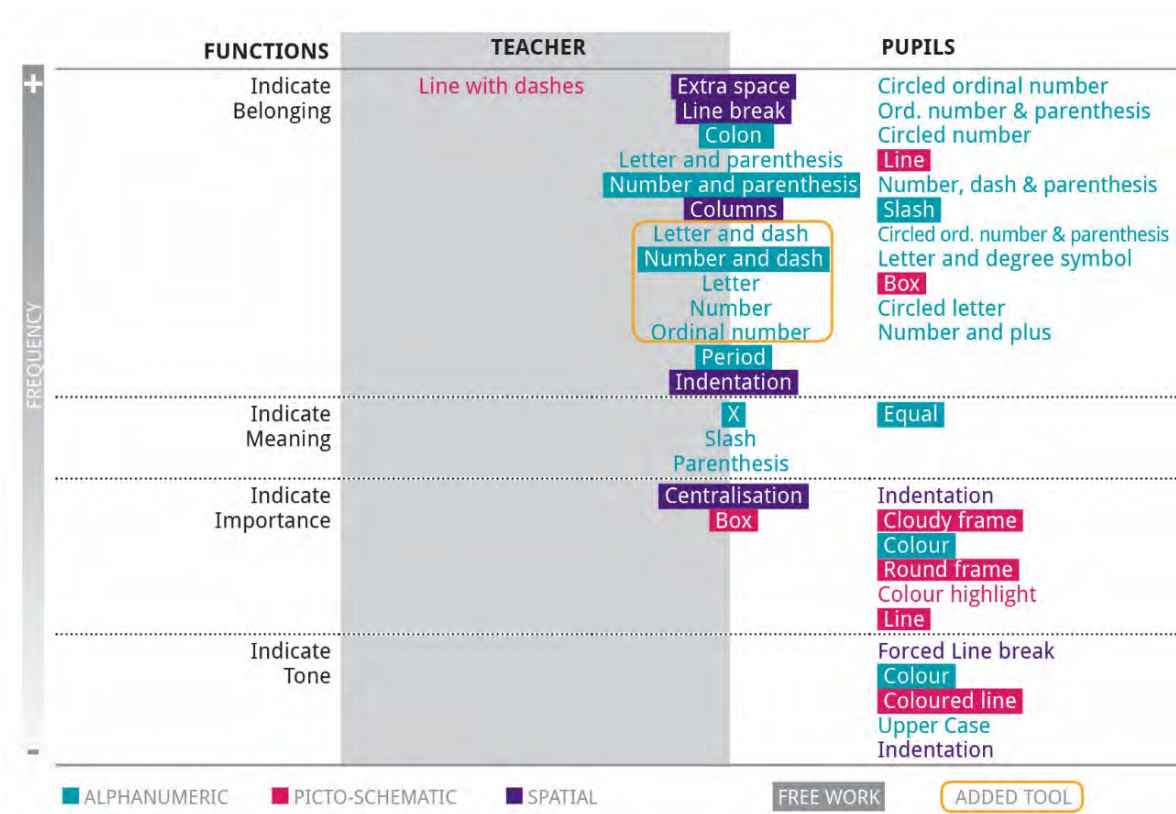


Figure 50. Functions of the tools used by the teacher and pupils at the CB School.

Tools to indicate belonging were more numerous in terms of use and diversity. They were mostly alphanumeric and mostly shared by the two groups. Pupils used exclusive tools as much as those they shared with the teacher, and their use of exclusive tools was even more intense in the other rows. For example, they explored many ways of emphasising information other than centralising and framing it, mainly through the use of picto-schematic tools (Figure 51). Even though, tools to indicate importance were the third most used, and occurred very often during the free work.

Some tools were used for different purposes, and *indentation* was the most versatile for indicating belonging, tone and importance. *Colour*, when applied to the text was used to highlight it, but when in the *coloured lines* (Figure 51) it was to decorate the activity.

Only alphanumeric tools were used to indicate meaning, and the use of the *equal* sign by the pupil J  ssica as an alternative to the *X* is a particularity of her own writing style (Figure 51).



Figure 51. Left image: a **box** was used to detach the title. Centre image: **coloured lines** decorated the activity. Right image: Jéssica did not use X, but the **equal** sign to reinforce the spaces used to articulate the groupings.

4.3.3 Arco Íris School

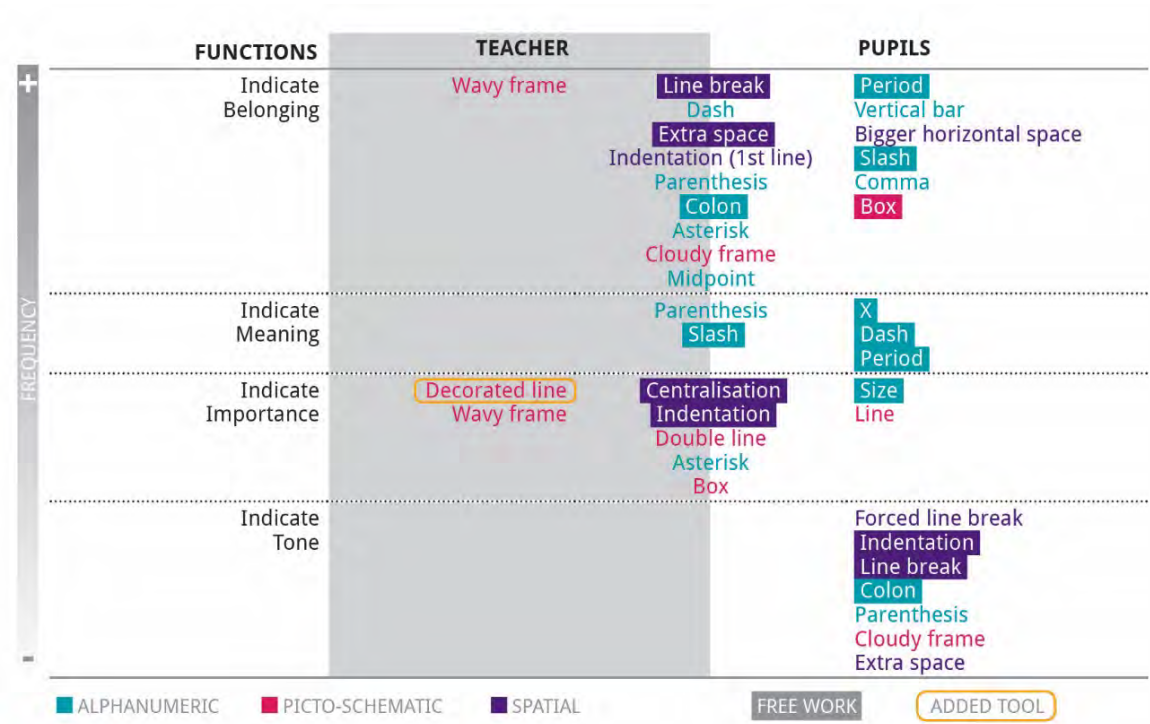


Figure 52. Functions of the tools used by the teacher and pupils at the AI School.

The most diversified and most frequently used tools were those to indicate belonging, although there are almost as many tools as this in other categories. The very frequent use of tools to indicate meaning was due to the intense use of glyphs such as *parenthesis*, which was employed to depict the number of the question that the children had to answer on a specific page of the study book (Figure 53). This meaning was agreed between teacher Lucila and the pupils in order to save time and energy when copying.

The other categories presented almost the same frequency, whereby the one dedicated to emphasising information was mostly explored by the teacher. The category of tools indicating tone was exclusively used by the pupils, who experimented with the language and the appearance, probably to feel comfortable by using what they were most familiar with (Figure 53).

The teacher and pupil toolboxes are not so big, and some tools were used for more than one function, such as *indentation* and *frames* that served to indicate belonging and importance; also, the *dash* and *period*, which either indicated belonging or served to indicate that such a number was a date. Almost all the tools used to indicate tone also served for other functions and were displaced as such by the pupils.

In broad terms, the pupils explored the uses of tools – which is represented in the diagram with the pupils’ column as full as the middle column, for shared tools. We may also note that in the free work they used all the categories of tools, many of them in the same way as the teacher, although they used others

in their own particular manner. For example, teacher Lucila represented the date with *slashes* and pupils, on some occasions used the *period* or *dash*; they used the *box* (Figure 53) to frame a text grouping thereby separating it from the other parts – and not to indicate importance, like the teacher did.

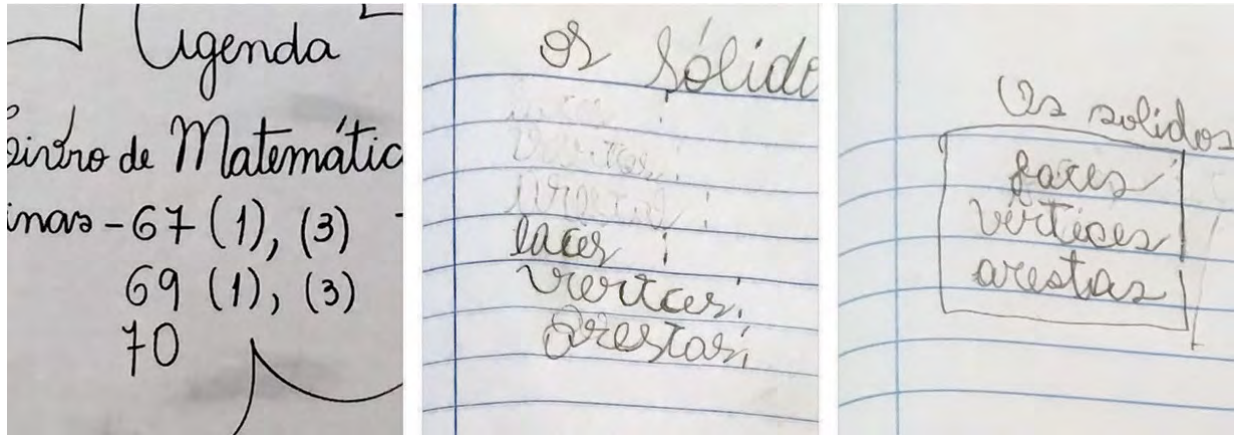


Figure 53. Left image: **parenthesis** representing the number of questions that should be answered in the indicated pages. Centre image: Hélida used **colon** with no informational purpose in her small list. Right image: Benício separated the title from the list by framing it in a **box**.

4.3.4 Santa Rita de Cássia Institute – Morning

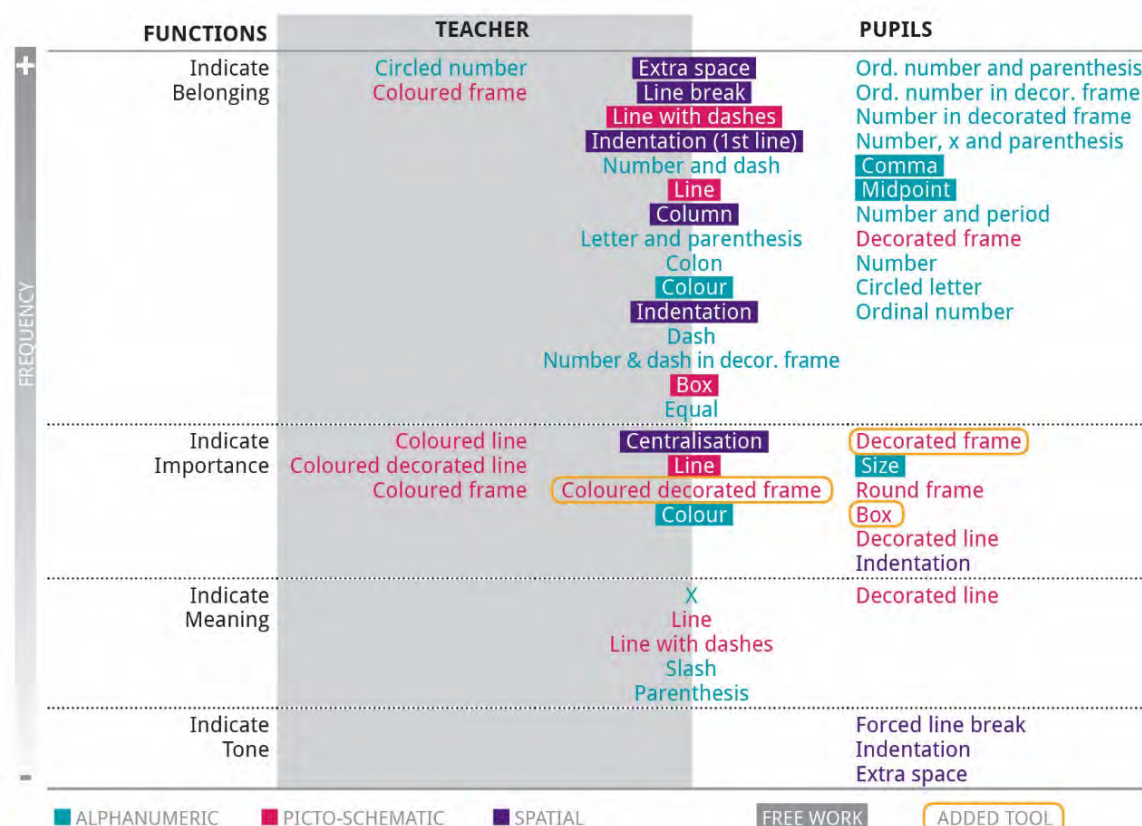


Figure 54. Functions of the tools used by the teacher and pupils in the morning class at the RC School.

The most common function was to indicate belonging, which included the majority of shared tools and many of the tools used exclusively by the pupils, although many tools were also used to indicate importance. It is possible to observe interesting agreed meanings by both pupils and teacher: *line with dashes* indicating the end of a text (Figure 55); and a *line* following a *X* symbol indicating that the note must be signed. Teacher Paula used no tools to indicate tone, therefore they were exclusive to the pupils.

Along with *indentation*, which is repeatedly used for many purposes, picto-schematic tools such as *lines* and *decorated frames* were also very versatile. At the same time, many tools had a similar function: the green ‘cloud’ in the pupils’ column is composed mostly with ways to indicate belonging through numbers and letters – alternatives to the way in which teacher Paula numbered the lists with *number and dash* (Figure 55). Alphanumeric and spatial tools were very important for indicating belonging, and were often used in other categories – except for tone, which was composed exclusively of spatial tools.

The tools used exclusively by the teacher were mostly to indicate importance through the use of colour and picto-schematic elements, but the pupils, when they reproduced them, used other strategies mainly with no colour. When free,

pupils mostly used many other ways to indicate belonging and some ways to indicate importance, most of them however in line with the teachers' style.

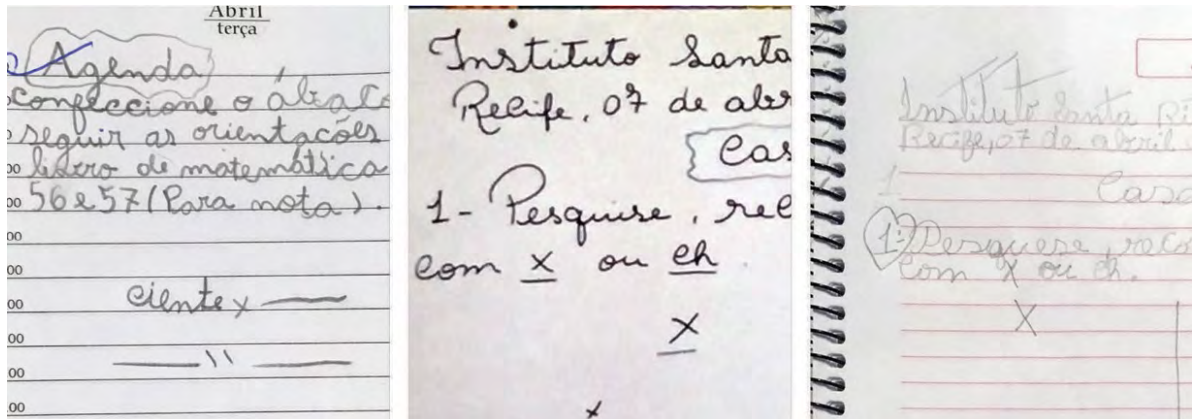


Figure 55. Left image: Taís repeated the **line with dashes** at the end of the text indicating it was finished. Centre image: Teacher Paula used a **number with dash** to identify the questions. Right image: Erika did not copy the line with dashes, instead she used an **ordinal number in decorated frame**.

4.3.5 Santa Rita de Cássia Institute – Afternoon

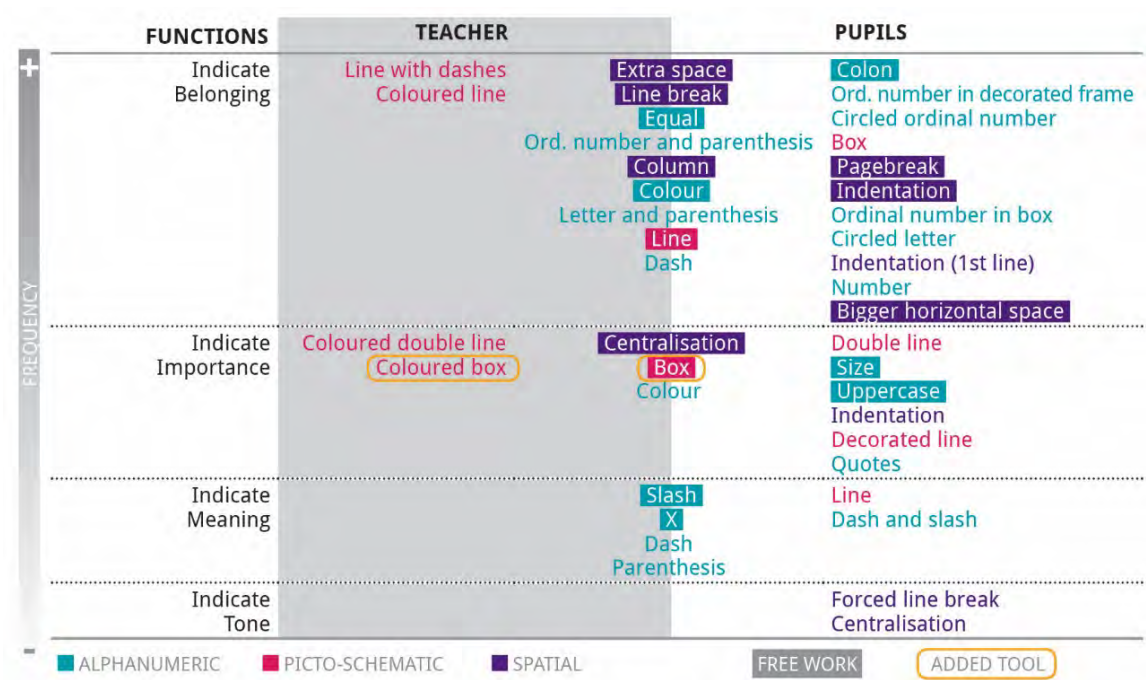


Figure 56. Functions of the tools used by the teacher and pupils in the afternoon class at the RC School.

The majority of the tools were used to indicate belonging and importance, but few were used for meaning or tone. Those used for more than one purpose were the usual: *indentation*, *line* and *box* (Figure 57). Apart from this, there was little permutation in the functions of the tools used.

Teacher Amanda had a small toolbox and the pupils displayed many other visual strategies in order to achieve their informative goals, which was particularly striking in the categories dedicated to separating and emphasising (Figure 57). For the first, while many spatial tools were included, there were also some alphanumeric, where this latter presented a diversity of tool types. Meaning was almost totally composed of alphanumeric tools.

Free work relied generally on the commonest and most used tools, but there were also other strategies involved in manipulating the type and the space in manners that thus far had not been very common, such as making type in a bigger *size* and in *upper case* to indicate importance. The added tools were implemented by the pupils to fulfil the expected purpose, but with the limitation of colour.

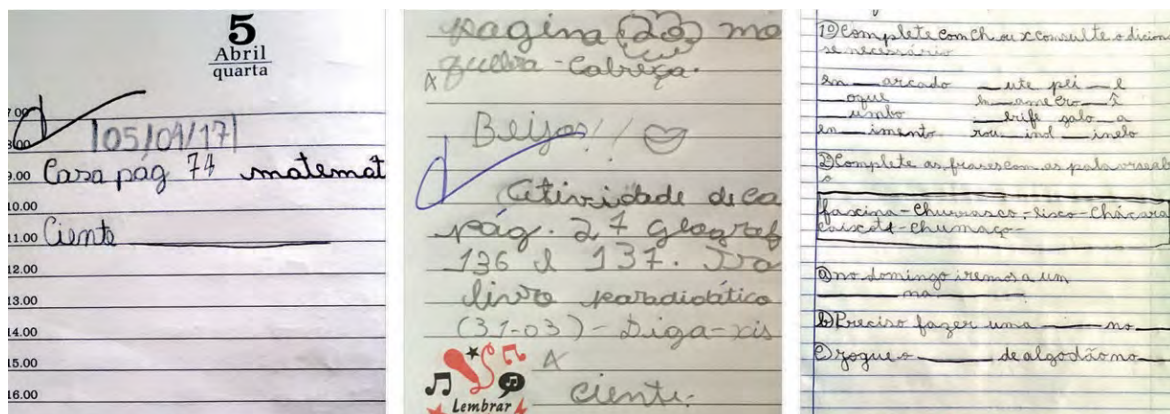


Figure 57. Left image: the **line** at the bottom signifies that an adult should sign, to show that he/she is aware of the child's homework. Centre image: Manuela used **indentation on first line** of the text, even though teacher Amanda had not done so. Right image: Téó copied the **box** that separates part of the text, indicating the content there is different from the rest.

4.3.6 Lubienska Educational Centre

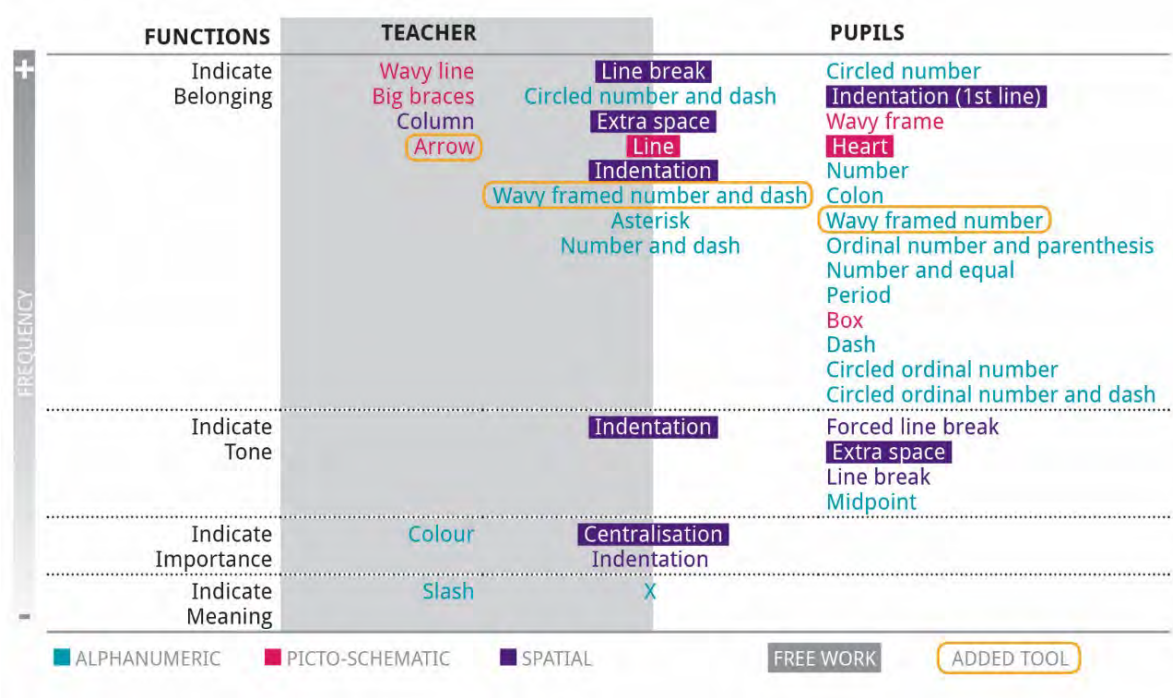


Figure 58. Functions of the tools used by the teacher and pupils at the LB School.

The predominance of tools to indicate belonging was very apparent in this class, followed by those indicating tone, a sequence that had not occurred in the other classes, and that in this case was due to the high incidence of *forced line break*. There was little variety in the use of tools intended for highlighting information, or for indicating meaning – particularly from pupils who explored these functions very little.

While alphanumeric and spatial tools were only used for a specific function, the spatial tools were more diverse and versatile, and were mostly used for *indentation*, since horizontal spacing, together with the vertical spacing of text, is an easy modification to explore – and may even be explored accidentally, when pupils cannot keep straight margins (Figure 59).

Tools to indicate belonging were from all types and were used in both free and copying work, by teacher or pupils, as well as the added tools. Some of them were related to the sequence of questions, but there were also many others, e.g. *box*, *column*, *dash* and so on (Figure 59).

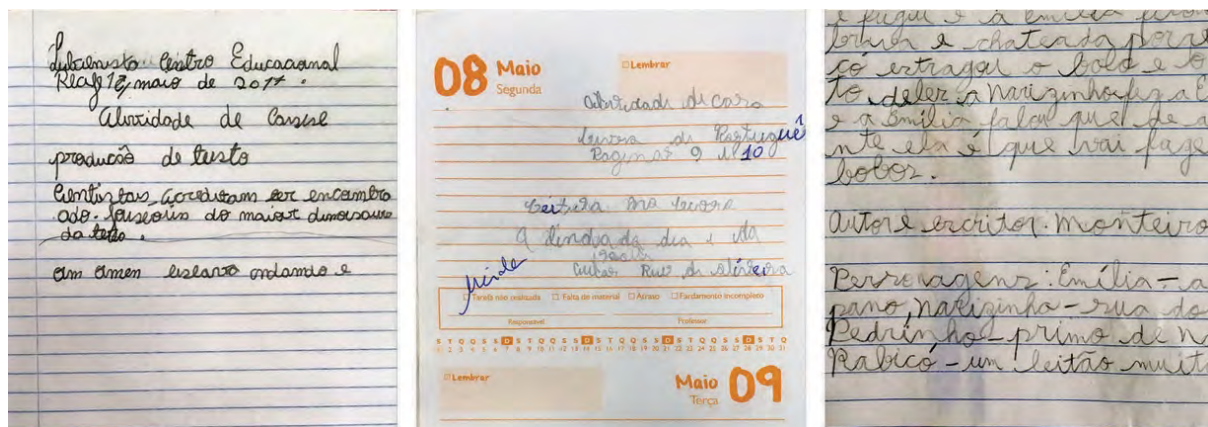


Figure 59. Left image: **Centralisation** was used to highlight a title. Centre image: **Indentation** with no informational purpose was used in most of the texts by Milena, for stylistic reasons. Right image: in the text block at the bottom, the pupil used **dashes** to connect a label to its explanation, linking it with a colon, that she also used but related to another 'level' of label.

4.3.7 Dom Helder Câmara Municipal School – Afternoon

At this school, the predominance of the tools to indicate belonging was the same as all the other observed classes, and as with the others, this was followed by tools for emphasising, indicating meaning and, finally, for depicting tone.

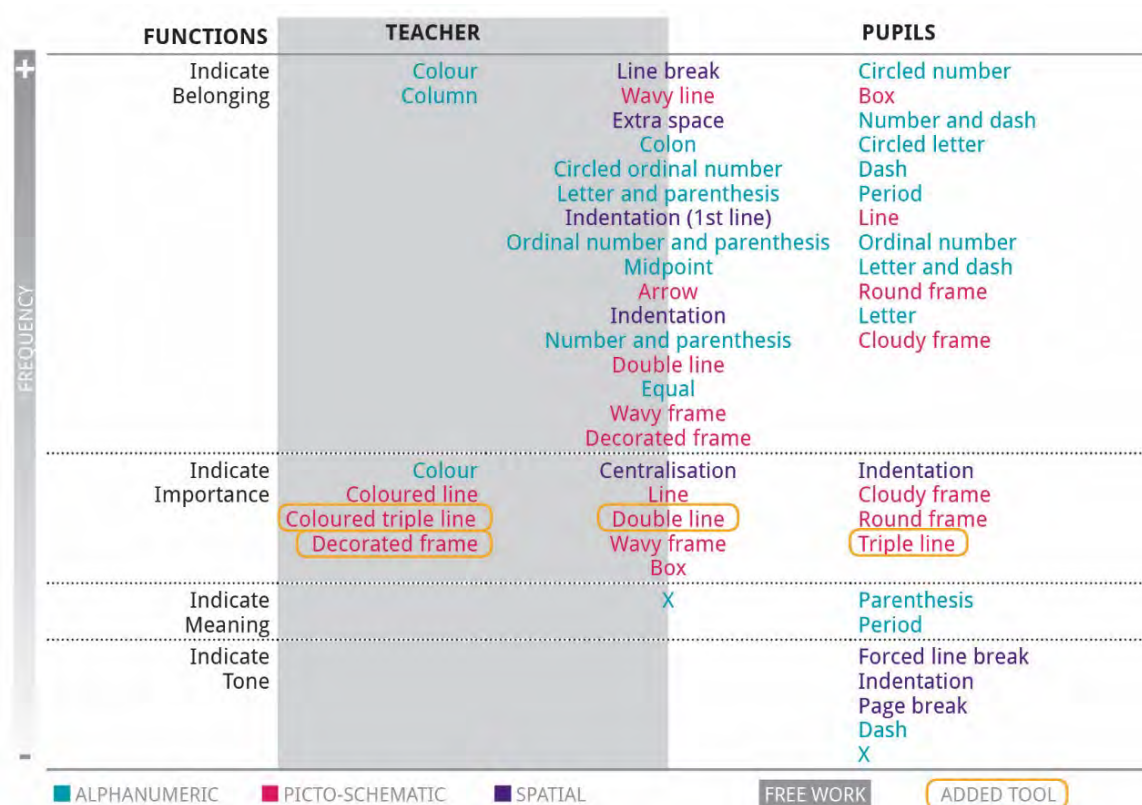


Figure 60. Functions of the tools used by the teacher and pupils in the afternoon class at the DH School.

Many tools were used to indicate importance, and the children had their own visual strategies to do so. This category was filled with picto-schematic tools, although these types of tools also functioned as organisers, and once again, the pupils found similar tools and other auxiliary tools to perform the same function.

The tools that were used for more than one purpose were *indentation*, *colour*, *decorated frame* and others, and besides contributing to the arrangement of information (Figure 61), were also employed to highlight it. The tools indicating tone, which were also in other categories, were included because their impact was on an aesthetic level, and were mostly spatial tools.

Pupils explored the tools and their purposes more than teacher Jaqueline, because although her exclusive tools were related to the means at her disposal (colourful markers and a horizontal whiteboard), the pupils stretched the expected uses of some of the tools (Figure 61). Some of the added tools were reproduced, but some were replaced by other tools – the decorated frame was replaced by a *box*, a simpler frame.

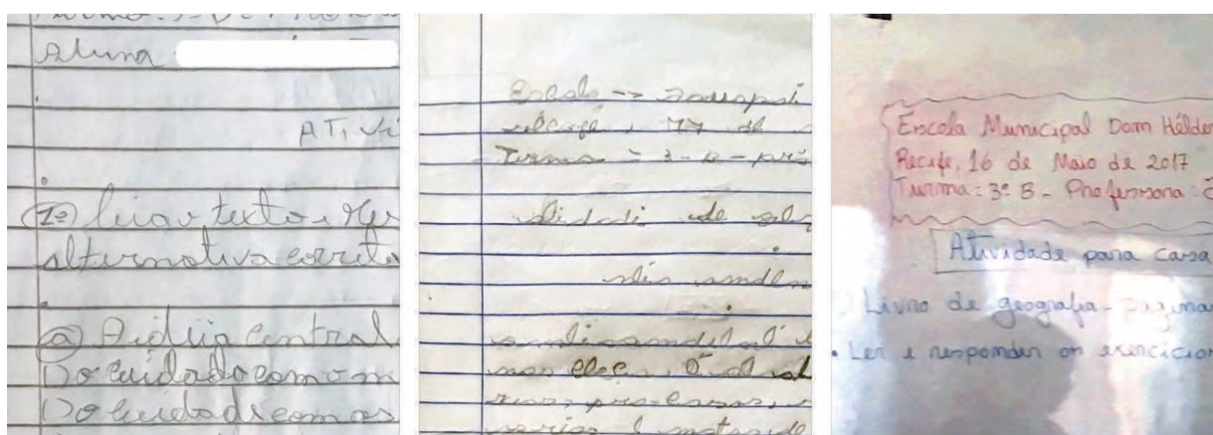


Figure 61. Left image: the pupil Mariana always used a full stop instead of an X, to separate the text groupings. Centre image: an **equal** sign instead of a colon in the header of a text. Right image: **colour** was explored by teacher Jaqueline for many reasons.

4.3.8 Dom Helder Câmara Municipal School – Morning

Many tools have been placed into one small section of the toolbox diagram, because most of the tools were in the category to indicate belonging. Many of them were variations of the visual cues to sequential lists that were used exclusively by the group of pupils.

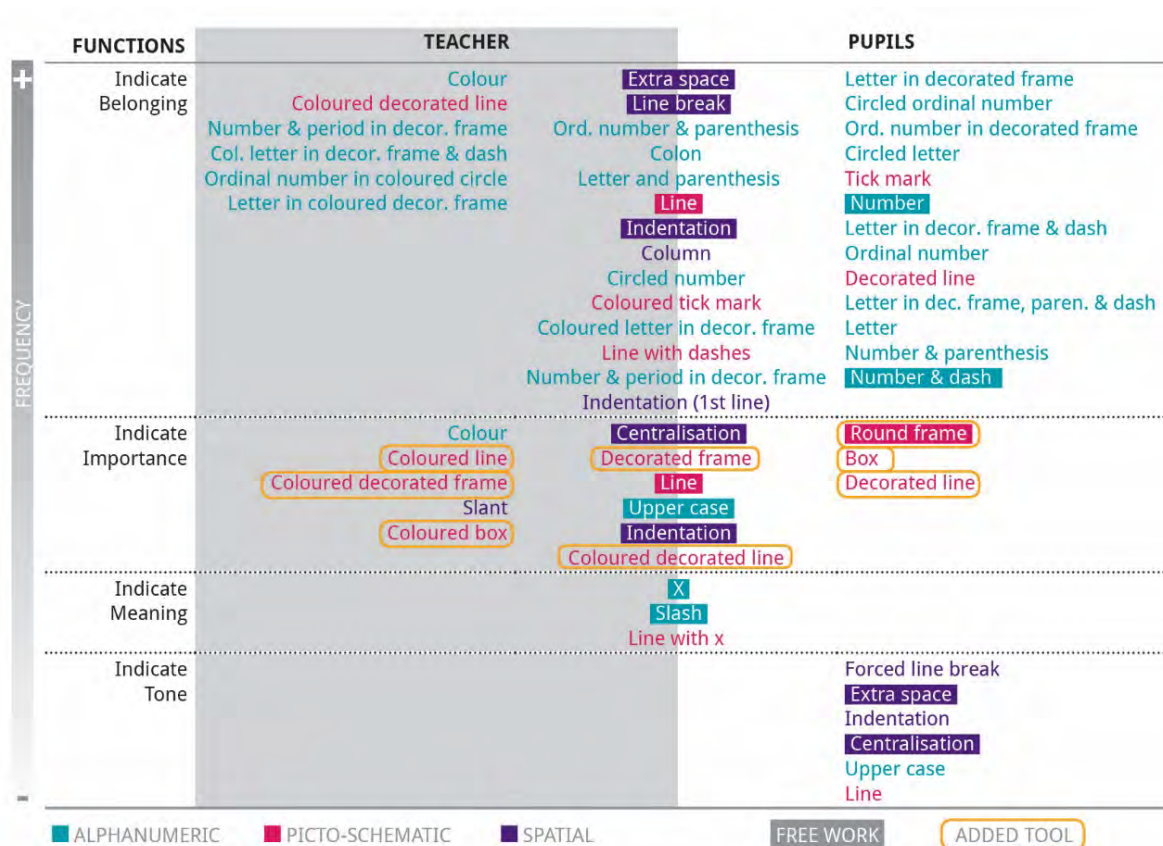


Figure 62. Functions of the tools used by the teacher and pupils in the morning class at the DH School.

There were also many tools indicating importance, and while some of them were shared, the teacher and the pupils also had their own exclusive tools, with colour once again being an element of dissimilarity between the two toolboxes. This was clear in relation to the added tools, which were reproduced in a similar manner although without colour.

All the tools with specific meanings were shared between the teacher and pupils, but only pupils used tools for which the relationship to the information could not be easily traced. Hence, their reason for being there was to establish a tone (Figure 63).

The tools used during the free work are spread about the diagram in many colours, indicating variations in terms of types and purposes, although there was a predominance of tools to indicate belonging and spatial tools. Apparently, this was an indication that the pupils were aware of the visual variety in the classroom and therefore tried to reproduce it (Figure 63).

FROZEN

Escola Municipal Dean Huber Câmara
Rua 30 de maio de 2017.

Ritmo Antártico de Caceres

A água é feita de glacião e composta por água.
A água é encontrada em toda parte: nos mares, rios,
lagoas, oceanos, lagos, na atmosfera, no ar, nas plan-
tas, nos animais e nos seres humanos. A água é um
disponível para todos.

Trasparencia da água: a água é uma substância
que está presente em toda parte.

Chamada de (água) pura

Há uma í formada por 2 átomos de hidrogênio e
um átomo de oxigênio. Sua fórmula molecular é
H₂O

Agenda

Revisão de Ciências
pág: 92 (leitura)
93 (leitura e questões)
94 (leitura)
x

a dengue está muito
grande e está
causando várias
problemas.

as duas são
dengue
chikungunya
zika

o nome do mosquito é
Aedes Aegypti

Figure 63. Left image: the **line** placed in the middle of the text did not follow any of the writing instructions on the board. Centre image: a **line with x** is the way teacher Rita indicated that the text has reached the end and was reproduced by this pupil. Right image: using **upper case** letters (at the bottom), the pupil wished to highlight the information.

4.3.9 General analysis

All the data from the 8 schools has been grouped in order to create the diagram below. The distinctions between who has used the tools and the context of use (such as the free work and the added tools) have not been considered, just as some similar tools have been summarised within a broader definition – i.e. frame is for *box*, *round frame*, *decorated frame*, and so on. The lists of tools in each category have been organised in columns from the most frequent to the least frequent.

	FREQUENCY			
Indicate belonging 64,0%	Extra space Line break Number as marker Letter as marker Colon Line Column	Equal Dash Indentation (1st line) Frame Indentation Parenthesis Colour	Period Asterisk Midpoint Arrow Tick mark Slash Heart	Comma Bigger horizontal space Page break Slant Vertical bar Centralisation Big braces
Indicate importance 16,1%	Centralisation Frame Line	Indentation Colour Size	Upper case Asterisk Quotes	Slant Colour highlight
Indicate meaning 13,6%	X Slash Line	Parenthesis Dash Period	Equal Asterisk Indentation	Dash and slash
Indicate tone 6,3%	Forced line break Indentation Extra space Centralisation	Line break Column Upper case Colour	Line Page break Parenthesis Midpoint	Dash Frame Colon X

■ ALPHANUMERIC ■ GRAPHIC ■ SPATIAL

Figure 64. Diagram relating functions and tools collected from the 8 classes.

The main purpose of most of the tools is to indicate belonging. In the diagram above, the numbers illustrate that this category has gathered together almost two thirds of the tools. This pattern was also encountered in the free work. Observation of all the school diagrams reveals that to indicate belonging was the prevalent category, although the order of the other tools has changed. The order that most of them displayed, from the most to the least frequent categories was: belonging, importance, meaning and tone.

However, the CB and AI schools presented more tools to indicate meaning than importance, which in other words, shows that the practice of highlighting some information has not been greatly explored by those participants. A close analysis of each case demonstrates that regarding the class led by teacher Fernanda (CB), there was an acute use of *X* and *slash* (used to indicate meaning), although at the same time, she did not, for example, adopt any tool to emphasise titles in the exercises. Considering the case of AI school, the intense use of *parenthesis* (indicating the questions children had to answer in their study books) was also something that increased the rate of the tools to indicate meaning – while teacher Lucila did not employ many tools for emphasising, especially bearing in mind the structural simplicity of the texts in the diary, where emphasis was not necessarily required to articulate the text.

There was also the case of the LB school where the second most explored tools were those to indicate tone, followed by those to indicate importance and, then, meaning. This was due to the great participation of the *forced line break*, although there was little variety or frequency of tools used to emphasise and to represent particular meanings. Thus, the order of the functions in the diagram represent qualities of texts and processes in the schools: in the case of LB school, it indicated that there was room for experimenting with the text, and, in the case of the AI, it meant that there were not so much structural complexity in the texts.

Many different tools were used to indicate belonging. In all classes, tools that indicated belonging were also those with the biggest variety of tools. This is representative of what most of the tools are for: to structure the text by delimitating (and also connecting) its parts. This occurs at the word level, when a label is connected to specific information, and at a document level, when teachers delimitate a specific text by framing it. Spatial tools participate greatly by interrupting the flow of the text or by indicating a similarity within equivalent text parts – which, for example, is the tactic of the *indentation of the first line* to indicate a paragraph.

Alphanumeric tools also constituted a significant part of the tools to indicate belonging, such as those related to numbering and some glyphs – like the *dash* and *colon*. Picto-schematic tools were used for more ‘extreme’ differences in the groupings, separating parts when other strategies alone would maybe cause confusion. This is the case of the *lines* and *line with dashes* employed by teachers to guarantee that the texts organised in columns would be understood as such. Another remarkable use of the picto-schematic tools to indicate belonging was their role in keeping the legibility of the writing, as most of the pupils drew *lines* on blank paper to organise the text lines.

Tools can be used for many purposes. This is why they are called tools. The possibility of using tools for more than one purpose illustrates the complexity of visual language, which is a code composed of graphic elements that usually have no previous meanings attached to them. Considering a line or a dot, for example: they are put to work within a context, but mean nothing when by themselves. So, it is the social and cultural character that makes visual language adaptable for the groups and the contexts in which it is being used, as with verbal language. Of course, visual differentiations are also limited by practical factors surrounding their production and reproduction. Therefore, for economy’s sake, it is natural that one element is used for more than one purpose. *Indentation*, for example, is one of the most versatile tools, being used to separate different groups, to emphasise information, to establish a tone and even to represent specific meanings – i.e. when it means repetition. *Boxes*, *frames* and *lines* can also both separate or emphasise, while almost everything can be used to establish a tone. Some glyphs can also be borrowed to create

meaning in certain groups, as with the use of the *equal* sign by the pupil Jéssica (Figure 51).

Different types of tools can be used for different needs. Emphasising is generally made by employing picto-schematic and spatial tools, although not often by manipulating the look of the letters, as in most printed material. There were some exceptional cases in the use of *size*, *upper case* letters and *colour*, but this was only occasional when compared to other strategies. Tools indicating meaning, on the other hand, were mostly alphanumeric, which seem easier to handle and define than space and picto-schematic elements. Exceptions were lines and one occasional use of *indentation* by teacher Lúcia. In the other categories, there were various types of tools.

When left to organise texts by themselves in the free work, pupils explored the versatility of tools, indicating that they were aware of the varied functions that one tool may have. Many of these tools were picto-schematic, such as *lines* and *frames*, which are very easily used for a variety of purposes due to their auxiliary relation to the text.

Convergence or divergence for the purpose of an added tool either demonstrated that it was employed as the teacher had suggested or as an element the pupils used because of other influences, fulfilling different needs. This was the case of the *asterisk* that pupils from the ED school did not adopt for the indicated function. But this case was exceptional, since the pupils, in most cases, reproduced the tool for a determined intention – or they would even use similar tools that had the same function.

Teachers deal with the tools in a very practical way. Only teacher Cecília (LB) and teacher Lúcia (ED) used tools to indicate tone, which were then shared with the pupils. This category in all the other classes was dominated by the pupils with their tools. This demonstrated that the teacher made practical use of the visual tools, but invested little in the aesthetic use of the elements or in establishing tone. Pupils, on the other hand, were more open to explore the language, as they were not at this point in control of it – so, in this case, some tools were misused –, although in some cases, they were being creative and using the graphic language in a playful manner.

The exclusive tools used by pupils to indicate meaning were substitutes for tools used by the teacher, as pupils could hardly create or employ a meaning that was strange to them. This role of determining meanings is for a more experienced individual, the teacher, who again is the one in charge of regulating the use of the visual organisation of the text. That said, the category of tools to indicate meaning is marked by shared tools, which is not the case of the tools to indicate importance or belonging, where both teacher and pupils experimented with the language using alternative tools to those shared between the groups.

4.4 TOOLS AND LEVELS

This section brings a description of the toolboxes in terms of the relational influences that the tools operate within the documents. Early analysis of the collected data suggests that tools can work in different manners on different levels.

4.4.1 Emídio Dantas Barreto Municipal School

The diagrams display the tools and the levels of text organisation they affect. It contains:

- *Groups and shared tools* – Again, the columns display tools used by the teacher, the pupils, and both.
- *Levels* – There are four categories of tools displayed in the rows. Inside these rows, tools are placed vertically in a descending order of use, from top to bottom. Once again it is necessary to be aware that the column dedicated to the shared tools contains the total number of tools registered, which can lead to the interpretation that such an order would be the same for each group individually.
- *Colour code* – Colours have been used in the text to show the category of each tool.
- *Free work* – Tools that appear in free work are highlighted and in white type.
- *Added tool* – The added tool is in a yellow frame.

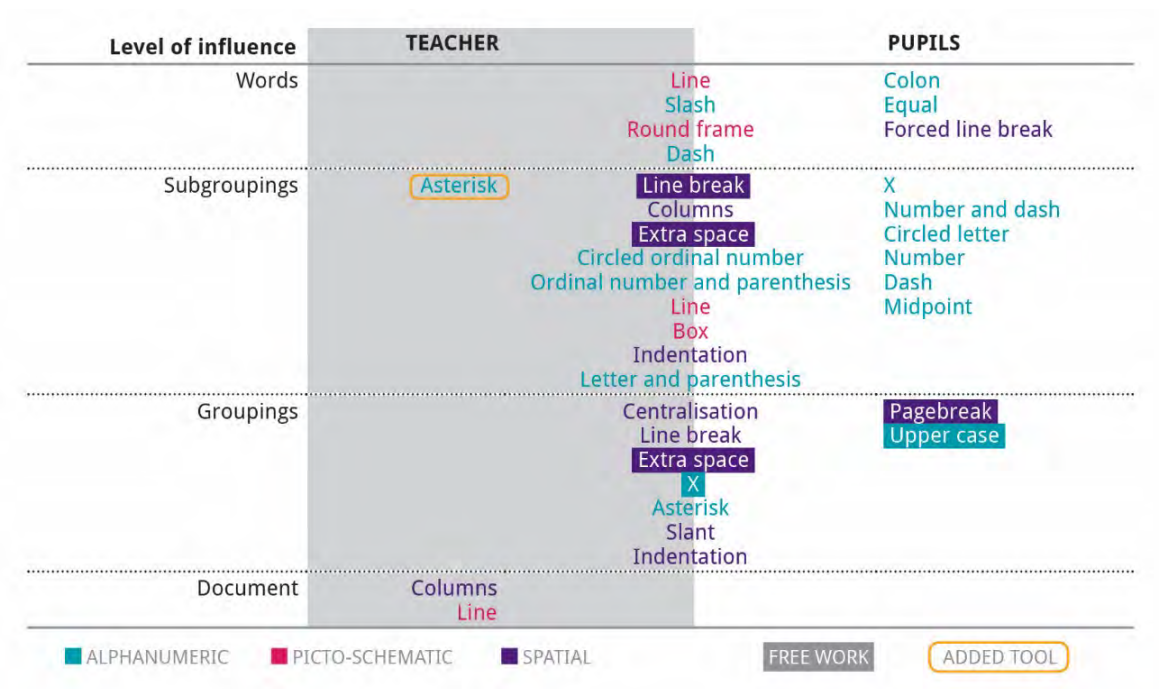


Figure 65. Levels of tools used by the teacher and pupils at the ED School.

The largest variety and frequency of tools was in the subgroupings level, which combined picto-schematic, spatial and alphanumeric tools, and which were used very often by both groups. On the word level there were few spatial tools, as they would normally disrupt the flow of the text, consequently alphanumeric and picto-schematic tools were used to organise and emphasise information.

The exception was *forced line break*, which did not divide the grouping into subgroupings or other groupings, as it was just a kind of misplaced tool. Hence, at the same time, the tools applied to the entire groupings or to link them were mostly spatial. The X, and the *asterisk* were also connected to linking the text groupings.

When verifying the use of tools in the free work, it may be observed that the same type of tool was used to affect different levels of text: *extra space* was used to link parts within a group and within groupings (Figure 66). This occurred to other tools, such as the added one (the asterisk), which appeared at different levels connected to different purposes.

Columns and *lines* were used by the teacher as a strategy to organise the writing on the whiteboard (Figure 66), and were the only tools used that affected the whole document – and that the pupils did not copy because of the conventions connected to the format of their notebooks.

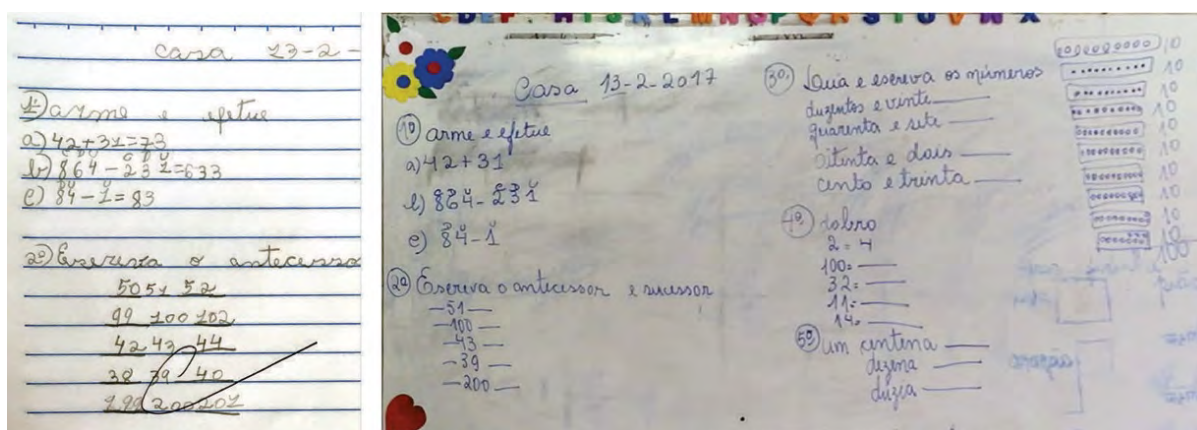


Figure 66. Left image: **extra space** is to leave a line without any writing, a strategy used to separate groupings (the header from the questions) and subgroupings, as it was also used to separate questions from one another. Right image: **columns** were a common way of filling the horizontal whiteboard with text.

4.4.2 Campina do Barreto Municipal School

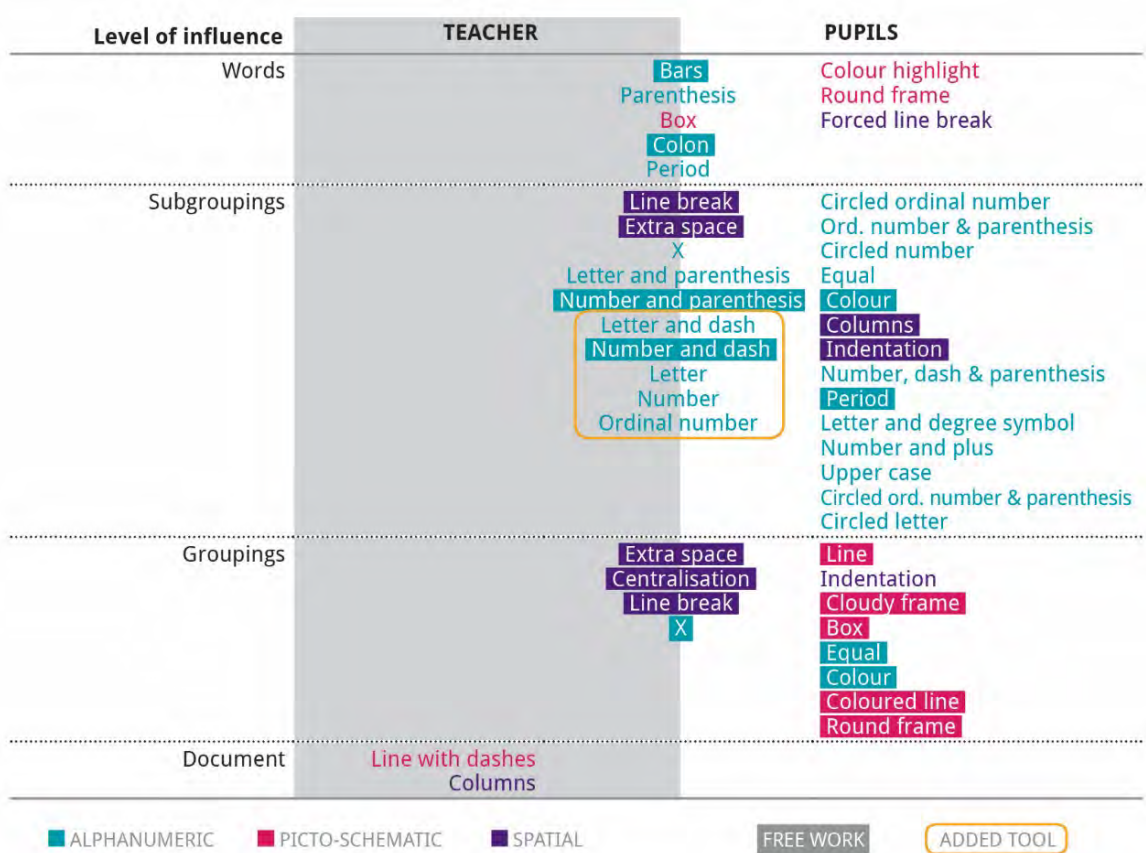


Figure 67. Functions of the tools used by the teacher and pupils at the CB School.

As most of the activities were exercises, which are composed of a large body of text formed by linked sub-parts, the biggest concentration of tools was on the level of subgroupings. Here, most tools were used exclusively by the pupils. This level was mainly influenced by spatial tools, followed by a diversity of alphanumeric related to question numeration and others, such as the residual use of upper case by the pupil Teresa (Figure 68).

Picto-schematic tools were significant at the levels of words and document (Figure 68), but especially varied on the groupings level, where their function was to emphasise certain information.

The versatile tools that were used on more than one level were the *equal* sign, the *period* (full stop) (Figure 68), *columns*, *colour*, *frames* – many of which were present in the free work, thereby signifying that the pupils were making their own use of the tools they know. Many different tools were also concentrated on the groupings level.

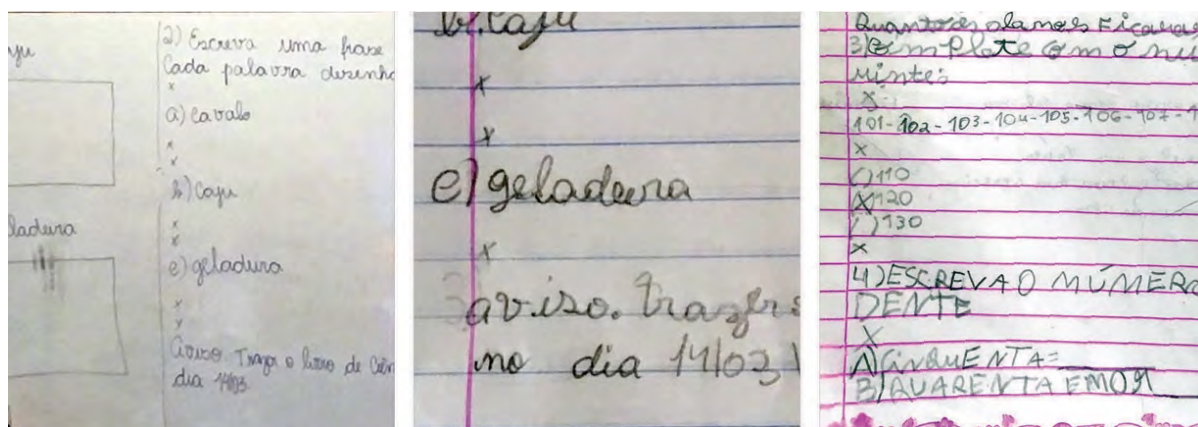


Figure 68. Left image: the **line with dashes** (interrupted with two small dashes in the middle) was a way teacher Fernanda used to separate columns on the whiteboard. Centre image: a **period** (full stop) was used to separate the title of the text 'Aviso' (meaning notice). Right image: The pupil used **upper case** only for the last question.

4.4.3 Arco Íris School

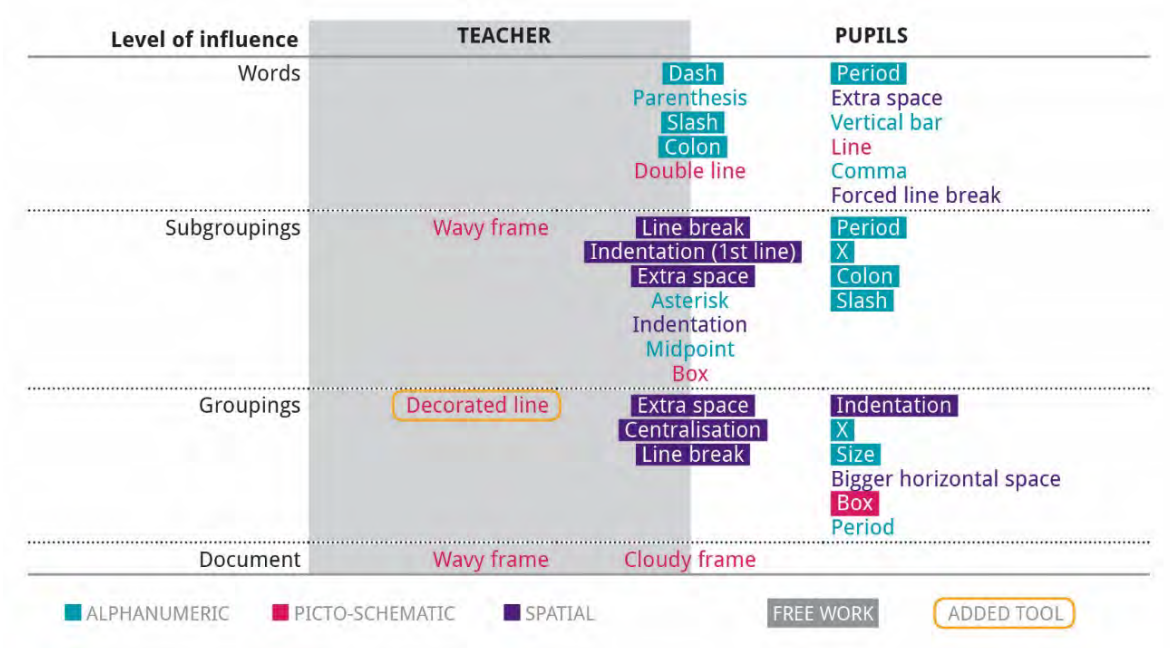


Figure 69. Functions of the tools used by the teacher and pupils at the AI School.

All the categories of tools were explored in the documents analysed, and most of the tools were dedicated to linking information within a text grouping. Unlike the other classes, many tools were used at word level, which was due to the succinct nature of the texts analysed and also to the strategies used by the teacher to keep the text short and direct.

At the same time, few tools were applied to text groupings, because at times, the texts did not have more than one main text grouping. The pupils, therefore, explored other ways of manipulating the groupings, using resources such as *indentation*, or a *bigger horizontal space* (Figure 70) to replace the vertical logics of arranging one grouping below the other.

Many tools were also used in the free work, and as they were more complex than the text in the diary, thereby requiring a differentiation of its parts, they were concentrated mostly on the groupings and subgroupings levels. At the document level, the teacher explored ways of encapsulating that text on a whiteboard full of other information, but this was less explored by the pupils as they were not required to face such issues in their diaries or notebooks (Figure 70).

It is interesting to note the various types of tools that were used to affect the word level, such as the use of *extra space*. Although it was the main resource for separating the words in different groupings, its use in the word level was quite restricted. The frequent use of extra space was a solution used by the pupil George in order to keep the writing in his diary legible, where the lines were too close together for the expression of his big handwriting (Figure 70). Thus, by

leaving an extra space, the ascendants and descents of the letters would not touch one another.

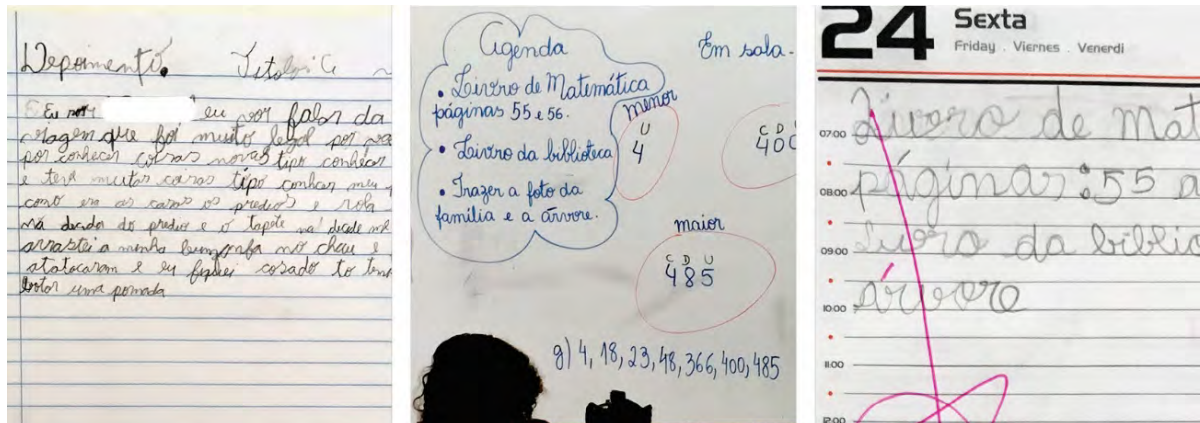


Figure 70. Left image: Diego used a **bigger horizontal space** to separate two different titles of his text on the same line. Centre image: The **wavy frame** helped pupils not to get confused with the interaction of text. Right image: As the space between the lines was not enough to fit his handwriting, George used **extra space** to keep his text legible.

4.4.4 Santa Rita de Cássia Institute – Morning

Level of influence	TEACHER	PUPILS
Words	Coloured frame	Round frame Decorated frame Extra space Forced line break
Subgroupings	Coloured frame Circled number	Extra space Ord. number and parenthesis Box Indentation Ord. number in decorated frame Number in decorated frame Number, x and parenthesis Midpoint Number and period Size Decorated frame Number Circled letter Ordinal number Comma
Groupings	Coloured line Coloured decorated line	Size Decorated frame Colour Column Decorated line Line with dashes
Document	Line Line with dashes	Decorated line
	<div>ALPHANUMERIC</div> <div>PICTO-SCHEMATIC</div> <div>SPATIAL</div>	<div>FREE WORK</div> <div>ADDED TOOL</div>

Figure 71. Functions of the tools used by the teacher and pupils from the morning class at the RC School.

The tools that were applied to the level of the whole document were also used by the pupils, who also invented their own versions for *line and dashes*. Along with these, the vast diversity of picto-schematic tools used impacted on all the levels separating and emphasising information with the aid of lines and frames, functioning especially at the level of groupings.

While teachers and pupils both used shared and exclusive tools to affect all the levels, pupils explored the visual language more at the subgroupings level, not only with their exclusive tools but also by adapting tools to work at this level – such as when they had the idea of marking items on a list with *midpoints*. Another adaptation was to separate groupings with *line with dashes* (Figure 72).

In the free work, the tools employed functioned mostly at the groupings level, and were mostly spatial, for example, *centralisation* (Figure 72), matching teacher Paula’s practices, so there was little innovation in this area.

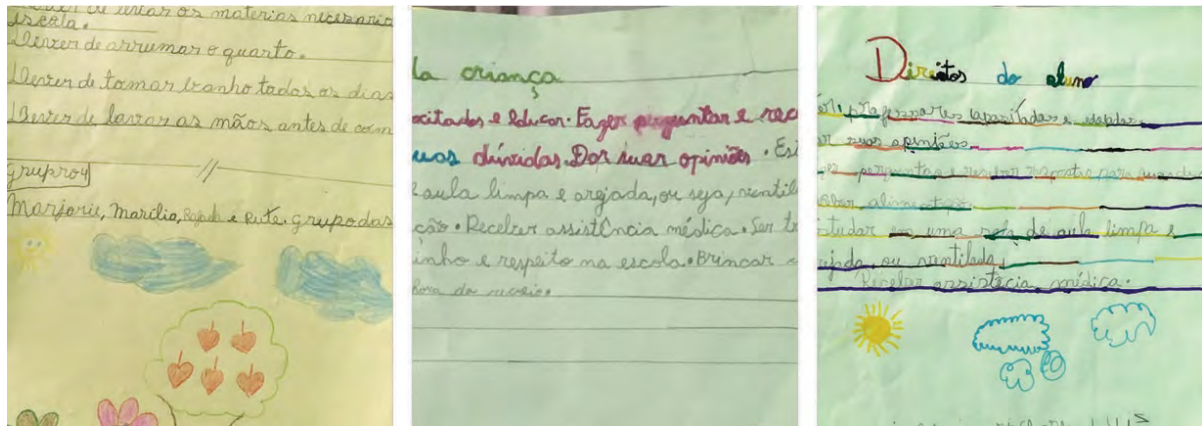


Figure 72. Left image: a **line with dashes** separated groupings. Centre image: **midpoint** was used to separate items in a list of phrases. Right image: the **centralisation** of the title showed it was different and on a different hierarchical level.

4.4.5 Santa Rita de Cássia Institute – Afternoon

Level of influence	TEACHER	PUPILS
Words	Coloured double line	Line Colon Double line Dash and slash Decorated line Forced line break
Subgroupings	Coloured line Colour	Ord. number in decorated frame Circled ordinal number Box Ordinal number in box Number Circled letter Indentation (1st line)
Groupings	Coloured box	Size Uppercase Indentation Pagebreak Decorated line Quotes Bigger horizontal space
Document	Line with dashes Column	

■ ALPHANUMERIC

■ PICTO-SCHEMATIC

■ SPATIAL

FREE WORK

ADDED TOOL

Figure 73. Functions of the tools used by the teacher and pupils from the afternoon class at the RC School.

As the majority of the texts written by teacher Amanda were short and straightforward, the concentration of tools affecting groupings was almost similar to the subgroupings, whereby the former was more frequent and the latter presented a greater diversity of tools employed. In their free work pupils also used tools mostly to affect groupings (Figure 74).

No tool was used by the pupils with regard to the document as a whole. However, conversely, they explored the word level with many more alternatives to highlight information than the coloured emphasis made by Amanda (Figure 74). This use made the word level more diverse in terms of the types of tools, while sometimes it was dominated by alphanumeric tools. In general, picto-schematic tools were employed at all levels.

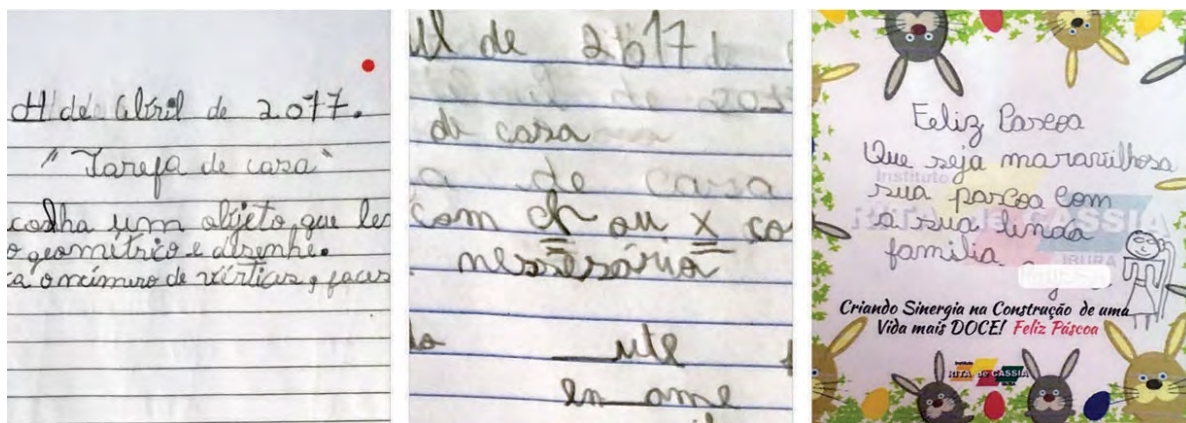


Figure 74. Left image: Letícia used **quotes** to reinforce the emphasis in the title. Centre image: Saulo used a **double underline** to highlight information. Right image: Lia used **centralisation** in the title of the message she wrote in an Easter greetings card.

4.4.6 Lubienska Educational Centre

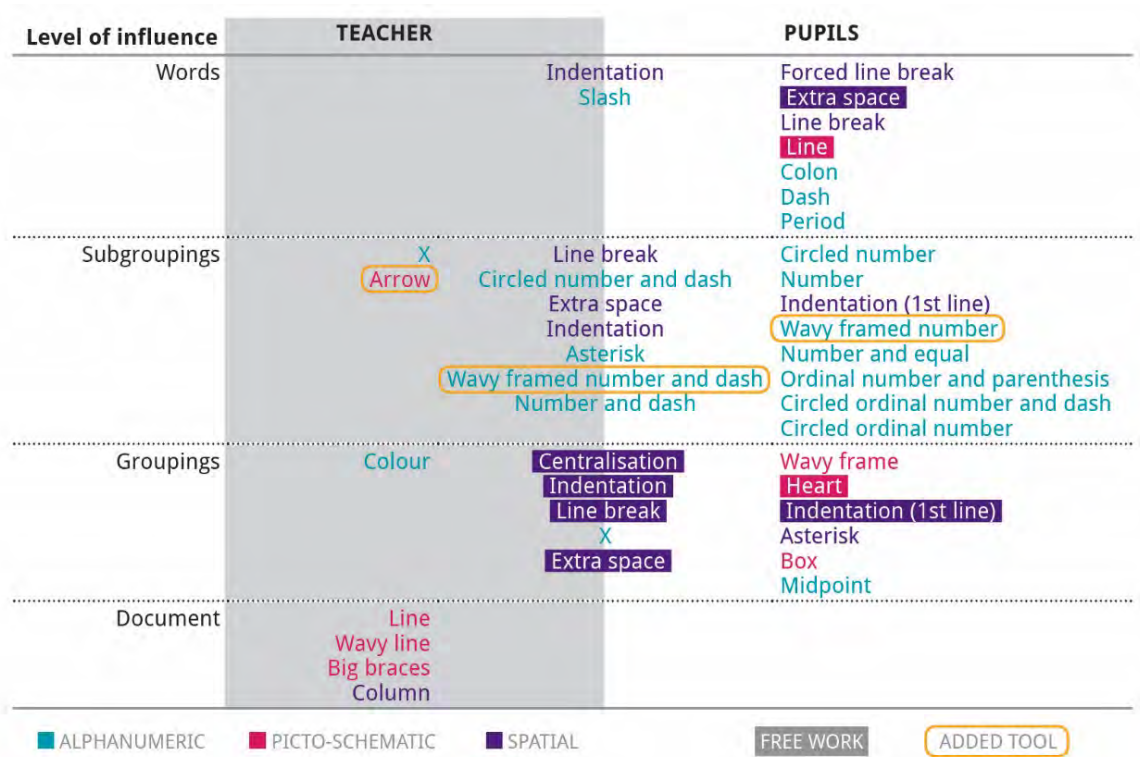


Figure 75. Functions of the tools used by the teacher and pupils at the LB School.

As most of the activities analysed were lists in the diary, a simple genre, it is understandable that most of the tools were concentrated into the subgroupings level, unlike in the free work, where there was little to link within a group of text, but rather among groups (Figure 76). Thus, most of the tools in the other texts were applied to the groupings level.

There was a certain importance attached to the word level, with many visual strategies being employed by the pupils. Apart from forcing the line break, they used the vertical space (in breaking the line of text and in leaving a big space) without creating two separate informational units (which is the main use of such tools). This occurred mostly in order to establish a certain tone or visual effect in the text (Figure 76). Therefore, together with the presence of the picto-schematic tool *line*, this level was often explored, mostly by the pupils.

Teacher Cecilia, in turn, indented text in order to approach parts of a compound noun that had to be separated by the *line break* (Figure 76). She was the only one to use tools aiming to impact the whole document.

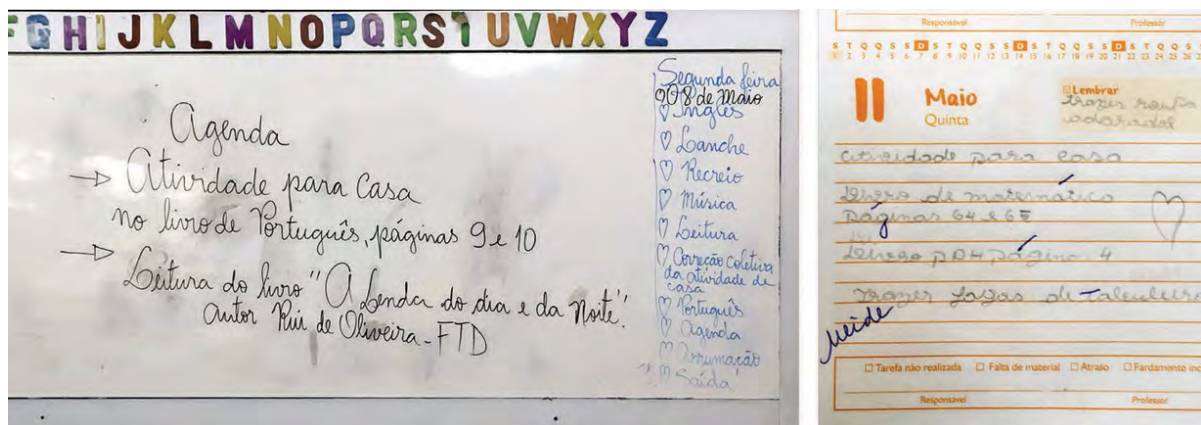


Figure 76. Left image: Cecília used **arrows** as visual cues for the diary, while she used hearts as visual cues for the daily guide (not analysed in the research). Besides this, she also used **indentation** on the text in the last line to approach the content. Right image: The pupil made a **line break** that was not required as it was not to copy the teacher, hence it was probably for aesthetic reasons.

4.4.7 Dom Helder Câmara Municipal School – Afternoon

While the largest number of tools was gathered on the subgroupings level, there were almost as many tools as on the groupings level. There was a big difference between them, however, because while the former was formed mostly of alphanumeric tools, the latter was formed mostly of picto-schematic tools. This represents a break in the manner of arranging information in the classroom commanded by teacher Jaqueline (Figure 78).

Level of influence	TEACHER	PUPILS
Words	Coloured line Colour	Colon Line Parenthesis Box Equal Forced line break Dash Midpoint Arrow
Subgroupings		Line break Letter and parenthesis Circled ordinal number Ordinal number and parenthesis Indentation (1st line) Arrow Number and parenthesis Midpoint Extra space Indentation X Circled number Circled letter Number and dash Page break Ordinal number Letter and dash Period Colon Letter
Groupings	Line break Colour Coloured Triple line	Centralisation X Extra space Wavy frame Double line Wavy line Box Line Decorated frame Period Indentation Cloudy frame Round frame Triple line
Document	Wavy line Columns	

■ ALPHANUMERIC ■ PICTO-SCHEMATIC ■ SPATIAL FREE WORK ADDED TOOL

Figure 77. Functions of the tools used by the teacher and pupils in the afternoon class at the DH School.

As expected, she was the only one to employ tools at a document level. The word level was explored by both, and the tools that were not copied by the pupils were those that were coloured, as the pupils explored many tools at the word level (Figure 78).

The added tools were restricted to the groupings level, and were appropriately reproduced by the pupils.

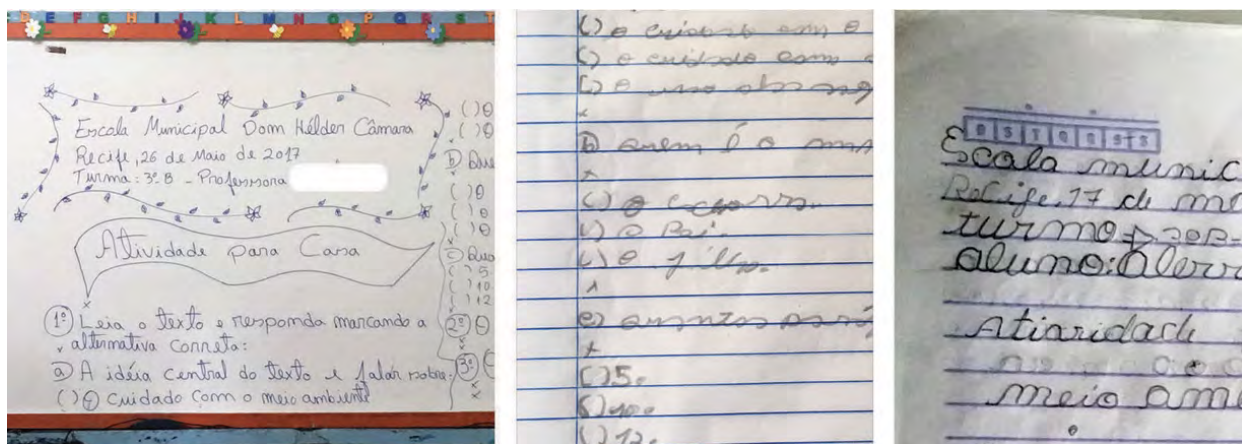


Figure 78. Left image: different **decorated frames** were used to separate the header and the title from the rest of the text. Centre image: instead of checkboxes, **parenthesis** was used. Right image: an **arrow** connected the label to the information.

4.4.8 Dom Helder Câmara Municipal School – Morning

A great number of variations for a tool such as *ordinal number and parenthesis* caused a distortion in the diagram, such as the inflated subgroupings category, and although they were very numerous in terms of the number of tools, they did not have a large share in the toolbox. In the same category there were other tools, like the spatial and picto-schematic tools shared between the teacher and the pupils (Figure 80).

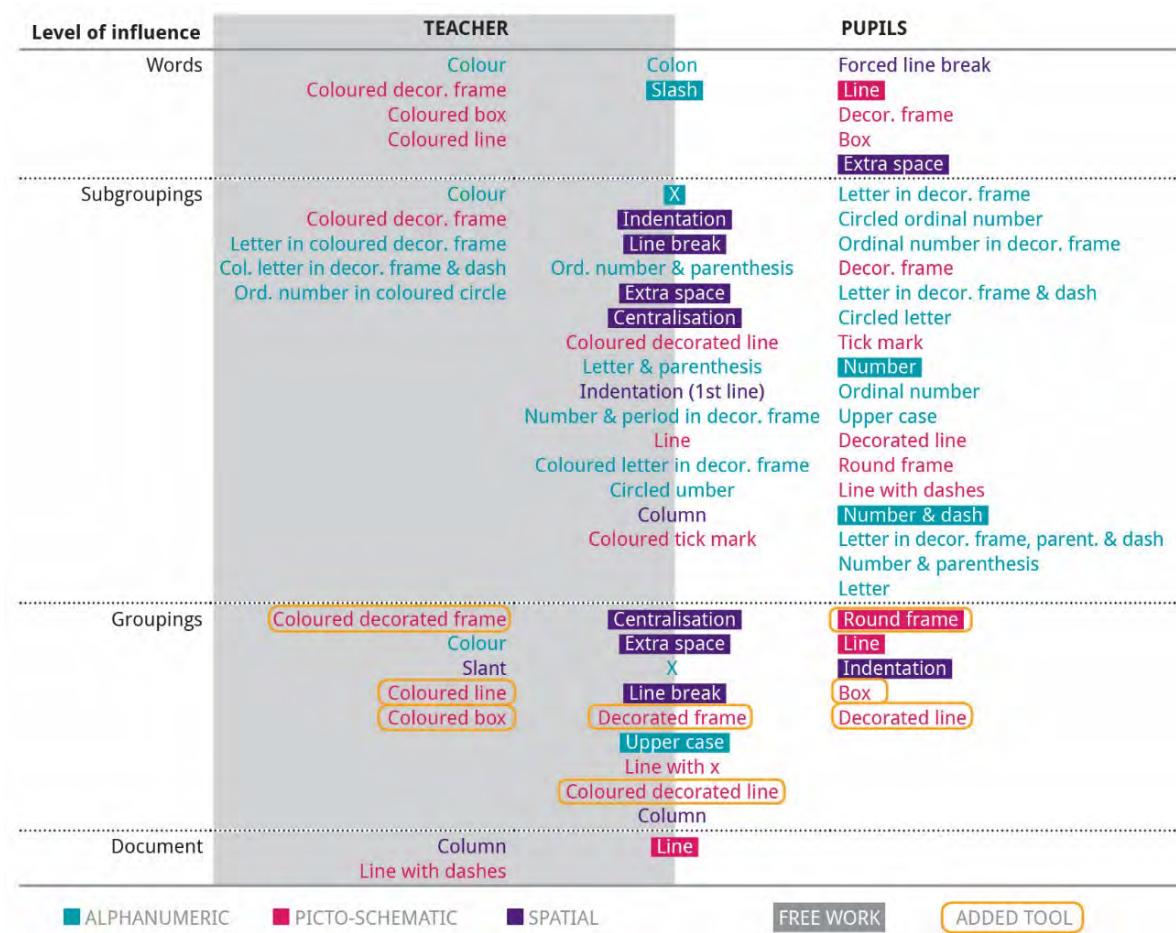


Figure 79. Functions of the tools used by the teacher and pupils from the morning classes at the DH School.

In second place, the groupings level presented many tools of various types, and many picto-schematic tools were employed to differentiate information at this level. Picto-schematic tools also played a big role at the word level, and outnumbered the usual alphanumeric tools.

In the free work, pupils explored various tools at many levels, some the same as the teacher’s, some exclusively (Figure 80).

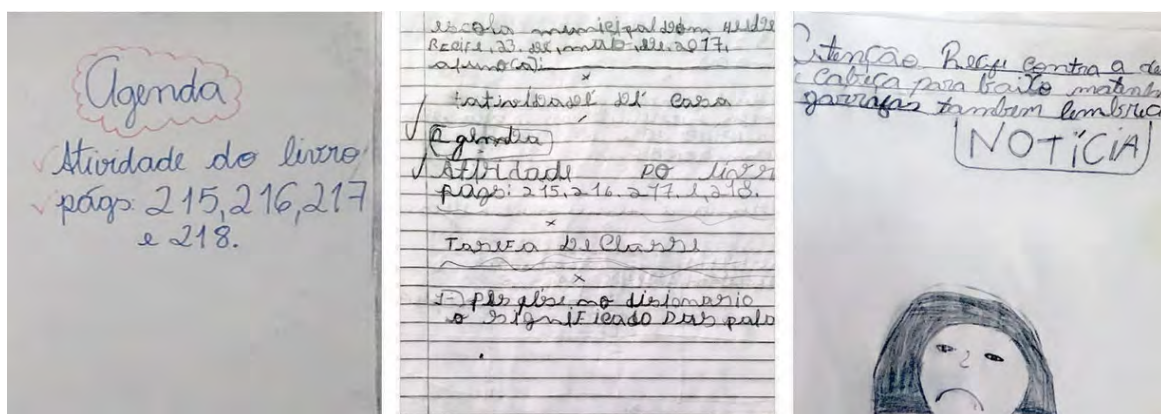


Figure 80. Left image: a **coloured tick** was used by teacher Rita inconsistently as a visual cue for elements of a list, as there was just one item and two ticks. Centre image: Eduardo used the **tick mark**, but he did not understand its purpose. Right image: Kátia used lines to organise her writing in the drawing book, and she highlighted the title using **upper case**, bigger letters and a **round frame**.

4.4.9 General analysis

The general diagram below presents the tools that were used on each level by the participants of the 8 classes studied.

	FREQUENCY			
	+			
Words 19,4%	Line Colon Slash Parenthesis Forced line break	Dash Equal Frame X Extra space	Indentation Period Line break Colour Vertical bar	Arrow Comma Dash and slash Colour highlight Midpoint
Subgroupings 43,6%	Line break Number as marker Extra space Letter as marker X Column Forced line break	Indentation Indentation (1st line) Line Frame Colour Dash Asterisk	Period Midpoint Centralisation Arrow Tick mark Equal Comma	Upper case Page break Colon Slash Size
Groupings 34,8%	Extra space Centralisation Line break X Frame Indentation	Line Colour Size Forced line break Upper case Period	Column Asterisk Heart Bigger horizontal space Slant Page break	Indentation (1st line) Equal Quotes Midpoint
Document 2,1%	Line	Column	Frame	Big braces

■ ALPHANUMERIC ■ PICTO-SCHEMATIC ■ SPATIAL

Figure 81. Diagram relating levels and tools collected from the 8 classrooms.

An analysis of the diagram above generates a number of indications regarding the tools employed by the overall group, as indicated below.

The majority of tools are used on the groupings and subgrouping level.

Most of the tools were accumulated on the subgroupings level, which was highly explored, regardless of whether the genre of the text was complex or not. This was closely followed by the groupings level in terms of the variety and frequency of tools, although this type of differentiation in the text was made mostly in genres written in the notebook, where pupils usually had to link different textual components and texts get to be more complex.

The word level was also important, and in some classrooms, such as AI, it was highly explored, with notations developed to act as shortcuts for the writing process in the diary. The document level was mostly explored by the teachers, as they were in charge of organising texts in a horizontal artefact with no visual guides. They controlled the writing process, defining tasks and the relationship between the texts produced in the classroom.

This prevalence of tools on the levels of groupings and subgroupings (almost 80%) demonstrates a preference for organising information through its division into textual parts – despite, for example, articulating information within a text block. This might have been for many reasons, such as the facility of arranging information this way, while other kinds of variations such as the different letter forms common in printed matter would be difficult to make.

The almost inexpressive participation of tools on the document level is possibly related to the domain where handwriting is used in schools: for more ordinary writing practices. In other words, documents that are complex, long and composed of multiple parts are not produced in the classroom, especially in the primary third year. On the occasions when more sophisticated work was conducted, such as reports for a science fair, where there were chapters, pages that needed to be numbered and so on, these were usually made with computers and typed text.

Picto-schematic tools answer to needs at many levels in a text. Most of the repeated tools were spatial, impacting the subgroupings and groupings level, as they worked in similar ways to arrange things. Some of them were employed at word level, such as *extra space* and *indentation*. The most versatile tools were *frame* and *line*, functioning at all levels.

There were tools of all types affecting all levels, except the document level, which did not have any alphanumeric tool. This was due to the fact that the picto-schematic and spatial tools were usually employed to make writing legible, comprehensible and organised throughout the entire text. Conversely, it was not expected that there would be so many spatial tools at the word level, since space is the most common strategy to indicate separate groupings or subgroupings. However, the pupils explored space at the word level through many means, as presented in Figure 70.

The versatility of tools was again expressed with the added tools and those used for the free work, as many of them were explored at more than one level. This indicates that pupils were willing to employ tools when they know the mechanics of other levels, either when they are prompted or when they are left to choose their own strategies.

Teachers explore the document level while pupils stay with the word level. An analysis of the class diagrams, which are more detailed, illustrates that the subgroupings level was usually inflated by the many alphanumeric tools indicating sequence and numbering, most of them exclusively used by the pupils. At the same time, in the groupings level, there were also many exclusive tools, many of which were picto-schematic, as they were used to indicate the importance of some parts of the text.

In the teacher and pupil relationship there was a parallelism: while children did not have exclusive tools at the document level, teachers did not have exclusive tools at the word level. The only cases of teachers with tools that had not been copied by the pupils on the word level were related to colour, which pupils were unable to reproduce. Under other conditions, they would probably have copied this tool, as the intentionality of doing so was demonstrated by the use of a monochrome version. This attendance by pupils may indicate that either the flow of the text helps the pupils to perceive and assimilate tools that are at word

level, and/or that it might be taken as essential content by pupils, for which copying is necessary. This line of reasoning is based in the idea that when pupils judge tools as inseparable parts of the content, they may reproduce them.

* * *

The next section is the final section and summarises what has been discussed in the three parts of this thesis. It closes this third part dedicated to the presentation of the results of the analysis and discussion.

5 FINAL REMARKS

This section is dedicated to the final remarks, summarising and concluding the issues that have been addressed in the present thesis. To ensure clarity, we will begin with a general overview of the investigation, and then sequentially comment on the three sections into which the thesis has been organised. The research questions and methods will also be addressed and reviewed throughout this topic.

As we have described, our first intention on the trajectory of this research was to study graphic language and its broad expressions, since before visiting the schools, we were unsure as to which and how activities were being conducted. Nonetheless, from the outset, our interest was in how the articulation of information was made through the manipulation of graphic language, rather than issues regarding the performance during its creation – as in investigations on how children learn to make the shapes of letters or represent things through drawing. What was unclear before the fieldwork was the type of graphic genres that were being produced and what kind of artefacts and media were being used in school, as the last occasion that the researcher had conducted observation along these lines was 7 years before (Cadena, 2010), and with the highly digital world of today, practices might have been replaced. However, Twyman (1978) was precise in his diagnosis, when he stated that changes in school take a long time to happen, and the state of practices developed in the observed classes was very similar to those from the 2010 research. The observation demonstrated that there is a diversity of genres used, and that information is explored in different ways – for example, teacher Rita conducted activities on packages, news and the creation of graphs, while Lucia produced drawings for the students. Text, however, was the most frequent mode in all the practices, all produced by hand, since very few digital devices have as yet been introduced into the schools – at least, not to create texts, messages or documents. Thus, the study has focused on just one aspect regarding how it is possible to manipulate the visual aspects of written information: the visual organisation of handwriting.

5.1 AN OVERVIEW OF THE LITERATURE

Through a bibliographical research, conceptions behind the literacy process in Brazil were reviewed, and indicated how they have ranged from dependence on methods through to being replaced by a more organic conception of language acquisition: by the use, study and creation of various discursive genres, which on average were those more related to texts present in social life. It is clear however, that a misunderstanding of the new guidelines, plus the abolition of methods, has created a new set of literacy problems. Specialists from the field have defended a mixed approach, in which methods are used to tackle specific

issues in the teaching of reading and writing, plus the continuing use of discursive genres to promote literacy experiences (Soares, 2004; Mendonça and Mendonça, 2011; Mortatti, 2006).

In terms of the teaching of writing, initially there were methods to promote writing skills through copying and dictation, and spelling books dedicated to training calligraphy played an important role in this process. This was also followed by the demise of teaching and practicing calligraphy¹ in schools (Mortatti, 2006). Moreover, in education, no special attention was given in the earlier paradigm nor in the latter to the organisation of handwriting – which is different when compared to the teaching of calligraphy, for example, which initially involved conceptualisation, methods and didactic material.

It is interesting to note that the AI and RC schools, which are private institutions, both adopted calligraphy books so that the schoolchildren could practice their handwriting to improve legibility. Although appropriate notebooks for training calligraphy – with ruled paper, which guide the way that letters go up and down – are distributed in municipal schools, such as CB and ED, they were never used for this purpose during the observation period. Therefore, even if practicing handwriting is considered rather outdated – due to the ‘trauma’ of traditional repetitive exercises before the 1980s –, schools still consider it an important skill for pupils, for whom a lack of practice would be detrimental to the activities developed there.

The main objective of this research was to investigate the processes involved in the teaching of handwriting and although this issue was not directly addressed in the theoretical review, especially in terms of Brazilian language, it is implicit in the contemporary literacy paradigm. This suggests that a language is learnt by social interactions and access to texts that place it in the social spectrum. Thus, linguistic education is linked to creating an environment in which certain discursive practices are used, created and studied, and where pupils connect with that culture, developing their reading and writing skills. Viñao (2008) considers that there is an acculturation process of writing in school, in which pupils assimilate pre-developed systems. Throughout the course of literacy, the development of visual language is a consequence, as it accompanies the materialisation of the messages consumed within that environment.

Although the specificities of the visual configuration of genres are included in the curricula, these particular questions are not covered during the formation of teachers – according to the consulted professionals. Waller demonstrates that even in design education much is based on learning by practising and reading, just like the education of these teachers appears to have been:

¹ In this context, calligraphy is seen just as Farias (2004:2) describes it: ‘a manual process aiming to obtain unique letters, from continuous handmade strokes’, a description that also matches cursive handwriting.

Tacit familiarity with genres can be taught in the traditional manner of design education – through imitation, pastiche and criticism – but a more controlled and explicit understanding may also be reached by analysing genres into their three underlying structures – or some alternative system that others might propose.
(Waller, 1987, p. 241)

If the withdrawal of specific methods for teaching reading and writing has been detrimental to the literacy process, as Mendonça and Mendonça have stated when they say that children were expected to learn ‘just by watching the teacher write on the board’ (2011, p. 48, translated by the authors), a comparison of how things were before is not possible in the case of the visual organisation of handwriting, which is not being systematically taught. In terms of graphic education, it seems pupils have always been expected to learn just by watching. However, all these years neglecting a ‘graphic education’ in school has also been detrimental, as it is seen to cause a lack of concise terminology, of diversification in the visual solutions, and of awareness regarding its engaging and informational potential.

Another outcome worthy of note is the establishment of a parallel between the graphic complexification of writing in history and in the children’s learning trajectory – based on the theory by Ferreiro and Teberosky (1986) and through research by Mortatti (2006) and Vidal and Gvirtz (2008). The assessment of these two cultural processes demonstrates the development of writing first as a system of the direct representation of things, then of the representation of speech, moving on to become a system with its discourse particularities, which not only possesses exclusive textual features, but in which graphic attributes play a very important part in the creation of meaning and reading performances (Stöckl 2005; Waller, 1987; Twyman, 1986).

5.2 AN OVERVIEW OF THE FIELDWORK

The analysis and discussions conducted in the third part, dedicated to the fieldwork, were able to provide answers to some of the research questions:

- How do teachers approach graphic language?
- What kind of visual material do teachers develop and use in their teaching routine?
- What role do teachers feel they play in the graphic development of their pupils?

The question referring to the kind of visual material that teachers develop and use within their teaching routine was clarified with the aid of the diagrams created. They have demonstrated a major use of writing by hand rather than using digital technologies, which were mostly employed for watching videos, playing games, conducting research, but not for the creation of graphic material, neither by teachers nor by pupils. Printed matter was also used, such as study books and story books, and the graphic activities they evoked mostly involved answering and dealing with the pre-made graphic structures they presented. The artefacts that enabled the creation of more articulated texts

were the whiteboard, used by the teacher, and notebooks and diaries, used by the pupils.

In these supports, the genres that were mostly produced were exercises and lessons in the notebook and lists of tasks in the diary. These were texts that pupils copied from what the teacher had written on the whiteboard. Texts created freely by pupils were also considered, and these two types of texts were selected to constitute the analytical corpus of the research: the first was designed by teachers and the second, by the pupils.

Another research question involved how teachers approach graphic language. The answer to this was partially provided in the previous two paragraphs. It is however important to acknowledge that the observed teachers had a straightforward, practical relationship with graphic practices, since everything they wrote or drew was concise and represented information in a very direct manner, with few decorative elements. This question also regards the manner in which teachers addressed graphic language for their pupils, and their explicit attitudes listed below may be understood as three out of four teaching tactics that we categorised.

The first was by directly exposing graphic features orally, sometimes visually. This occurred, for example, when teacher Lucila asked the pupils to indent the beginning of a paragraph and use a capital letter for the first word when writing a piece of text, to create a title, to write clearly; similarly, teacher Cecília requested good handwriting and capital letters at the beginning of a phrase.

The second was providing a model, suggesting to the pupils how they should organise the information they created in the free work. This occurred when pupils were using genres that they were not so familiar with, such as posters, which contain many linked conventions. In this case, teachers did not discuss the features or components, they just provided a model – thereby making it different from the previous tactic.

The third explicit tactic was evaluating the pieces of writing produced by the pupils, for which, either by showing or marking their notebooks and diaries, the teachers indicated what was not appropriate. It was observed that teachers concentrate on grammatical inconsistencies, although most of them say that they observe graphic organisation as well, especially the legibility of letter shapes and the harmonic distribution of information in the space.

A fourth tactic is the graphic practice itself, in which teachers expose organisational solutions for the children to replicate (or not). This might be referred to as the influence that teachers have over pupils. The teachers are reasonably aware that what they do is perceived and may be copied by the pupils, even if it has not been elicited. More details will be presented within the following topic in this section, in considering the analysis.

The delineation of these four tactics in teaching graphic language – and, specifically, the organisation of handwriting – also helps to answer to the question regarding the role that teachers feel they play in the graphic development of their pupils.

Teachers commented that during their own education there had been a certain preoccupation concerning the graphic aspect of writing, even if this topic was not systematically studied or approached. This was one of the criteria used when evaluating their projects, and their professors signalled when something was not appropriate: either illegible, too crowded, or inadequate script use for the age of the pupils. Therefore, there was a similarity between their own educational experiences and what they promoted in class: learning through observation, comparison and copying. This is consistent with what Walker (2001) believes regarding the learning strategies used by other lay designers. The author attributes the more restricted repertoire of nonspecialists to the fact that they have developed their knowledge on formatting documents from what they have seen before and remember, unlike experts trained on the subject.

It is unsurprising that some of the teachers remarked on their anxiety with regard to writing. They had no previously developed skills or content on which to draw, and were now feeling pressured to be very competent at graphic tasks, while having to expose their everyday performance to several different people. This is in agreement with Twyman's (1978) findings on how teachers feel ashamed of their own writing, which could be dealt with during the teacher's formation – but until now has not been.

After a review of the methods employed in fieldwork for data gathering, we considered that the ethnographic approach was appropriate for the purposes of our investigation, as it enabled the observation of practices and processes just as they are – or, at least, close to what they are, assuming that the presence of the researcher interfered in some way or another in the behaviour in the classroom. The posture adopted by the researcher was to be as undistruptive as possible, and therefore she requested as little as possible from the children, the teachers and the supervisors, which naturally led to a certain amount of loss in terms of data collection. One example of this was when, so as to avoid interfering in the dynamics of the class, the researcher took pictures of notebooks at the end of activities, when some pupils had already packed them away in their backpacks. Thus, even though every effort was made to minimise these losses, participating as little as possible in the observation implied adopting a less assertive presence. It is important to highlight that due to the hierarchical structure of the school institutions, whereby the acceptance of the researcher was negotiated with managers, we remained unsure as to whether teachers felt truly comfortable with her presence, and to what extent they could be requested to undertake certain things.

With regard to the selected approach in the fieldwork, it is conceivable that a different approach could have been adopted – and may even still be, in further studies. A respectful, but less hesitant posture might lead to other types of interventions, which could prove more valuable for gathering data. For example, the suggestion that teachers should add a textual graphic tool to their practices was made through negotiation, but because this was left to the organic flow of the class routine, teachers used the added tool inconsistently. In addition, pupils did not always have the chance to employ the new tool in a free exercise, so asking for a free activity tailored for the use of that element would have been interesting. Furthermore, when interviewing teachers, it is possible that the use of visual aids may have helped them to talk about graphic issues, since they often lacked the necessary terminology. A very interesting experience would be to show pictures of their own texts. Thus, again, these assumptions lead on to a different conception of the fieldwork and to a different research design, which might not have been exactly suitable for evaluating the present fieldwork, but that could possibly be adopted on other occasions.

There were some interesting outcomes regarding the choice of visited schools, in which both private and public institutions were visited. The visits not only revealed different material support – whereby it was not always the public schools that had fewer resources, since the RC school possessed no digital devices –, but also different graphic practices related to what was at hand for those particular groups. There was a decisive difference between public and private schools in terms of material support, especially due to the availability of functional study books, which played a significant part in many didactical activities, in conducting the classroom dynamics and the type of activities. In private schools, there were fewer writing activities in the notebook because many exercises were completed in the study books. In municipal schools, notebooks were used almost on a daily basis, and were the main artefact employed by the pupils.

The choice decision to observe different classes at the same school (as occurred at the DH and RC schools), demonstrated different practices related to the repertoire and preferences of a particular teacher and group of pupils. Even if the teachers followed the same class plan, they promoted different activities due to the different contexts they were having to deal with – as with the RC teachers, who planned classes together.

The system of using timelines to systematise the complex outputs from the fieldwork has been a useful method with which to organise ideas concerning what took place at the observed site. This might well be of use to other researchers conducting observational investigations, in which chronology is helpful to organise data.

The colour coding created to exhibit the type of activities in the observed classes has revealed that activities, which rely on graphic material were the most

common in school, despite being oral activities, such as debates or storytelling, or physical activities. Whenever these activities took place, they were usually provided with support from something written or drawn. This may not be so unexpected, since most people have to deal with letters and images almost all the time for work or for fun, but it helps to emphasise the extent to which school dynamics are immersed in graphic (either written, photographed, printed, or on screen) information.

5.3 AN OVERVIEW OF THE ANALYSIS

The review of the third part of this thesis enables us to approach the main research question of this thesis: To what extent does the teacher's visual organisation of handwriting influence the pupil's organisation of handwriting?

The first step in reflecting on this issue was first to define the units of the handwriting organisation, thereby enabling us to search for, categorise and understand them. These visual forms of editing a text were called textual graphic tools, and were thus named because of the metaphor, whereby tools provide the means for creating things, and because of the educational viewpoint in constructing a toolbox of skills and experiences. Therefore, learning to deal with the visual aspect of writing would be the same as metaphorically composing a pencil case with a variety of tools, which may be used to fulfil different needs and may be combined in several different manners. First, pupils learn to handle a pencil and to make markings with it. Then over time, some new tools are incorporated into their pencil cases. Teachers, being more skilled and more experienced, possess a larger toolbox and their intent is to share tools with their pupils, allowing them to create something more complex. Some tools become exclusive either to the teachers or to the pupils – they bring them from somewhere else, and the others are neither interested in them nor learn how to use them. Ultimately, contemplating the process by which teachers and pupils share tools is to contemplate the practices of teaching and learning. The first three teaching tactics in which teachers explicitly teach and evaluate the organisation of handwriting were equivalent to the teacher presenting the tools and saying for pupils: 'you should use this tool, I am going to leave it here on my desk for you to use and if you like, you can keep it in your pencil case'. The fourth tactic parallels the attitude of teachers in using the tools in their practice, knowing that they might appeal to the pupils, and so leaves them on the teacher's desk for the pupils to add it to their pencil cases, thereby enabling them to achieve similar results.

It is our belief that schoolchildren are extremely influenced by their teachers, and has been confirmed through the analysis. We have seen that pupils rely on the teacher's tools when copying and when organising information individually – which signifies that, for most of the time, they choose to represent information just as the teacher does. This was undertaken, however, without losing the

opportunity to express individuality: they were building their own toolboxes of organisational solutions. Returning to our metaphor, we see that while in most cases the pupils take the tools that the teacher has left on the desk, they also use tools that they have brought from elsewhere.

Reviewing the composition of the teachers' and pupils' toolboxes reveals that the pupils' toolboxes are bigger than those of the teachers – in other words, the pupils have employed a greater diversity of visual features in their texts. This is not only because a group of pupils is clearly more numerous than one teacher, but because they mix influences from many sources into their writing practices, thus displaying authenticity and repertoire. Nevertheless, the tools they share with the teacher are frequently more numerous and more frequently used than those they employ exclusively.

A major part of the most frequently used tools is shared between teachers and pupils. This signifies that the exclusively used tools are residually employed by any of these groups, most of the time. An exception would be for the forced line break, which constitutes a type of mistake made by many pupils at this level, when they are not familiar with the procedures of adapting text content for different supports – as in the notebook when texts are copied from the whiteboard.

Evaluation of the tool functions was also useful to indicate that pupils mostly follow the guidelines implicit in the teachers' texts, and when they use exclusive tools it is something that is an equivalent function of something used by the teacher. For example, while pupils used other tools to list items, they employed something that has the same function within the text. On other occasions, the added tools were used to explore the visual language, but mostly without hindering the content of the text. This means that even when pupils do not use the same element as their teacher, they were taught something: the rationale behind the element, so that they may search for an alternative that suits them better.

Some differences in the tools they used were related to the artefacts each of these groups had to deal with: teachers used many exclusive tools at the document level, such as lines to organise columns on the whiteboard, and pupils portrayed a variation of tools at the word level, which was different from what the teacher usually did – probably a practice borrowed from another person or influence.

The addition of new tools did not evoke much response from the pupils, who understood and acknowledged them (demonstrated by the fact they were copied), although they posed no questions or commented on the fact. This reaction might indicate a familiarity to this routine of introducing visual features to their repertoire – the fourth teaching tactic that we have discussed. The added tools, nevertheless, were a helpful element in the analysis to show

how pupils experimented with language, since they were used by the pupils for functions and levels other than those proposed by the teachers.

In short, we have seen that teachers use a variety of ways to teach features of handwriting organisation, although they themselves had an unsystematic trajectory in the study of this language and often feel slightly uncomfortable with it. The very fact that these professionals teach people how to express ideas and organise information through writing is sufficient to consider that this issue needs to be covered with more attention during their formation. Ultimately, they seem to be teaching the graphic language attached to the verbal system even when they are not explicitly doing so, which is recognised and expected in the current paradigm on literacy development. Just as other languages present in multimodal texts, graphic language should be studied and practised, as it has been part of the everyday classroom for a long time – and yet, it has not received its due treatment.

5.3.1 General outcomes on handwriting

The appreciation of the analytical corpus, composed of many different texts created by different people, allows us to reflect on some features of handwriting organisation, even if the research was constrained to the educational environment.

The most frequent tools used to organise handwriting were vertical extra space and line break, which are not exactly marks, but rather, the absence of marks, as they are spatial tools. The fact that extra space was more frequent than line break (which is apparently more natural in writing organisation) is very connected to the fact that most of the samples were from pupils, who mostly used lined paper in their notebooks or diaries. This points to the influence that support may have on handwriting organisation. Besides these two items, space in texts made by hand were mostly horizontal spaces applied to sections of texts, such as indentation and alignment (mostly centralisation). Other spatial editing that may easily be found in typed texts, such as letter and word spacing or the control of the leading in a text, were not present in the assessed handwritten texts, although they are not difficult to be produced by hand. This indicates that features of handwriting may not always be related to the skills they require, but to conventions.

In handwriting, when it comes to using verbal language to organise information, alphanumeric tools are mainly letters and punctuation, but not attributes of these glyphs, such as different calligraphy styles. Instead, the change in registered attributes may be classified as being easily produced and greatly popular: size, alphabet (meaning upper case script) and colour, which is easily achieved with a different pen. The picto-schematic tools used within texts were not particularly varied, mostly ranging from lines to frames. These,

nevertheless, appeared in many fashions, such as curly, wavy and decorated styles.

Assessment of the tool functions demonstrates that most are used to indicate belonging, i.e, most of the visual cues included in handwriting are for structuring text by separating and grouping elements. All types of tools are used for this purpose. The alphanumeric, for example, are used more for particular cases at word level, as when someone separates items on a list by using dashes. Picto-schematic tools, on the other hand, are used to organise larger sections of text, such as when a line is drawn to separate the header from the body of text.

However, tools may perform other roles. They can help to structure a text by indicating importance, signalling hierarchy in the parts of the message. Picto-schematic tools are often used to indicate importance, as when a title is framed. Tools can also indicate a particular meaning, as if they were symbols – a function that is mostly fulfilled by alphanumeric tools. An example of this is when someone represents a date using numbers separated by slashes, and we have seen that certain communities develop their own symbols to save time and effort in writing. A fourth function that tools perform is to indicate tone for a message, which is to create an implicit visual discourse, like when decorated frames are used to add a playful atmosphere to a document.

Versatility of functions is a quality of most tools – which is why they are called tools –, even if some of the meanings and uses are developed by particular groups and their procedures. An example of a textual graphic tool that may be used for many purposes is *Indentation*, as it can be used to separate different groups, to emphasise information, to establish a tone and even to represent specific meanings – i.e. when it signifies the repetition of an element present in the first line of a list but that is not repeated on the other lines.

Tools also display versatility in terms of where in the text they may be applied. Picto-schematic are the most versatile tools if we notice that they may be used to highlight a word within a paragraph or a title between textual parts, while it may also frame the entire text of a document, indicating closure. The use of spatial tools is very intense, but mostly reserved to groupings of text, and is less used in between words of a text line. This is because the use of space is the principal means of separating different textual parts, thus, to add unexpected space in a text that should be understood as a flow would cause it to be interpreted as separated in different parts.

With regard to where the tools are mostly employed in the structure of a text, the analysis indicated that it was in performing functions in between textual parts and subparts, as, for example, extra space used to separate the title and the body of text; and, within it, a line break is employed to articulate paragraphs. In handwriting, tools are less employed to organise the whole document and between the lines of the text. Those two dimensions seem to be

explored more in typed texts because there are more features to be explored at the word level, as with variations in type (italics, bold, different typeface). In terms of document, the cause might not be a technological matter, but rather because handwriting is used for less formal tasks, where manipulating at a document level is rarely necessary. For example, when creating documents that need pagination, a machine would usually be employed.

Factors that affect the presentation of writing listed by Norrish (1987) and Kostelnick and Hasset (2003) can help to understand these outcomes, even if in handwriting the concretisation of the message is less segmented in steps as in the publishing of a book, for example.

Walker (2001) states that there is less effort in planning handwriting because it is generally used for less formal tasks, and due to technological conditions. Writing by hand, unlike using a digital text editor, does not imply choosing from amongst so many features, and the options available for the scrivener are exactly the tools we have been discussing. In handwriting, it seems that the material presentation of a text comes with its structure, but there is a certain amount of planning and reasoning regarding its layout, even if almost immediate. This may be perceived when we observe the teacher editing the text organisation on the whiteboard. Twyman (1978) argues that since the invention of printing, handwriting has lost its necessity of being highly formal and legible, and has become associated mostly to informal communication. But while for informal contexts clarity and legibility are not thought to be important, the author believes that neglecting this aspect in handwriting might be detrimental to it.

It is clear that the presentation of text responds to the text structure, but text structure is also organised bearing in mind what it is possible to execute – especially if the one who is writing is responsible for designing the text, as with handwriting. Skills are important in handwriting, but conventions have their share in defining the main visual strategies employed. Developing skills and building a repertoire, therefore, influences the final product, and we believe that the construction of a toolbox in school at least provides the basic skills and conventions for people to design texts. This is probably one of the reasons why handwriting is still being used, even if there are supposedly ‘better’ ways, such as typing.

The reason why writing by hand is still so often employed in school is probably due to two main factors. The first is related to the conceptions of developing literacy, on which schools and teachers base their knowledge. For them, handwriting is seen as a crucial practice for the development of reading and writing skills – and a model in which children would learn by typing instead of writing has not yet been developed. Besides, as Twyman (1978) argues, school is quite a conservative environment, where change in behaviours and mentalities only come with time. The second factor, which has proven to be very important,

is the practicality related to analogical devices: they are cheap, need little maintenance, are quickly accessible and are reasonably durable.

5.4 LIMITATIONS, CONTRIBUTIONS AND FURTHER RESEARCH

Some of the limitations and propositions for further research have already been commented upon in this section, but others exist. A cultural limitation is one that immediately springs to mind when there is a need to generalise premises. Therefore, in order to obtain more indication of the nature of handwriting organisation, it would be enriching to study handwritten texts from other contexts (not just school) and other cultures and countries, even in other scripts.

Further research could be undertaken by using the metaphor of tools and the proposed framework to study machine-made documents. Although many of its features are widely known, due to the diversity of typographic books and studies, to investigate them through this same analytical framework and procedures would be a productive comparison exercise in differentiating what are exclusively handwriting features and what of those features pertain to a broader writing culture.

Gillieson (2008) has reflected on how analytical efforts regarding human relations or constructions might establish meanings for features that result from arbitrary decisions. Considering a larger analytical corpus or addressing participants on what they have done are ways of reducing this effect, which is difficult to eliminate. In this research, the choice to study 8 classes instead of just one was due to the need to search for different samples of varied practices, in order to reflect on the larger picture of the procedure of school graphics. Attempts to address the subjects – either pupils or teachers – was not totally fruitful, showing that the lack of terminology is also linked to a lack of systematic study of the topic.

Although the data was carefully collected, systematised and analysed by the researcher, the procedure would have been more reliable if more investigators had participated in these steps. Other viewpoints would be beneficial, since evaluating the rather subjective features of writing would be conducted by more than just one person – at least one more person and a mediator in order to evaluate any inconsistent pieces of analysis.

The reflections brought in this work reinforce the role of teachers as models for the attitudes of pupils towards writing and organising information. This is not mentioned so as to amplify the pressures of society on these professionals, but to justify the importance and need for formation regarding multimodality, to enable them to work with contemporary practices.

Apart from providing a background justification for the formation of teachers, this research may also demonstrate how information design exists even for non-professionals with no technological tools, and is an everyday practice. The

categories in the framework may be used to display the varieties in which texts can be visually organised, in didactic material or a course full of examples within the school. While similar initiatives have been developed by Lopes (2014), in a course for teachers on information and graphic design, and by Cadena (2013), regarding slideshows – there have never been any that deal with an ordinary topic such as everyday school texts. Learning from these experiences, it would be important if teachers were invited to try them out, first in a very practical approach regarding handwriting, but also addressing digital text processors to create useful graphic artefacts for their workaday needs.

Ultimately, the idea would be to reflect on general practices for visually organising texts and to recognise particularities of different technologies for assembling texts, thereby contributing to teacher proficiency in information design. The outcomes of such development are related not only to awareness of layout, but to the awareness of how visual structure contributes to text structure – and how broadening and varying both experiences contributes to the construction of knowledge.

Such experiences – courses and didactic material – could be developed for use by children or for use in the classroom (teacher and pupils combined), and would probably also constitute a further fruitful outcome. However, based on what has been discussed in this thesis, investing efficiently in teachers is of the utmost importance, since these experiences and knowledge would consequently be passed on to the pupils.

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APPENDIX A – LIST OF PUBLICATIONS

This list of publications on the issue of education and design includes several types of scientific text genres, including: papers; thesis and dissertations abstracts published in the considered journals (signalised by the use of [RES] before its title); and posters, which have been transformed into a short paper after a conference, to be published in its proceedings (signalised as [POS]). Papers containing work by undergraduate students that develop scientific research were also considered, as there is space in these proceedings and journals and often display a very good level of research. These have been signed as [SI], in reference to the term ‘Scientific Initiation’ used in Brazil to address programs to encourage early scientific interest. In the following list, texts on design practices within the school are in **bold letters**.

Estudos em Design (total: 21)

2010 n.1

1. Design em situações de ensino-aprendizagem | Cristina Portugal, Rita Couto

2011 n.1

1. Educación Artística Visual y Construcción de Realidades | Juan Carlos Arañó Gisbert
2. Instrumentos avaliativos de software educativo: uma investigação de sua utilização por professores | Katia Alexandra de Godoi, Stephania Padovani

2011 n.2

1. Ergonomia de carteiras escolares e sua influência no estresse físico de alunos do ensino fundamental
2. Juliana Mendes de Oliveira, Ricardo Marius Della Lucia, Amaury Paulo de Souza, Luciano José Minette, Rommel Noce

2012.1

1. Orientações focadas no desenvolvimento de hipermídias para aprendizagem de língua espanhola na EaD | Juliane Vargas Nunes, Berenice Santos Gonçalves
2. [RES] Oficina-Escola de Artes de Nova Friburgo Práticas interdisciplinares em uma Escola Pública de Artes | Eliane Jordy Iung

2012.2

1. **O Design no âmbito de uma escola de artes pública | Eliane Jordy, Cristina Portugal**
2. Design de interfaces em software educacionais: algumas recomendações a partir da aplicação do método Co-descoberta | Alessandra Carusi, Cláudia Mont’Alvão

3. Hipermídia para aprendizagem no contexto da EAD: uma avaliação a partir de métodos prospectivos | Juliane Vargas Nunes, Berenice Santos Gonçalves

2013.1

1. A Contribuição da Ergonomia no Design de Conteúdos Destinados À Aprendizagem Assíncrona | Marli T. Everling, Claudia R. Mont’alvão

2013.2

1. [RES] Aperfeiçoando projeções: Experiências de formações em design de apresentações digitais de slides (ADS) com estudantes de licenciatura de Pernambuco | Renata Amorim Cadena

2014.1

1. Design de animações educacionais: levantamento de situações e motivos | Marcia M. Alves, André L. Battaiola, Carla Spinillo

2014.2

1. Design e inovação em contexto de ensino-aprendizagem | Cristina Portugal, Mônica Moura
2. [RES] Design e usabilidade: Interação, satisfação e afetividade em objetos de aprendizagem | Henrique Luiz Perroni Ferraresso

2015.3

1. Apropriação Espacial Das Crianças – Um estudo ergonômico no pátio escolar | Aline Eyng Savi, Gracielle Rodrigues da Fonseca Rech

2016.1

1. Representações Gráficas de Síntese (RGS) como artefatos cognitivos para aprendizagem colaborativa | Stephania Padovani, Adriano Heemann

2016.2

1. O Design na Modernidade Líquida e suas interações com a Educação na criação de jogos e atividades lúdicas | Andréa Reis, Luiza Novaes, Jackeline Farbiarz

2016.3

1. Eventos Didáticos no Ensino de História do Desenho Industrial | Marcos Brod Júnior, Ligia Sampaio de Medeiros, Luiz Vidal de Negreiros Gomes

2. I Seminário de Ensino de Desenho Industrial de 1964/1965: o primeiro debate entre instituições | Eduardo Camillo K. Ferreira, Marcos da Costa Braga

2017.1

1. Desafios financeiros: design de jogo de educação financeira para as escolas públicas | Flávia de Oliveira Carvalho, Ricardo Ramos Fragelli, Tiago Barros Ponte e Silva

2. O ensino de Comunicação Visual nos anos 1960: estudo de caso da FAU USP | Dora Souza Dias, Marcos da Costa Braga

INFODESIGN (total: 30)

2010.3

1. Proposta de diretrizes para o desenvolvimento de instrumentos avaliativos para software educativo | Katia Alexandra de Godoi, Stephania Padovani

2011.3

1. A linguagem gráfica efêmera e o design no ensino fundamental brasileiro | Renata Amorim Cadena, Solange Galvão Coutinho, Maria Teresa Lopes

2. Filosofia do design instrucional: uma análise meta-teórica sobre método de comparação entre modalidade de mídias | Antônio Martiniano Fontoura, Marcos Namba Beccari, Tiago de Lima Oliveira

3. Hipermídia para aprendizagem da língua espanhola: avaliação qualitativa realizada por usuários/tutores | Juliane Vargas Nunes, Berenice Santos Gonçalves

4. Identificando atividades de design na educação básica por meio do método Card Analysing | Aline Dayanna Bertoldi, Monica Cristina Possel, Rafael Citadella Daron, Renato da Cunha Tardin Costa, Silvana Borba

5. [SI] Shorumê, a história do monstro de lixo: uma perspectiva de aplicação do design participativo no projeto de animações educacionais | Fabiano Miranda, Carlos Leonardo Waiss

2012.1

1. Educando com design de animação: uma metodologia de ensino e aprendizagem | Márcio Cleyton Vasconcelos Barbosa, Pedro Henrique Gomes dos Santos, Manoel Guedes Alcoforado, Anna Rita Sartore

2. **Contribuições de metodologias de Design para a prática pedagógica: apresentação de um esquema inicial** | Maria Teresa Lopes, Solange Galvão Coutinho, Natália Cristina Pereira Barbosa

3. **A linguagem gráfica em artefatos educacionais gerados com ferramentas de TIC** | Renata Amorim Cadena, Solange Galvão Coutinho, Bruna Andrade

4. Metodologia para design de interfaces digitais para educação | Paula Caroline Schifino Jardim Passos, Patricia Alejandra Behar

5. [SI] Contribuições do Design Editorial para a Alfabetização Infantil | Sara Copetti Kohn, Thais Arnold Fensterseifer

2012.2

1. Avaliação de usabilidade do Mobiteste, um aplicativo educacional para dispositivos móveis | Gabriela Trindade Perry, Marcelo Leandro Eichler, Guilherme Resende

2013.2

1. Desenhando na escuridão | Vilma Villarouco, Angela R. B. Flores

2. Diretrizes de Apoio à Criação de Objetos de Aprendizagem Acessíveis | Claudia Mara Scudelari de Macedo

3. Modelagem em um Ambiente Virtual de Aprendizagem inclusivo: uso de Mapas Conceituais | Marília Abrahão Amaral, Sílvia Regina P. Quevedo

4. A imagem como veículo de acesso à informação em objetos de aprendizagem para deficientes visuais | Dominique Leite Adam, Claudia Mara Scudelari de Macedo

5. Contribuições para o design de interface de um Ambiente Virtual de Ensino Aprendizagem acessível a surdos | Elisa Maria Pivetta, Daniela Satomi Saito, Ana Margarida Pisco Almeida, Vania Ribas Ulbricht

2013.3

1. Cor e Infográfico: O Design da Informação no livro didático | Milena Quattrer, Anna Paula Silva Gouveia

2014.1

1. Tecnologias no aprendizado da Anatomia Humana: possíveis contribuições para o ensino da medicina | Tatiana de Trotta, Carla Galvão Spinillo

2. Organização da informação em narrativas infográficas na web voltadas para o processo de ensino-aprendizagem | Mariana Lapolli, Tarcísio Vanzin, Vania Ribas Ulbricht

3. Design Centrado no Usuário e concepções pedagógicas como guia para o desenvolvimento da animação educacional | Marcia Maria Alves, André Luiz Battaiaola

2015.1

1. Análise ergonômica do livro Aprenda a Costurar com vistas para o aperfeiçoamento da aprendizagem da modelagem plana do vestuário | Fernanda Iervolino

2015.3

1. Ensinando através de imagens: a linguagem gráfica da apresentação do experimento sobre fotossíntese da planta elódea em livros didáticos brasileiros | Alice Garcia-Gomes, Edna Lucia Oliveira da Cunha Lima

2016.1

1. Representação gráfica para a inserção de elementos da narrativa na animação educacional | Marcia Maria Alves, André Luiz Battaiaola, Matheus Araujo Cezarotto

2016.2

1. Evolução das variáveis teórico-empíricas interdisciplinares associadas ao design no contexto do desenvolvimento de interfaces para ambientes virtuais de aprendizagem | Luana Maia Conti, Patrícia de Sá Freire, Simone Meister Bilessimo, Solange Silva

2016.3

1. Uma proposta de design na leitura: reflexões sobre sujeitos, objetos-livro e políticas públicas para a formação do leitor | Maíra Gonçalves Lacerda, Jackeline Lima Farbiarz

2017.1

1. Visualização da trajetória de navegação de usuários em ambiente virtual de aprendizagem | Ana Elisa Althoff Ghizzo Sagáz, Luciane Maria Fadel

2017.2

1. Design de notícias no curso de Jornalismo: uma experiência de ensino a partir do design da informação | Elane Abreu de Oliveira, Juliana Lotif Araújo

2. [SI] Tipo Tátil: material de ensino de tipografia para deficientes visuais | Luciana Eller Cruz, Virgínia Tiradentes Souto

2017.3

1. Pensar Infográfico: uma proposta de ensino introdutório de infografia sob a perspectiva da linguagem gráfica | Fabiano de Miranda, Rafael de Castro Andrade

P&D (total: 153)

2010

1. Representações visuais: uma análise em jogos digitais educacionais | Grimm, Gabrielle H.; Calomeno, Carolina;

2. A Linguagem Visual do Livro Didático | Teixeira, Narle Silva; Brito, Luiz Carlos Cerquinho

3. Educando com Design de Animação | Alcoforado, Manoel Guedes; Padilha, Maria Auxiliadora Soares;

4. Recursos Didáticos e Design: Uma Análise de Dois Jogos Geométricos Pré-escolares | Marcatto, Daniela de Cássia Gamonal; Nascimento, Roberto Alcarria do

5. Por quê ensinar design para crianças? | Egg, Silmara Takazaki; Fontoura, Antônio Martiniano

6. [SI] Dinamismo das apresentações visuais: infográficos aplicados à educação | Peçaibes, Mariana; Medeiros, Ligia

7. **Proposta para inserção de estudos em design no ensino fundamental | Kuser, Larissa Durigan; Lima, Elisangela Tweisy; Vilela, Thyenne Veiga**

8. Esquemas gráficos para informar: a Linguagem Gráfica Esquemática na produção e utilização de livros didáticos infantis na cidade do Recife | Silva, José Fábio Luna; Coutinho, Solange Galvão

9. A leitura da imagem no PROJETO AGENTES DE LEITURA | Coelho, Luiz Antonio L.

10. Design e o professor de licenciatura: uma breve discussão acerca da legislação brasileira e a sua articulação com os conteúdos de design | Lopes, Maria Teresa; Coutinho, Solange Galvão

11. **Design da Informação na escola: uma investigação introdutória acerca do uso da lousa no terceiro ano do ensino fundamental | Cadena, Renata; Coutinho, Solange Galvão; Lopes, Maria Teresa**

12. Rede Autônoma de Educação | Monteiro, Beany Guimarães; Lustosa, Maria Gabriela Lopes; Vinicius da Silva Nunes de Souza

13. **Design como parceria na construção dos objetos de ensino-aprendizagem | Luciana dos Santos Claro; Vera Lucia Moreira dos Santos Nojima; Alexandre Farbiarz**

14. Quatro Cês : Proposta de modelo conceitual para Ambientes Virtuais de Aprendizagem (AVAs) em

Educação através do Design (EdaDe) | Mazzarotto, Marco André; Fontoura, Antônio Martiniano

15. Definição de Padrões de Design em Objetos de Aprendizagem | Hilu, Luciane; Kowalski, Raquel Pasternak Glitz

16. Potencial de jogos de RPG no desenvolvimento de habilidades sociais e competências culturais | Baptistella Luiz, Rafael; Battaiola, André Luiz

17. Uniforme escolar infantil: cenário atual | Andrade, Raquel Rabelo; Spaine, Patricia Ap. de Almeida; Menezes, Marizilda dos Santos; Alencar, Francisco de

18. [SI] Animações e vídeos como meio educacional: uma perspectiva do design da informação | Miranda, Fabiano de; Graduado; Waiss, Carlos Leonardo

2012

1. Bases pedagógicas para ensino de design em escolas da educação básica: um estudo de caso na Edem - Renato da Cunha Tardin Costa, Antônio | Martiniano Fontoura

2. A aplicabilidade do Conceito de Estilos Cognitivos na Aprendizagem Assíncrona para o Design | Marli Teresinha Everling, Claudia Renata Mont'Alvão

3. A Criança Invisível: o Design como Ferramenta Coadjuvante em Processos de Alfabetização Tardia | Crenzel, Silvina Ruth; Vasques, Luiz Felipe;

4. [POS] A DESINFORMAÇÃO E O PERIGO ACERCA DAS MOCHILAS ESCOLARES | Vasconcelos, Angélica

5. A Importância do Design Universal Aplicada no Desenvolvimento de Jogos Educativos para Estimular a Aprendizagem de Crianças com Deficiência Visual | Dutra, Manoela Leal Trava; Meyer, Guilherme C.; Bustos, Carolina;

6. [POS] A prática do desenho no design e na escola | Zimmermann, Anelise

7. [SI] Alunos surdos e professores bilíngues | Borba, Juliana Gritens de; Medeiros, Ivan Luiz de;

8. Design de Hipermídia no contexto da aprendizagem de língua espanhola: um estudo de similares | Nunes, Juliane Vargas; Gonçalves, Berenice Santos

9. Espaço e ambiente na escola de primeira infância, sua função prática e os arranjos possíveis | Caversan, Adriana Lima; Silva, José Carlos Plácido da; Kobayashi, Maria do Carmo M.; David, Priscilla Lacerda Duarte

10. Metodologia de design e a prática pedagógica na sala de aula: a construção inicial de uma Matriz de Metodologias Contributivas | Lopes, Maria Teresa; Barbosa, Natália Cristina Pereira; Coutinho, Solange Galvão

11. [POS] Uma proposta de jogo educativo para o ensino da língua inglesa a crianças com deficiência visual | Renato Fonseca Livramento da Silva; Taise Natalí Chaves da Silva

12. [POS] Design, Estratégia e Educação Alimentar Infantil no projeto de um mobiliário | Ingrid Stephanie de Faria Schuck, Daniel Quintana Sperb

13. [POS] Mobiliário Escolar Infantil: O Design como estratégia na Educação Alimentar | Bárbara Cavalheiro Monteiro

14. Educando através de aspectos artísticos do Design | Eliane Jordy Iung, Cristina Portugal, Rita Maria de Souza Couto

15. Design de interfaces para educação | Paula Caroline Schifino Jardim Passos, Patricia Alejandra Behar

16. Design e Educação: O Design de Animação como Estratégia de Ensino e Aprendizagem | Márcio Cleyton Vasconcelos Barbosa, Pedro Henrique Gomes dos Santos, Manoel Guedes Alcoforado Neto, Anna Rita Sartore

17. Desafie-me se puder: estudo comparativo entre níveis de dificuldade em games educacional e comercial | Sonia Trois, Régio Pierre da Silva

18. Design Participativo de Aplicativo Mobile para Gerenciamento Acadêmico | Santa Rosa, José Guilherme; Gurgel, Andrei; Passos, Marcel;

19. [POS] Difusão da técnica de animação aplicada à educação especial | GAMBA JR., Nilton, BOLSHAW, Claudia,

20. Livros infantis sem texto: diretrizes para a competência de leitura em sala de aula | Valfridia, Tercia; Bezerra, Marcela; Menezes, Marizilda; Paschoarelli, Luís Carlos;

21. [POS] Design e educação: o emotion design explorado como diferencial nos objetos educacionais | Henrique Luiz Perroni Ferraresso

22. Multi-Trilhas Virtual: avaliação do jogo de entretenimento para a aquisição da linguagem por crianças surdas | Correia, Ana; Couto, Rita; Portugal, Cristina

23. [POS] Desenvolvimento web para educação e o design instrucional, com metodologia focada no usuário | Miguel de Odilon Farias Pessoa, Sílvia Diniz de Lourenço Junior, Anna Rita Sartore, Manoel Guedes Alcoforado Neto

24. [POS] Mobiteste: projeto e desenvolvimento de um aplicativo educacional para dispositivos móveis | Gabriela Trindade Perry, Marcelo Leandro Eichler

25. Design de animações educacionais: levantamento de situações e motivos | Marcia Maria Alves, André Luiz Battaiaola, Carla Galvão Spinillo

26. [POS] Visualidade do livro didático no Brasil: o design de capas e sua renovação nas décadas de 1970 e 1980 | Didier Dominique Cerqueira Dias de Moraes

27. O livro didático e a sua produção na história gráfica e editorial do RS: um estudo da coleção Tapete Verde | Chris de Azevedo Ramil

28. O design de livro didático no Brasil: um estudo infométrico | Mariano Lopes de Andrade Neto, Paula da Cruz Landim, Tatiana Harada, Lia de Fátima Vieira Domingues

29. REDE AUTÔNOMA DE EDUCAÇÃO EM DESIGN | Monteiro, Beany Guimarães; Mello, Ana Lima de; Madeira, Gabriel Castro

30. [POS] Produtos Ergonômicos: o redesign do apagador para lousa de ensino | Suelma Cristina Bernardo da Silva, Gustavo Adolfo Vasconcelos de Melo, Fillipe Vilar Ribeiro, Bruno Barros

31. Análise dos artefatos gráficos elaborados com ferramentas de TIC no Ensino Fundamental Brasileiro | Renata Amorim Cadena, Solange Galvão Coutinho, Bruna Andrade

32. Desenvolvimento de jogo educativo para crianças com Paralisia Cerebral | SCHERDIEN, Ingrid; MARTINS, Milene; HEIDRICH, Regina de Oliveira

33. Desenvolvimento de Mobiliário Escolar | Bianco, Andreia; Godinho, Nathanye; Santos, Leovitor Nobuyuki dos; Silveira, Isadora; Graduando; Matias, Iraldo Alberto Alves;

34. [SI] Design Editorial voltado ao público infantil em fase de alfabetização: uma pesquisa de campo | Fensterseifer, Thais Arnold; Klohn, Sara Copetti

35. Design em Foco: uma experiência extensionista com alunos de ensino médio em Rio Tinto PB | Lemos, Jéssica; Monteiro, Guilherme; Torres, Myrla; Silva, Sara Raquel

2014

1. Análise Das Apresentações De Slides No Ensino Fundamental Ii E Ensino Médio | Cadena, Renata Amorim; Andrade, Bruna Raphaela Ferreira De; Coutinho, Solange Galvão

2. Design E Educação: Projeto De Um Material Didático Para Deficientes Visual | Landim Y Goya, Pedro Ryô De; Neto, Mariano Lopes Andrade; Landim, Paula Da Cruz;

3. Projeto De Pesquisa De Livro Digital Para Crianças Surdas E Ouvintes A Luz Do Design Em Situações De Ensino-Aprendizagem | Couto, Rita Maria De Souza;

Portugal, Cristina; Correia, Ana Tereza Pinto De Sequeiros; Iung, Eliane Jordy; Correa, Mariana Ferreira Gomes;

4. Design E Ensino: Análise Das Imagens Do Caderno Cultura E Trabalho Da Educação De Jovens E Adultos | Neto, Mariano Lopes De Andrade; Pizarro, Carolina Vaitiekunas; Landim, Paula Da Cruz; Domiciano, Cássia Leticia Carrara;

5. Sistema Revelar: Educação, Fotografia E Interação No Jardim Botânico Do Rio De Janeiro | Kestenberg, Juliano Caldeira; Lessa, Washington Dias; Velho, Luiz;

6. Teste De Jogabilidade E Avaliação De Um Jogo Digital Sobre Sintomas Do Acidente Vascular Cerebral E Procedimentos De Emergência | Rosa, José Guilherme Santa; Limeira, Carlos Dias; Santos, João Bosco De M.; Filgueira, Mário Sérgio G.; Kulpa, Cínthia; Pinho, André Luís Santos De; Júnior, Antônio Pereira;

7. Desenvolvendo Narrativas Animadas Para A Educação: A Jornada De Um Designer Animador | Cruz, Gabriel Filipe Santiago; Novaes, Luiza; Couto, Rita Maria De Souza;

8. Design E Educação De Surdos: Projeto De Livro Traduzido Do Português Para Libras | Moraes, Laíse Miolo De;

9. It's All About Communication: Designing Learning Objects For An Entire University | Perry, Gabriela Trindade; Bock, Marlise Santos; Carneiro, Mára Lúcia Fernandes;

10. Possibilidades De Contribuição Da Infografia Como Tecnologia Assistiva Em Benefício Do Acesso À Educação A Pessoas Com TDAH | Adorno, Luciano Dos Santos; Reginato, Bruna Rovere;

11. Fatores Humanos Na Avaliação E Design De Interfaces Digitais Educativas Para Crianças Em Idade Escolar | Guaraldo, Franceli; Andrade, André Carvalho De

12. Explorando A Ausência Da Linguagem Gráfica Verbal Em Programas Audiovisuais Educativos | Fernandes, Rodrigo Queiroz Kuhni; Ferreira, Luiz Fernando Loureiro; Rodrigues, Diego;

13. Design Da Informação: Desenvolvimento E Seleção De Personagens Para Material Informativo, Aplicado À Educação Em Saúde Pediátrica | Camargo, Eleida Pereira De; Prado, Gilmar Fernandes Do

14. O Emprego Da Engenharia Kansei No Desenvolvimento De Materiais De Aprendizagem | Sugimoto, Adriana; Silva, Tânia Luisa Koltermann Da

2016

1. O Ensino De Metodologia De Projeto Através Da Criação De Óculos Interativos | Alessi, Júlio; Alessi, Akemi Ishihara
2. Como Qualificar Projetos Acadêmicos De Design De Mídia Digital | Sande, Axel; Spitz, Rejane
3. Inovação Social E Processos De Cocriação Para Empoderamento Da Comunidade Escolar | Serpa, Bibiana; Cipolla, Carla
4. Novas Tecnologias Aplicáveis No Ensino Do Desenho Técnico: Possibilidades De Otimização Do Aprendizado Nos Cursos De Design De Produto | Paula, Bárbara Arantes De; Miranda, Carlos Alberto Silva De
5. O Potencial Transformador Do Desenho Em Experimentos Colaborativos | Batista, Cristina Jardim; Motta, Luciana Keller Ponce Da; Medeiros, Ligia Maria Sampaio De
6. Video Wordfinder Maker: Ferramenta Para Criação De Caça Palavras Sincronizadas Com Vídeos | Monte, Ana Laís De Oliveira; Moraes, Daniel De Sousa; Santos, Daniella Carvalho Pereira Dos; Castro, Erika Veras De; Soares Neto, Carlos De Salles
7. Aprendizado Colaborativo Em Redes Sociais: Uma Reflexão Sobre As Possibilidades De Contribuição Do Design | Silva, Daniel Maciel Costa Da; Miranda, Carlos Eduardo
8. Human-Centered Design E Student-Centered Learning: Projetando Para A Experiência Da Educação | Lugli, Daniele; Heemann, Adriano
9. Projeto Exposições Itinerantes: A Interdisciplinaridade E A Inovação No Ensino De Design | Almeida, Délcio Julião Emar De; Almeida, Rangel Benedito Sales De
10. Design Na Educação: Buscando Caminhos Para Lidar Com A Diversidade Em Sala De Aula | Almeida, Evandro José De; Sousa, Cyntia Santos Malaguti De
11. Brinquedos Óticos Animados E O Ensino De Design | Cruz, Gabriel Filipe Santiago; Couto, Rita Maria De Souza; Ribeiro, Flavia Nizia Fonseca
12. Desenvolvimento Do Jogo Suscity | Perry, Gabriela Trindade; Santos, Marlise Bock; Bueno, Denise; Rocha, Alisson; Schwingel, Andrei
13. Sistematização De Recurso Educacional Aberto | Grimm, Gabrielle Hartmann
14. O Papel Do Design No Contexto Do Ensino A Distância (Ead) | Lima, Gean Flávio De Araújo; Merino, Eugenio Andrés Díaz; Merino, Giselle Schmidt Alves Díaz; Triska, Ricardo
15. Sequências Textuais Nos Objetos Educacionais Digitais | Lameira, Gregorio Bacelar; Mota, Marina De Lira Pessoa; Coutinho, Solange Galvão; Miranda, Eva Rolim
16. Design, Educação E Tecnologias Sociais: Soluções Acessíveis Em Produtos Didático-Pedagógicos Para O Ensino De Braille Para Cegos | Gonçalves, Hígor Da Mota; Mourão, Nadja Maria; Engler, Rita De Castro
17. Aprendizagem Colaborativa Por Meio Do Design Centrado No Humano Nas Disciplinas Projetuais | Chaves, Iana Garófalo; Bittencourt, João Paulo
18. Proposta De Metodologia Para O Ensino E O Desenvolvimento De Jogos Digitais Baseada Em Design Thinking | Silva, Isabel Cristina Siqueira Da; Bittencourt, João Ricardo
19. A Gamificação Como Estratégia De Aprendizado | Teixeira, Isabelle Maria Farias De Lima; Teixeira, Narle Silva
20. Caminhando Nas Lendas: Uso Do Design Thinking Para Desenvolvimento De Jogo De Tabuleiro Cultural | Costa, Jennyfer Oliveira Da; Farias, Marcella Sarah Filgueiras De
21. Recomendações Para Desenvolvimento De Interface Para Estimulação Das Inteligências Múltiplas Em Crianças De 3 A 5 Anos | Saraiva, Luana Bittencourt; Oliveira, Alexandre Santos De
22. Metodologias Ativas E Mídias Interativas: Jogos De Tabuleiro | Farias, Marcella Sarah Filgueiras De; Silva, Débora Claudiano Da
23. Design De Superfície Têxtil: Técnica De Ensino De Estruturas Têxteis Planas | Amorim, Wadson Gomes; Dias, Maria Regina Álvares Correia
24. Fabricação Digital Para Auxiliar No Ensino- Aprendizado De Alunos Com Deficiência Visual: Estudo De Caso Dos Sistemas Nanoestruturados | Pohlmann, Mariana; Rossi, Wagner Soares; Brendler, Clariana Fischer; Teixeira, Fábio Gonçalves; Kindlein Júnior, Wilson
25. Contação De Estórias E Produção De Sequências Narrativas No Formato De Histórias Em Quadrinhos | Mota, Marina De Lira Pessoa; Lameira, Gregório Bacelar; Campello, Silvio Barreto; Miranda, Eva Rolim
26. Design E Tecnologia: Experiência De Formação De Um Grupo De Estudos Em Prototipagem Eletrônica Por Designers | Katarine Inis Soares Santos, Acadêmica; Matheus De Souza Silva, Acadêmico; Hebert Phillipe Martins Pereira, Acadêmico; Pedro De Oliveira Brandão, Acadêmico
27. Tipografia, Crianças E Motivação: Desenvolvimento De Pesquisa Investigativa | Matté, Volnei Antônio; Soares, Monique Crestani

28. Ferramenta De Padronização Para Avaliação De Trabalhos De Design Em 3d | Souza, Raphael Argento De; Monat, Andre Soares; Lessa, Washington Dias
29. Livro Infantil E Projeto Gráfico: Uma Relação Entre Imagem E Texto | Maia, Patrícia De Sá; Martins, Rosane Fonseca De Freitas
30. O Design Da Informação Nas Estratégias E Métodos De Design Thinking Aplicados Ao Ensino Fundamental | Zorzal, Iara D'ávila; Lana, Sebastiana Luiza Bragança; Triska, Ricardo
31. Design Centrado Na Atividade: Estudo Sobre Artefatos Impressos E Digitais Móveis | Baptista, Turla Angela Alquete De Arreguy; Campello, Silvio Romero Botelho Barreto
32. Jogos Educativos E Ferramentas De Autoria Multimídia: Um Estudo Exploratório Sobre Quebra-Cabeças Digitais No Contexto Do Ensino-Aprendizagem | Silva, Waldeilson Paixão Souza Da; Neto, Carlos De Salles Soares; Costa, Ricardo Jessé Santana Da; Ladeira, Felipe De Souza
33. Design E Educação Para Acessibilidade: Mapa Multisensorial Para Deficientes Visuais | Ramos, Fernando Da Silva; Linardi, Ana Beatriz De Araújo; Garotti, Flávio Valverde; Damiani, Vitor
34. Design, Ponto De Vista E Perspectivas: Sobre A Cultura Do Projeto, Educação E Atuação Profissional | Riccetti, Teresa Maria; Martins, Nara Silvia Marcondes; Ogasawara, Luís Alexandre F
35. Relevância Da Produção Técnico-Científica No Contexto Do Mestrado Profissional Em Design Da Univille | Everling, Marli Teresinha; Sobral, João Eduardo Chaga; Cavalcanti, Anna Luiza Moraes De Sá; Aguiar, Victor Rafael Laurenciano; Santos, Adriane Shibata; Morgenstern, Elenir Carmen
36. Revista Ctrl+G: Discutindo Autoria E Apropriação No Ensino Técnico Em Comunicação Visual | Margarites, Ana Paula Freitas
37. Estratégias De Ensino Para Mediação Do Design No Processo De Aprendizagem Na Terceira Idade | Farias, Bruno Serviliano Santos; Costa, Andréa Katiane Ferreira; Marques, Arthur; Rodrigues, Ana Luiza Lima; Noronha, Raquel Gomes; Guimarães, Márcio James Soares
38. Materiais Didáticos Para Mediação Do Design No Processo De Aprendizagem Na Terceira Idade | Farias, Bruno Serviliano Santos; Costa, Andréa Katiane Ferreira; Marques, Arthur; Rodrigues, Ana Luiza Lima; Noronha, Raquel Gomes; Guimarães, Márcio James Soares
39. Metadisciplina: Questões Contemporâneas Do Design Na Criação De Metodologias De Ensino | Sousa, Carlos Eugênio Moreira De; Silva, Anna Lucia Dos Santos Vieira E; Cavalcante, Rafael Nunes
40. Ensino De Caligrafia Canônica No Brasil: Análise Do Material Didático E Técnicas Utilizadas Em Cursos Introdutórios | Novais, Carlos Eduardo Brito; Miranda, Eva Rolim
41. Reflexões Sobre O Ensino De Projeto Do Ponto De Vista Da Gestão Do Conhecimento | Figueiredo, Cassia Mousinho De
42. A Linhagem Da Criação No Ensino De Design No Brasil Pelos Escritos Do P&D 2014 E 2012 | Boanova, Cecília Oliveira
43. Sketching: Pensamento Visual E Representação De Ideias | Kulpa, Cínthia; Carús, Lauren; Hartmann, Patricia
44. Quadrinhos Em Sala De Aula: Contribuições De Design No Letramento Da Educação Básica | Fernandes, Cristiana De Almeida; Nojima, Vera Lúcia Dos Santos; Malfacini, Ana Cristina Dos Santos; Varea, Jesús Jiménez
45. Didática E Projeto De Produto 4: A Coerência De Um Desafio Metodológico Colaborativo | Loureiro Júnior, Eduardo Américo Pedrosa; Silva, Anna Lúcia Dos Santos Vieira E; Sousa, Carlos Eugênio Moreira De; Josino, Lara Dias Monteiro; Branco, Levi Holanda Castelo
46. O Ensino Da Representação Gráfica Nos Cursos De Design: Mapas Mentais E Conceituais, Ferramentas De Estruturação De Conteúdos | Ourives, Eliete Auxiliadora Assunção; Ferreira, Alais Souza; Figueiredo, Luiz Fernando Gonçalves De; Vieira, Milton Luiz Horn; Figueiredo, Ludmilla Gonçalves De
47. Captações Fotográficas Experimentais Com Projeções | Schirigatti, Elisangela Lobo; Kasprzak, Luis Fernando Fonseca
48. Qual A Função Do Método No Projeto? Um Ensaio Sobre O Ensino De Metodologia Na Graduação | Perry, Gabriela Trindade
49. Design E Educação: Abordagens Metodológicas E Suas Dialogias | Branco, Janaína Campos; Lameira, Gregorio Bacelar; Miranda, Eva Rolim
50. Design Da Informação E A Aplicabilidade Nas Escolas | Lameira, Gregorio Bacelar; Branco, Janaína Campos; Miranda, Eva Rolim; Campello, Sílvia Romero Botelho Barreto
51. Design Universal Aplicado A Material Didático Para Crianças Com Deficiência Visual: Uma Experiência Didática | Lanutti, Jamille Noretza De Lima ; Paschoarelli, Luis Carlos
52. Design De Interiores: Entre O Bacharelado E O Tecnólogo: Uma Reflexão | Vela, João Carlos;

Nascimento, Beatriz Andrielly De Souza; Feder, Franciane; Istvandic, Mikaella; Jahn, Ana Claudia

53. Design E Educação: Uma Estratégia Interdisciplinar Para A Escrita Manual Cursiva Na Era Dos Nativos Digitais | Guimarães, Juliana Oliveira; Silva, Sérgio Antônio

54. Aspectos Históricos Da Fotografia Na Bauhaus: Linguagem E Meios De Representação Nos Cursos De Design De Produto | Silva, Júlio César Riccó Plácido Da; Taralli, Cibele Haddad

55. O Projeto Em Moda No Rio De Janeiro – Puc , Senai , Uva , Esdi E Ufrj | Martins, Leilane Rigatto; Martins, Sérgio Régis Moreira; Braga, Marcos Da Costa

56. Desenho Industrial Design: Profissão Fecunda, Ofício Inventivo, Atividade Criativa | Gomes, Luiz Vidal; Medeiros, Ligia Sampaio De; Brod Junior, Marcos

57. Projeto Biênio Simoniano Em Cartaz | Weymar, Lúcia Bergamaschi Costa

58. O Ensino Formal De Softwares Em Cursos De Design Gráfico: Uma Presença Fragmentada | Mazzarotto Filho, Marco André; Ulbricht, Vania Ribas

59. O Ensino Da Tipografia No Contexto Dos Cursos De Design: Uma Abordagem Qualitativa | Meürer, Mary Vonni; Gonçalves, Berenice Santos

60. Contribuições Do Design Para Mudanças Na Educação: Desenvolvimento De Competências Socioemocionais | Loureiro, Michele Marconsini; Novaes, Luiza

61. Design Contemporâneo E O Resgate Da Memória: Projeto Interdisciplinar | Moura, Mônica; Andrade, Ana Beatriz Pereira De; Tarozzo, Marina Jardim; Ambiel, Izabela Muniz

62. Design E Ilustração: A Fragilidade Da Formação De Ilustradores No Brasil | Nogueira, Mônica Lopes; Couto, Rita Maria De Souza; Ribeiro, Flávia Nízia Da Fonseca;

63. A Influência Dos Sistemas Naturais Na Educação Em Design | Araújo, Sharlene Melanie Martins De; Nunes, Cristina Colombo; Sousa, Richard Perassi Luiz De

64. A Realização De Workshops Em Design & Emotion E O Entendimento Do Briefing Por Estudantes De Graduação | Rosa, Valentina Marques Da; Mandelli, Roberta; Lorenz, Bruno

65. Releituras Lúdicas Aplicadas Ao Público Infantil: Notas Sobre Uma Experiência Projetual No Ensino De Design | Serrasqueiro, Vania Bitencour; Domiciano, Cassia Letícia Carrara

66. Design Cenográfico: Cenografia Como Habilitação Nos Cursos De Design | Silveira, Yuri Simon Da; Roizenbruch, Tatiana Azzi; Corrêa, Letícia Braga

67. Design Como Prática Educativa: Estudos De Caso Da Aprendizagem Baseada Em Design | Martins, Bianca Maria Rêgo; Couto, Rita Maria De Souza

68. Inteligência Artificial & Tecnologias Inteligentes No Ensino De Design: Desafios E Relevância | Braga, Rodrigo; Pazmino, Ana Veronica

69. O Ensino De Caligrafia, Desenho De Letras E Tipografia No Liceu De Artes E Ofícios De São Paulo | D'elboux, José Roberto

70. Eventos Didáticos No Ensino De História Do Desenho Industrial | Brod Júnior, Marcos; Gomes, Luiz Vidal; Medeiros, Ligia

71. Infografia E Educação: Proposta De Processo De Design Para Infográficos Na Educação À Distância | Escobar, Bolívar Teston De; Spinillo, Carla Galvão

72. Procedimentos Metodológicos Para Projeto De Livro-Jogo Digital Infantil: Polaris, A Estrela Do Norte | Balestro, Bruna Moreira Mattos; Meurer, Heli

73. Refletindo Sobre Design E Representações: Processos Metodológicos E Construção De Conhecimento | Caracas, Luciana Bugarin; Noronha, Raquel Gomes; Guimarães, Márcio James Soares; Passos, Larissa De Tássia Gomes Dos; Passos, Larissa De Tássia Gomes Dos; Viana, Flaviana Camila De Oliveira

74. Educação Não Formal E Continuada: Uma Contribuição Do Design Para O Empoderamento De Idosos Institucionalizados Por Meio De Oficinas | Rêda, Rafaella Santos; Rezende, Edson José Carpintero; Monteiro, Nicholas Maximo Moreira

75. Jogos Digitais Para Interação Com Brain Computer Interface Para Auxiliar No Processo De Inclusão Escolar De Pessoas Com Paralisia Cerebral | Heidrich, Regina De O.; Branco, Marsal A.; Mossmann, João B.; Schuh, Anderson R.; Jensen, Emely

76. Desafios De Acessibilidade E Inclusão No Ensino Superior: Uma Análise Sob O Olhar Do Design Universal Para A Melhoria Na Experiência De Aprendizado Dos Deficientes Visuais | Arraes, Íris Carlota Dos Santos; Mont'alvão, Cláudia

77. A Importância Do Design De Narrativa Para A Literatura Infantil Contemporânea Em Formato Digital | Teixeira, Deglaucy Jorge; Gonçalves, Berenice Santos

78. Espaço Virtual De Conhecimento Científico | Portugal, Cristina; Brunnet, Natália

79. Jogo Cazumbá: Uma Proposta De Jogo De Tabuleiro Para O Ensino Do Bumba Meu Boi |

Saraiva, Gisele Reis Correa; Sousa, Cláudia Nayanne Gaspar

80. Uma Proposta De Design Na Leitura: Reflexões Sobre Sujeitos, Objetos-Livro E Políticas Públicas Para A Formação Do Leitor | Lacerda, Maíra Gonçalves; Farbiarz, Jackeline Lima

81. Avaliação Da Compreensão Dos Ícones Utilizados Na Plataforma De Educação A Distância Da Una-Sus/Ufma | Lima, Camila Santos De Castro E; Farias, Bruno Serviliano Santos

82. O Design No Processo De Aprendizagem Na Terceira Idade: Um Mapeamento Preliminar De Problemas Ergonômicos No Ambiente De Ensino - Estudo De Caso Na Universidade Da Terceira Idade Uniti/Ufma | Costa, Andréa Katiane Ferreira; Campos, Lívia Flávia De Albuquerque; Farias, Bruno Serviliano Santos; Marques, Arthur José Silva; Rodrigues, Ana Luiza Lima; Noronha, Raquel Gomes; Guimarães, Márcio James Soares

83. [Pos] Representação Tridimensional I No Curso De Design De Produto Da Ufpr: Exercícios De Apoio À Disciplina | Silva, Ana Maria De Lara Da; Vasques, Rosana Aparecida

84. [Pos] Futuras E Atuais Aplicações Da Realidade Mista Para Finalidades Didáticas | Brasil, Caterina Bomfim; Mont'álvão, Cláudia

85. [Pos] José Zanine Caldas E Sua Contribuição Ao Ensino De Arquitetura E Design | Bartholomeu, Clara; Santos, Maria Cecília Loschiavo Dos

86. [Pos] Projeto Te Vejo Na Escola: Design Audiovisual Para O Ensino Socioambiental Infantil | Carr, Joyce; Palhaci, Maria Do Carmo Jampaulo Plácido; Palhaci, Talitha Plácido; Stefanin, Thiago; Gama, Édipo Ribeiro Da; Ito, Arissa Miki Takana

87. [Pos] Sistemas De Atividades De Leitura Nas Escolas | Torres, Maria Juniene Souza; Oliveira, Vando Da Silva De; Lemos, Clarissa Cabral De; Campello, Silvio Barreto; Mota, Marina De Lira Pessoa; Oliveira, Raquel Rodrigues S. De

88. [Pos] Concept Art: Recurso Educacional Sobre Concept Art Destinado A Professores E Estudantes Interessados Na Área De Ilustração | Nunes, Letícia Julinski; Age, Nadine Aparecida; Werner, Thaísa Cristine De Souza ; Grimm, Gabrielle

CIDI (total: 70)

CIDI 2011

1. Processos de produção e compartilhamento de materiais didáticos e a delimitação de uma taxonomia de domínio | Adriane Borda Almeida da

Silva, Janice de Freitas Pires, Tássia de Vasconcelos, Cristiane Nunes

2. Não-linearidade em quadrinhos: uma proposta para modelo do domínio de ambientes de aprendizagem hipermidiáticos | Raul Inácio Busarello, Vania Ribas Ulbricht, João Artur de Souza

3. [SI] [POS] Hipermídia e Cognição: A importância do som como elemento pedagógico em Interfaces Gráficas Hipermidiáticas | Luiz Roberto Carvalho, Alice T. Cybis Pereira

4. Da pesquisa à apresentação da informação em interfaces digitais: o estudo do exemplo de um ambiente online de aprendizagem colaborativa | Gabriel C. Cardoso, Berenice S. Gonçalves

5. [SI] [POS] A contribuição do design de animação para o design de hipermídia voltado ao processo de aprendizagem | Felipe Tadeu Gondim, Juliane Vargas Nunes, Berenice Santos Gonçalves

6. Desenvolvimento de um jogo educacional para celular sobre propriedades periódicas | Gabriela T. Perry, Marcelo L. Eichler, Gustavo Fritsch

7. Educando com Design de Animação | Manoel Guedes Alcoforado, Maria Auxiliadora S. Padilha

8. Modelo de análise gráfica para animações educacionais | Marcia Maria Alves, André Luiz Battaia

9. [SI] [POS] Análise de modelos conceituais presentes em websites de interação social visando o aprimoramento do ambiente virtual de aprendizagem Enturma | João A. de Menezes Neto, Marli T. Everling

10. [SI] Shorumê – A história do monstro de lixo: animação educacional desenvolvida sob a perspectiva do design participativo | Fabiano de Miranda, Carlos L. Waiss

11. Card Analysing: identificando as atividades de design nas escolas | Aline D. Bertoldi, Monica C. Possel, Rafael Daron, Renato C. T. Costa, Silvana de Borba

12. [SI] [POS] Design de mídia digital de apoio à educação ambiental, com foco na bacia hidrográfica do rio Belém (Curitiba/PR) | Maristela Mitsuko Ono, Samira El Ghaz Leme, Fernanda Bornancin Santos, Emanuela Lima Silveira, Camilla Hanako Nishihara de Albuquerque

13. [POS] Projeto gráfico editorial no contexto de programas educação a distância | Berenice Santos Gonçalves, Mariana Dória , Alice Pereira

14. [POS] Relações entre o design emocional e as teorias de aprendizagem: uma contribuição para o processo de desenvolvimento de brinquedos

educativos infantis | Laís Helena G. Rodrigues,
Manoel Guedes Alcoforado

15. [POS] Design de jogos na escola: uma proposta de integração entre a pedagogia da autonomia e o construcionismo | Renato da Cunha Tardin Costa, Antônio Martiniano Fontoura

16. [POS] Estratégias instrucionais para a aprendizagem via TV digital interativa | Valquíria S. Segurado, Vânia C. P. N. Valente

17. Design como instrumento e processo no ensino fundamental brasileiro | Renata A. Cadena, Solange G. Coutinho, Maria Teresa Lopes

18. OS GÊNEROS DISCURSIVOS E O LIVRO DIDÁTICO DE LÍNGUA PORTUGUESA: um sistema de informação para os leitores da contemporaneidade | Romulo M. Matteoni, Jackeline L. Farbiarz

19. Ensina Design: mapeamento do uso da linguagem gráfica no ensino fundamental brasileiro | Solange G. Coutinho, Maria Teresa Lopes, Renata A. Cadena

20. Fundamentos filosóficos e pedagógicos do design instrucional | Tiago de L. Oliveira, Antônio M. Fontoura.

21. Convergências possíveis entre design, didática e objetos de aprendizagem | Vanessa da Silva Cardoso, Adriane Borda da Silva

22. Capacitação de professores através do Design | Vanessa C. S. Prestes, Antônio M. Fontoura

23. Modelagem do usuário e de domínio por meio de mapas conceituais | Cláudia Mara Scudelari de Macedo, Vania Ribas Ulbricht, Tarcísio Vanzin, Marília Amaral, Marta C. G. Braga, Marília Matos Gonçalves

CIDI 2013

1. Semiotic Analysis of Typographic Aspects of TextBook Projeto Buriti Português 1 | Arakaki, Marina

2. 360° Lessons: design and education | Resende, Guilherme; Perry, Gabriela; Schiavoni, Alexandre; Klohn, Sara; Soares, Leônidas;

3. Heuristic evaluation of graphic content in instructional material HyperCALGD | Viaro, Felipe S.; Silva, Régio P.; Silva, Tânia K.;

4. Deaf children and hearing: a comparative study about preferences to color, shape and drawing style | Bueno, Juliana; Ulbricht, Spinillo; Galvão, Carla; García, Laura Sánchez;

5. Interaction design of the m-learning for tablets: analysis of the gestural interfaces moodle | Burgos, Taciana de Lima;

6. The Information, Instrucional and Interaction Design from the perspective of use in Learning Digital

Artifacts | Oliveira, Raquel R. S.; Alquete, Turla A.; Coutinho, Solange G.; Campello, Sílvia B.;

7. Design as an interpretative and creative action configuring virtual learning environments | Dias, Cynthia Macedo; Farbiarz, Alexandre; Farbiarz, Jackeline Lima;

8. Enhancing the participation of Design in reading incentive plans | Lacerda, Maíra Gonçalves; Farbiarz, Jackeline Lima;

9. Design, luddism and education: the development of a game about the African slaves' history in Brazil | Garone, Priscilla Maria Cardoso; Poubel, Ana Elisa Pereira;

10. Readability of printed handouts used in kindergarten education | Aguiar, Michelle Pereira de; Oliveira, Alexandre de

11. The Design of information and its contribution to the educational process through digital media | Ferraresso, Henrique; Moura, Monica; Paschoarelli, Luís Carlos;

12. Design and the Contemporary Languages in Education | Portugal, Cristina;

13. Material Culture of the Classroom and the Tablet's Innovative Potencial | Lima Filho, Marcos Antonio de; Waechter, Hans da Nóbrega;

14. Educative Hypermedia on Tablets: State of The Art | Lima Filho, Marcos Antonio de; Waechter, Hans da Nóbrega;

15. Textbooks' design | Carvalho, Graça S. P.;

16. Teaching information visualization by exploring their power in engaging users of social media applications | Meirelles, Isabel; Sun, Xiaohua;

17. [SI] Design's role in the production of educational digital games for teaching science | Onari, Daniela Yumi; Yonezawa, Wilson Massashiro;

18. [SI] A discussion of the designer's activity in the developing learning objects for distance education | Gomes, Daniel Dutra; Sant'Anna, Hugo Cristo;

19. [SI] The developing of instructional booklets: an strategic management action to integrate the design of the Distance Learning Center | Gomes, Daniel D.; Ceolin, Lorena M.; Fonseca, Bárbara L. da; Fonseca, Letícia P.;

CIDI 2015

1. Variáveis para análise de infográficos interativos: um estudo descritivo em artefatos educacionais para o ensino médio | Santos, Gabriele M. S.; Campello, Sílvia B.; Coutinho, Solange G.

2. A importância do processo de design na criação e desenvolvimento de materiais didáticos digitais | Brunnet, Natália
3. Quadro analítico para auxiliar o desenvolvimento de imagens táteis para objetos de aprendizagem acessíveis | Adam, Dominique Leite; Spinillo, Carla Galvão
4. Diretrizes da construção de histórias em quadrinhos hipermídia para aprendizagem do aluno surdo | Busarello, Raul Inácio; Ubricht, Vania Ribas; Fadel, Luciane Maria
5. Interface gráfico-informacional de aplicativos de educação em saúde: uma análise do app - Saúde da Criança I da UNA-SUS/UFMA | Castro, Eurides; Reis, Edilson; Spinillo, Carla Galvão; Oliveira, Ana Emília F. de
6. Aplicativo MapLango: design de uma rede digital educacional para a aprendizagem nômade de línguas | Petit, Thomas; Santos, Gilberto Lacerda
7. Material didático para Educação Infantil: uma proposta em ação sob o olhar do Design | Couto, Rita Maria; Ribeiro, Flavia Nizia; Portas, Roberta; Neves, Maria Aparecida Mamede
8. M-Learning: formas de construção coletiva a partir de aplicativos móveis | Cunha, Marina Dourado L.; Garrossini, Daniela Fávaro; Maranhão, Ana Carolina Kalume
9. Narrativas em hipermídia para ambiente virtual de aprendizagem inclusivo | Quevedo, Silvia; Vanzin, Tarcisio
10. Estudo do processo de aprendizagem colaborativa através das representações gráficas de síntese (RGSS) | Bueno, Juliana; Padovani, Stephania
11. Levantamento bibliográfico: análise comparativa entre metodologias de design da informação e jogos didáticos e não didáticos de tabuleiro | Araújo, Giselle; López, Yelitzia; Coutinho, Solange
12. Aprendizagem Baseada em Design: uma pedagogia que fortalece os paradigmas da educação contemporânea digitais | Martins, Bianca; Couto, Rita
13. Pictogramas e ensino de desenho na deficiência visual: estudo de caso de desenho do pássaro por uma adolescente | Piekas, Mari Ines
14. Análise de uma plataforma MOOC brasileira sob a ótica do Design da Informação: VEDUCA | Padua, Mariana Cantisani; Nakano, Natalia; Jorente, Maria Jose Vicentini
15. A usabilidade do metaverso: contribuições para as interações humanas e para as interações dos sujeitos com conteúdos e atividades educacionais | Cardoso, Suzana Guedes
16. [POS] Leitura infantil: aspectos metodológicos e avaliativos envolvendo legibilidade e leiturabilidade | Lourenço, Daniel Alvares; Coutinho, Solange Galvão;
17. **[POS] Um olhar para as salas de aula sob a perspectiva do Design da Informação | Ferreira, Erika Simona dos Santos; Coutinho, Solange Galvão**
18. [POS] Relação entre o design emocional e a teoria da aprendizagem: ferramentas para o estudo da interação da criança com o brinquedo | Rodrigues, Laís; Campello, Silvio Barreto
19. **[POS] Legibilidade e leiturabilidade: a correlação entre leitura e escrita a partir de opiniões de professores do ensino fundamental | Lourenço, Daniel Alvares; Coutinho, Solange G.**
20. [POS] A visualização de informação no material didático para Educação a Distância desenvolvido no IFSC | Adorno, Luciano dos Santos; Braviano, Gilson; Reginato, Bruna Rovere; Fialho, Francisco Antonio Pereira
21. [POS] Estudantes deficientes e não deficientes: Similaridades e divergências nas operações sob a luz da Teoria da Atividade | Branco, Janaína; Campello, Silvio Barreto
22. [SI] O Design da Informação e o espaço físico da pré-escola em São Tomé, África | Valle, Carolina do; Jordy, Eliane; Couto, Rita
23. [SI] Design e educação: estudo e formulação de métodos didáticos para alunos do ensino regular a partir do método de projeto do design | Farias, Luana Sousa; Fleury, André Leme
24. [SI] Análise do uso da lousa digital na educação básica do Recife | Bittencourt, Sayonara; Coutinho, Solange; Cadena, Renata
25. [SI] As contribuições da abordagem de design para o ensino de crianças autistas | Pacheco, Raquel P.; Silva, Tiago Barros Pontes e
26. [SI] [POS] Zoonotico: Design de Jogos e Ludicidade Aplicados para Educação | Goya, Julia Yuri Landim; Orfão, Beatriz Mayumi Kayo; Bortolussi, Leonardo Martins; Wakamatsu, Lucas; Tagliatela, Luiza Boarato; Rodrigues, Osmar Vicente
27. [SI] [POS] O método design thinking na elaboração de projetos interdisciplinares do curso de graduação tecnológica em Gestão Pública | Nunes, Frederico; Alessi, Júlio; Ishihara, Akemi Alessi
28. [SI] [POS] A hierarquia da informação como facilitadora da navegação em plataformas de aprendizado online – Estudo de caso: MyEnglish Online | Paulino, Vanessa M.; Lima, Walter G.; Pedrosa, Michelle B.; Ferreira, Erika S.; Coutinho, Solange G.

APPENDIX B – INTERVIEWS

The generative questions below were used in the semi-structured interviews conducted with teachers and supervisors at the visited schools.

Script for interviews with teachers

1. During your training, did you receive any kind of preparation to create visual and graphic materials, such as texts written on the blackboard, texts to be copied in the notebook, handouts, murals?
2. Can you identify any special influence on the way you organize information? Is there anything you seek to reproduce because you consider it to be interesting?
3. Is the way you design information in class, for copying and consulting schoolchildren, the same as for other activities in your daily life? If not, what are the differences? Are they intentional?
4. Is there a school standard on how to organise information on the whiteboard or other materials you produce? Is there a style that you would use that is compatible, for example, with what other teachers do?
5. What are the main dynamics and methodologies you develop in the classroom?
6. How does the work you develop relate to the literacy model that is followed in school?
7. Which educational resources do you use the most? The whiteboard, notebook, textbook, handouts, drawing book?
8. What aspects of informational organisation do you intentionally teach in notebooks, handouts, and other media?
9. Do you evaluate the activities carried out in the notebook of every pupil individually? If so, do you also check how the information is arranged?
10. What are the most common problems in the organisation of information in your pupils' texts?
11. Are your pupils free to change some aspects, or is it part of your methodology that they should strictly follow the recommendations and layout on the board?
12. Do you believe that the way you produce information influences how your pupils shape what they write / draw? Have you ever noticed any direct influence from your own 'personal style' on their writing?
13. What other influences are perceived or voiced by pupils in the personal style that every individual develops to organise information?

Script of interviews with supervisors / managers of the schools

1. Does the school have a Political Pedagogical Project?
2. If so, how long has it existed? Has it ever been modified? What does this entail?
3. If the school does not have one yet:
 - a. What is the mission of the school and how are action plans structured to achieve this mission?
 - b. How does the school understand learning and what are the pedagogical guidelines for contemplating and promoting learning?
 - c. What resources does the school have and/or use?
 - d. Describe the clientele of the school and the relationship with the pupils' families.
4. Describe the school structure? Which school levels do you offer, number of classes, shifts?
5. How many teachers, coordinators and schoolchildren does the school have?
6. What model of literacy is currently adopted? How long has it been in use and what models did you adopt in the past?
7. What are the school's main challenges and difficulties in the structural, relational and learning spheres?

APPENDIX C – ANALYTICAL CORPUS

Samples from the eight observed classes in six schools from Recife

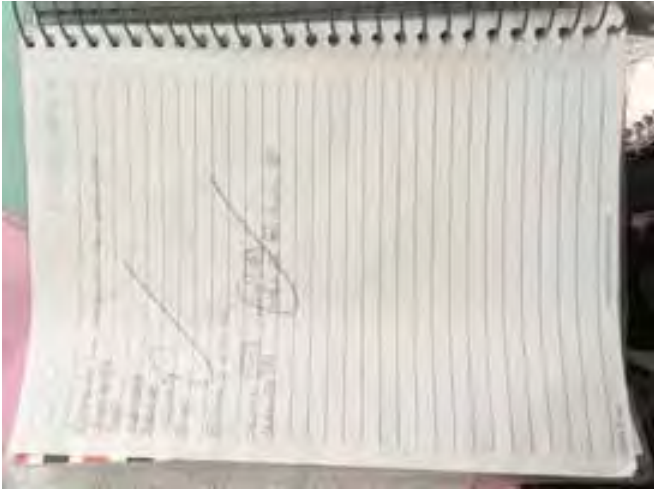
Class 1

Emídio Dantas Barreto

Municipal School [ED]



ED0102 - ANDRÉ-1



ED0102 - ANDRÉ-2



ED0102 - CARLOS-1



ED0102 - CARLOS-2



ED0102 - LÚCIA



ED0102 - MARCOS-2



ED0102 - WALTER-2



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ED0102 - WALTER-1



ED0102 - DARA-2



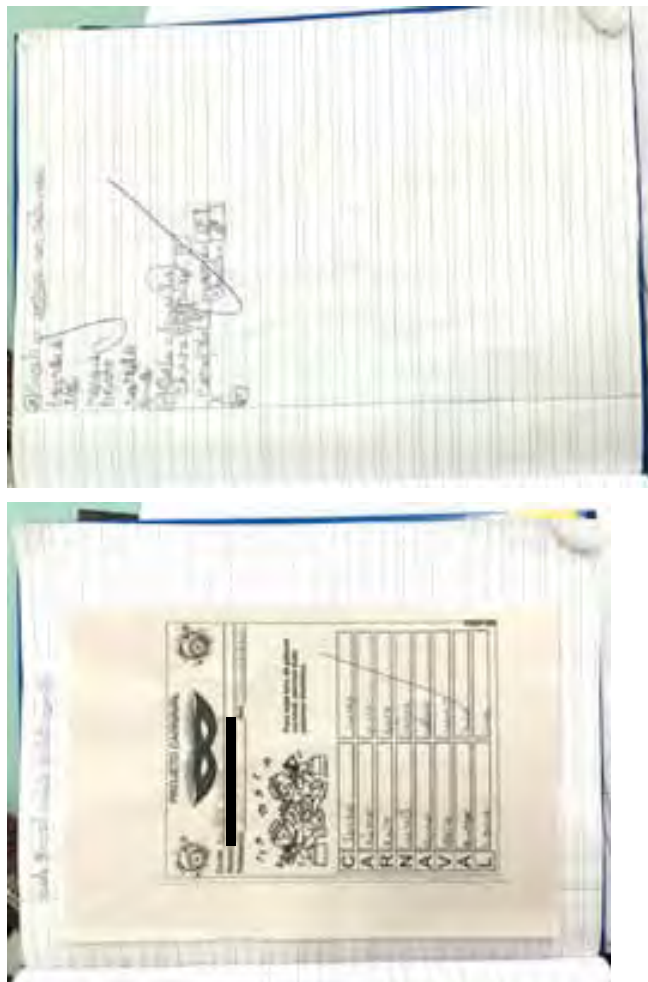
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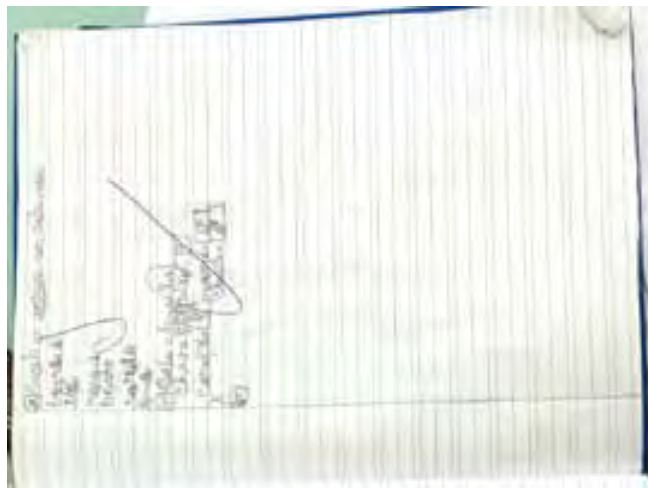
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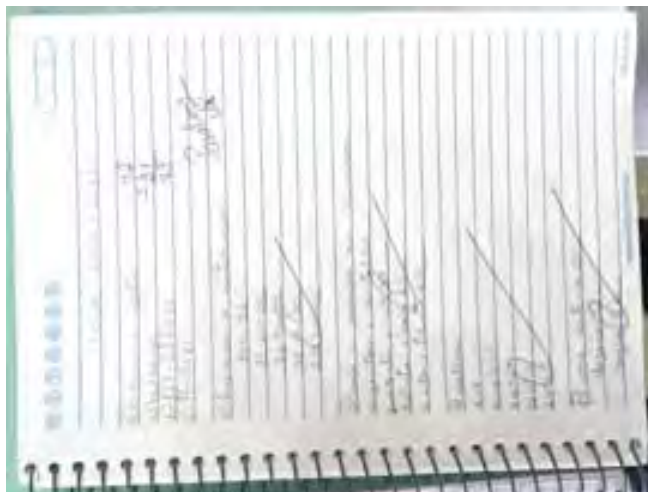
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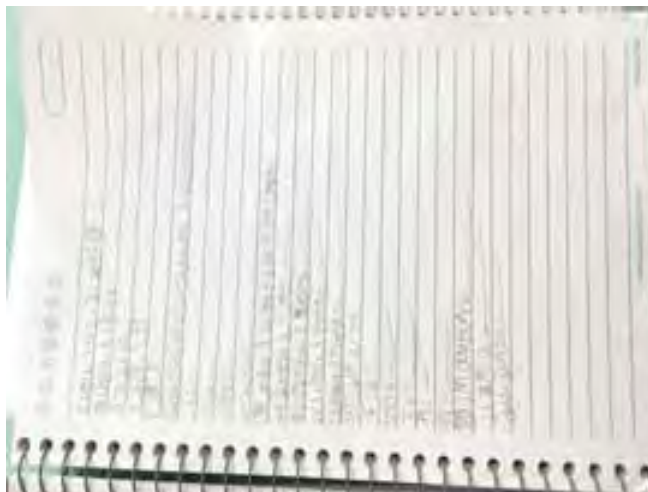
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ED0102 - WILSON-2



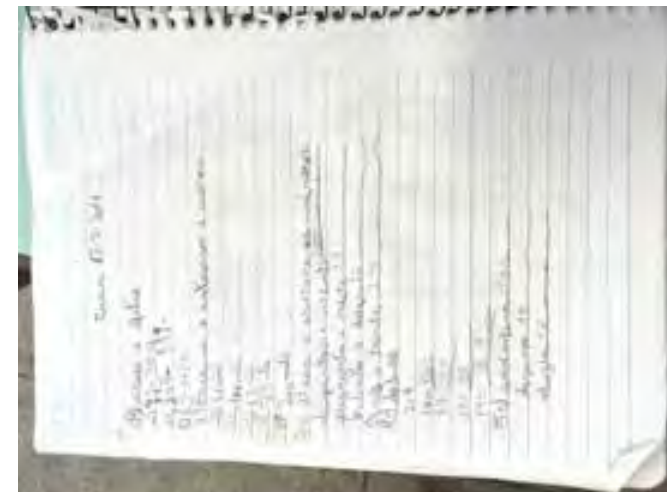
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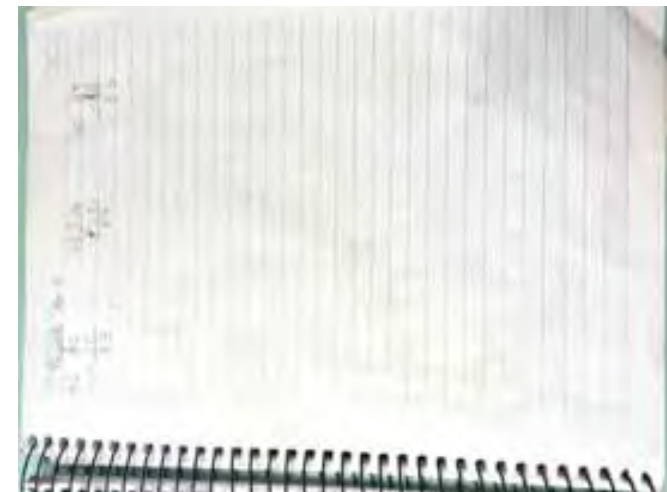
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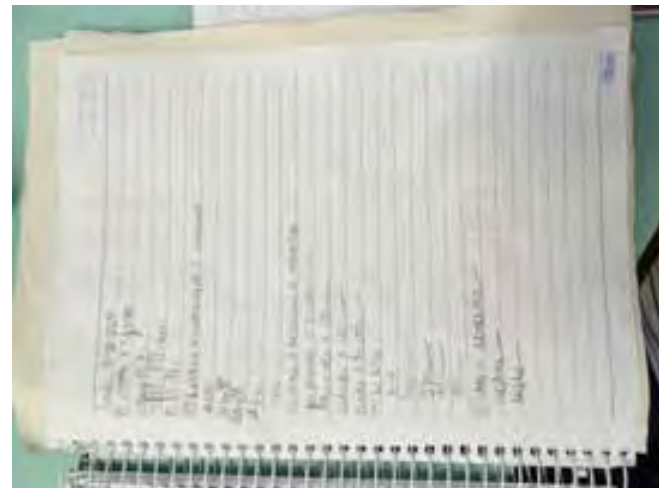
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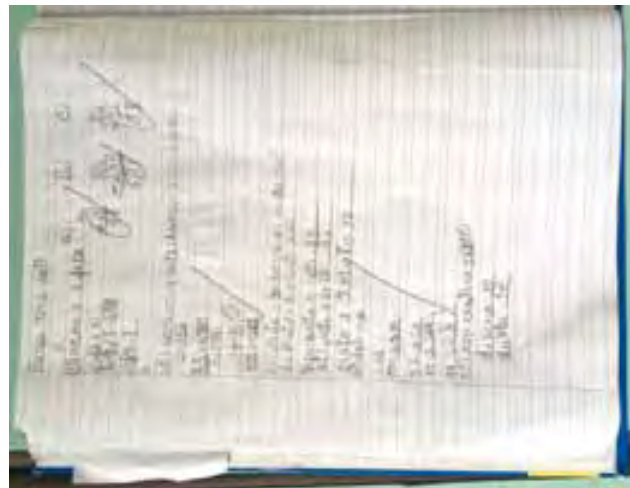
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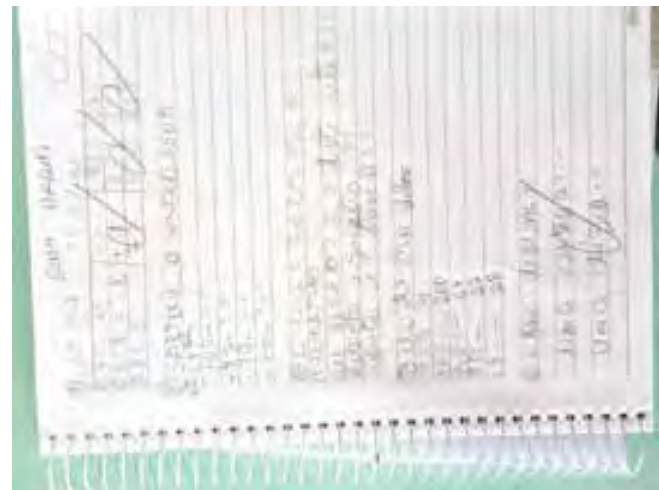
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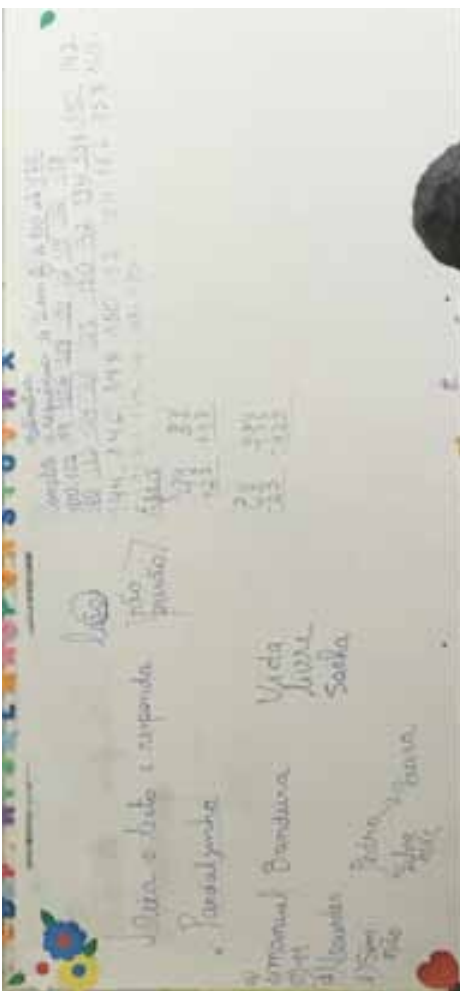
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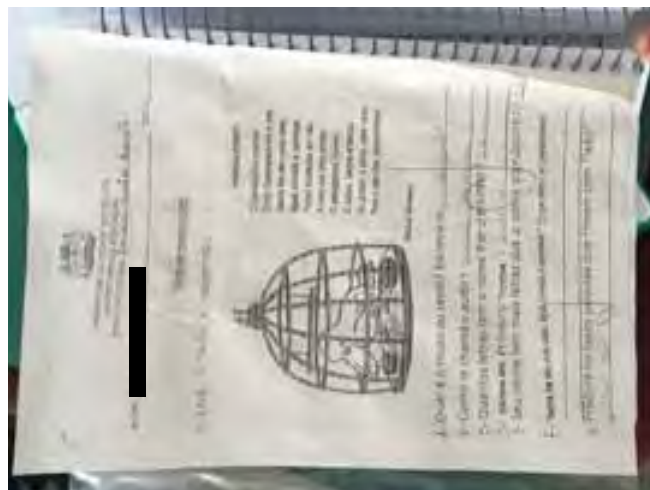
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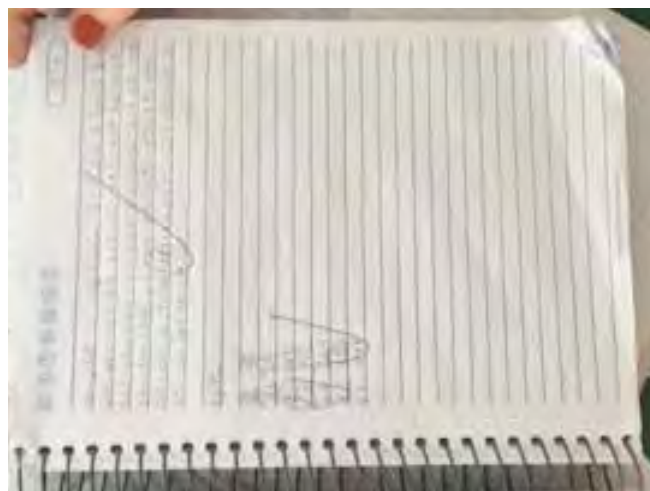
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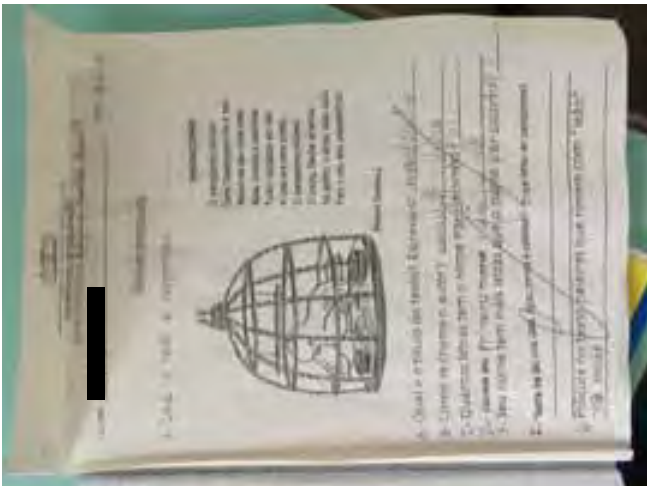
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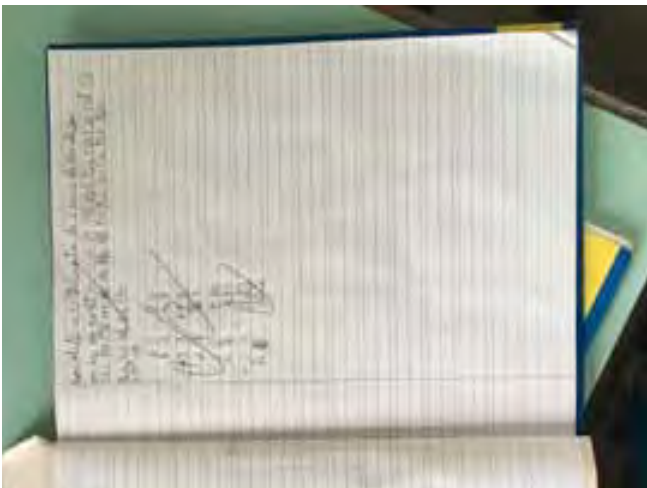
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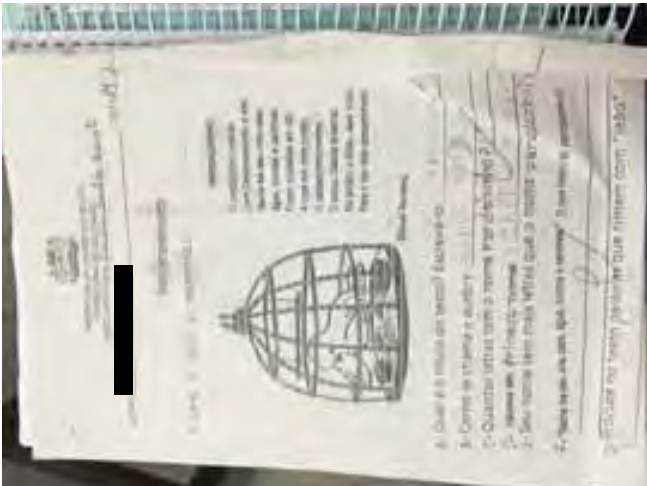
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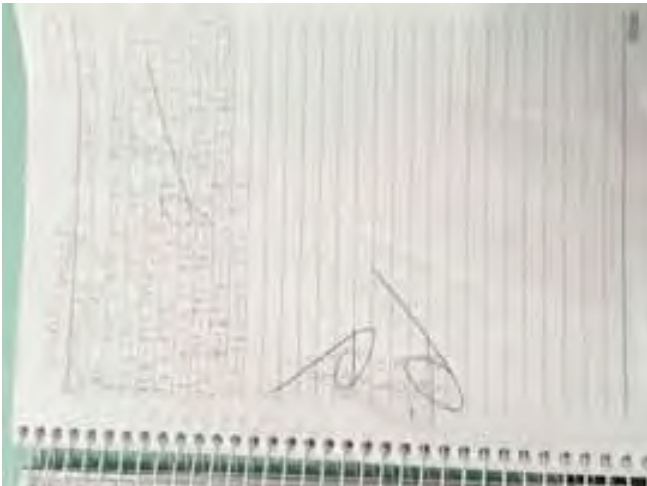
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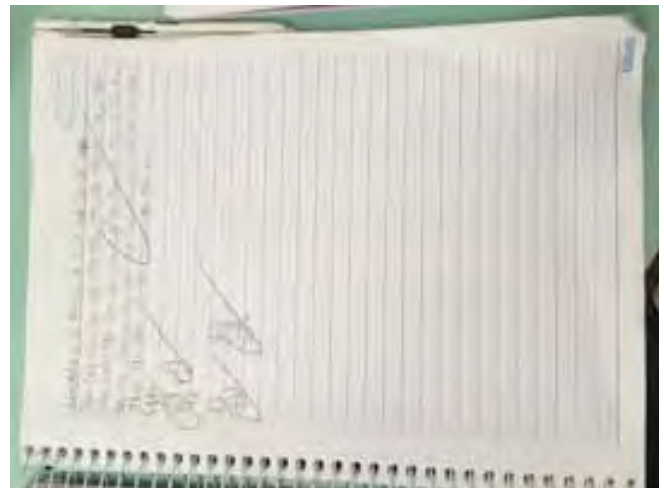
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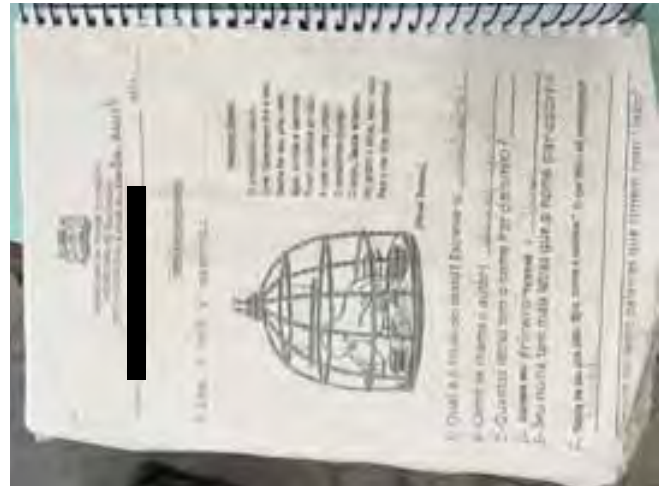
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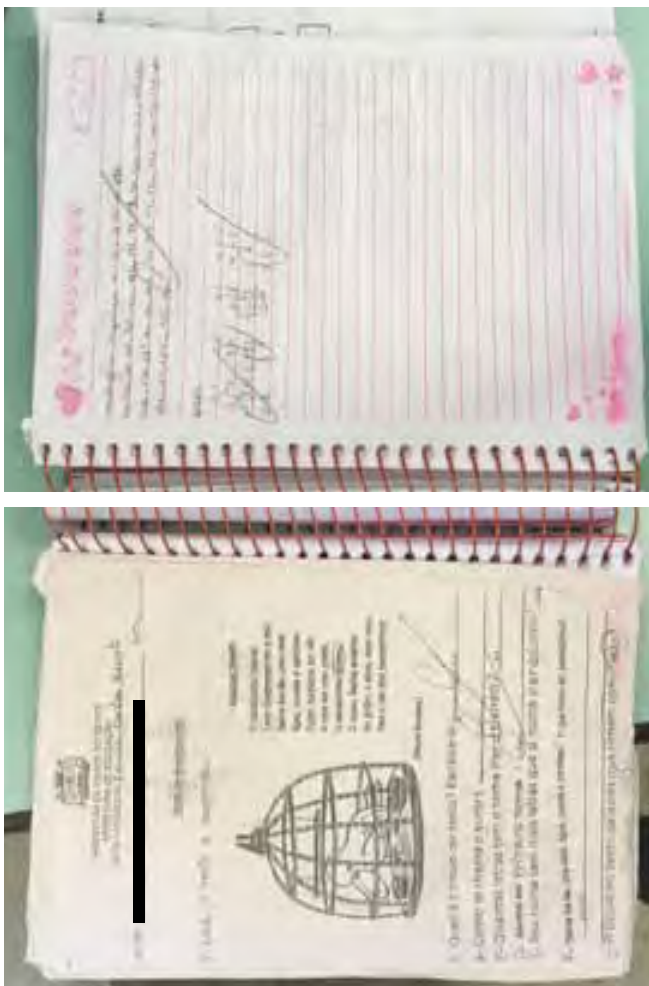
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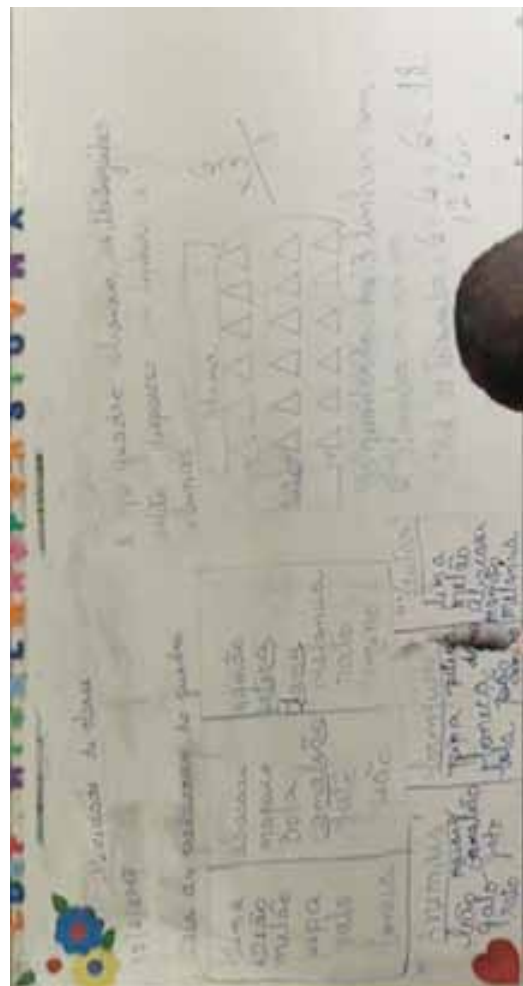
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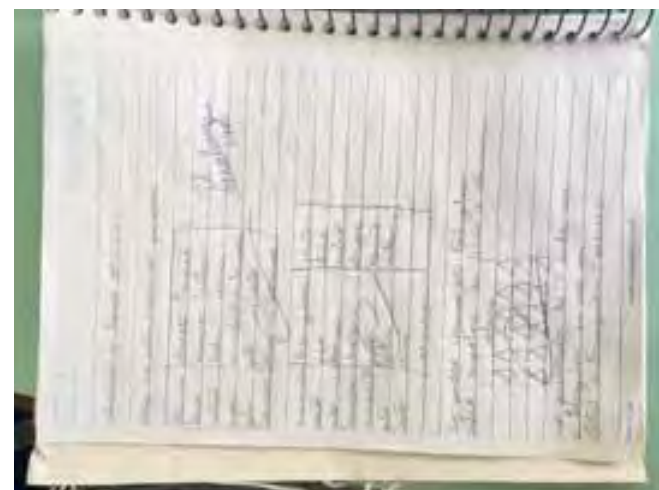
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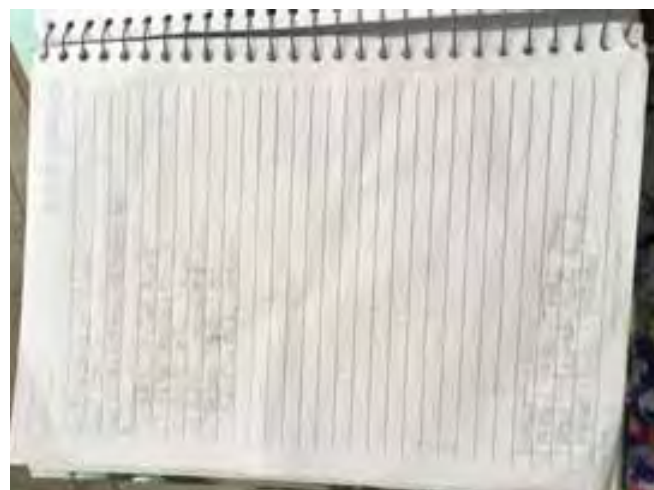
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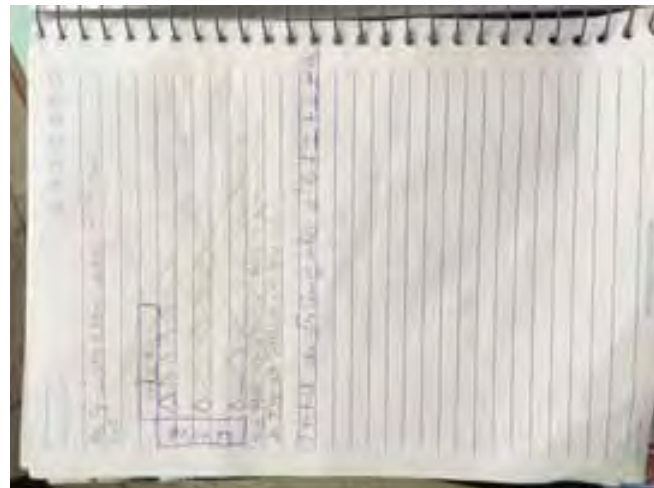
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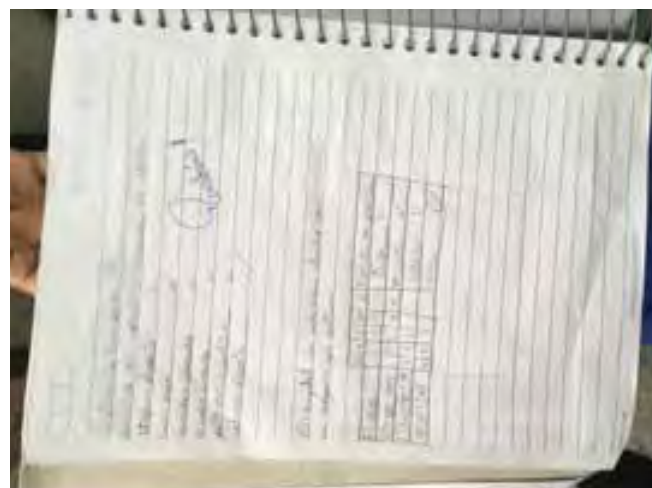
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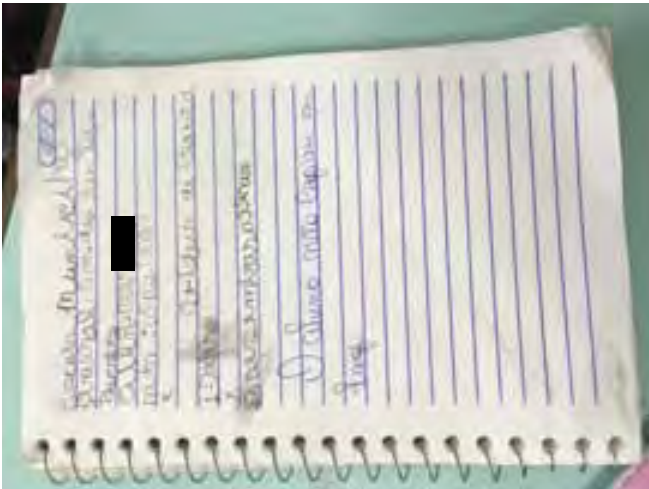


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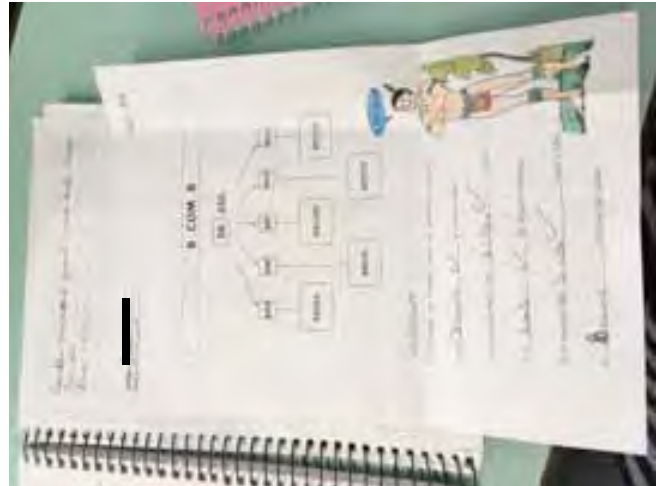
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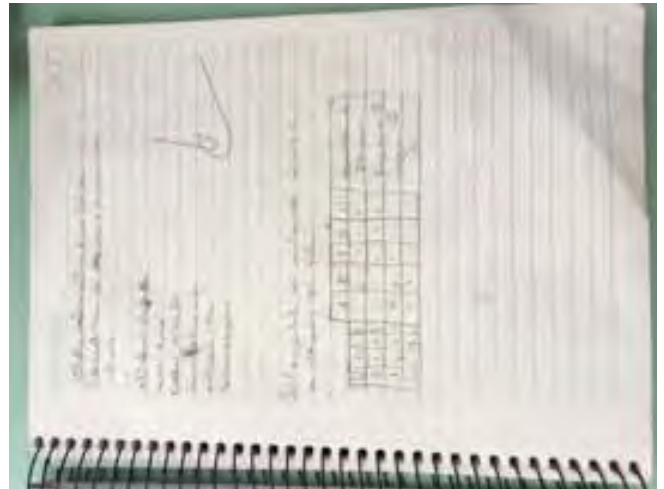
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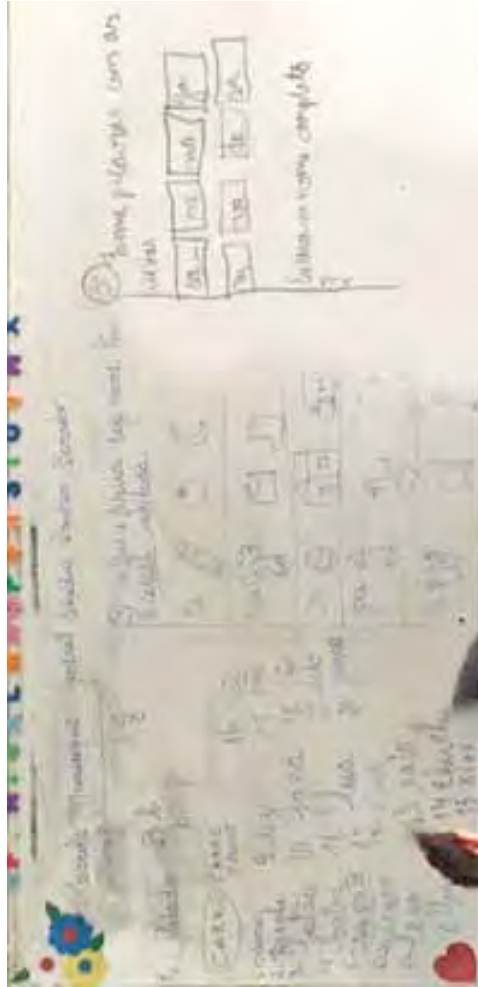
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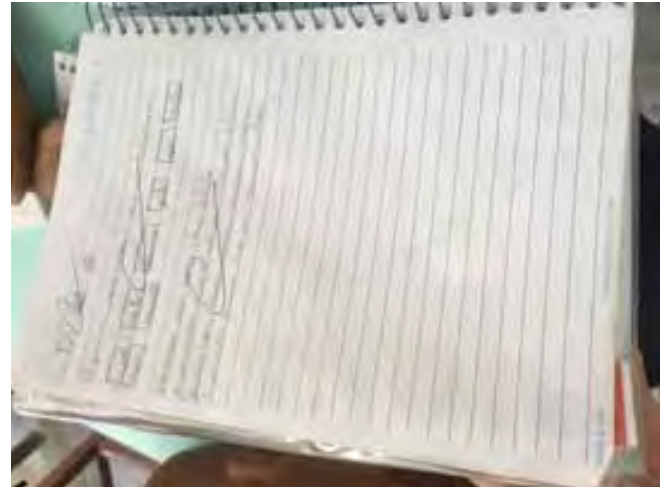
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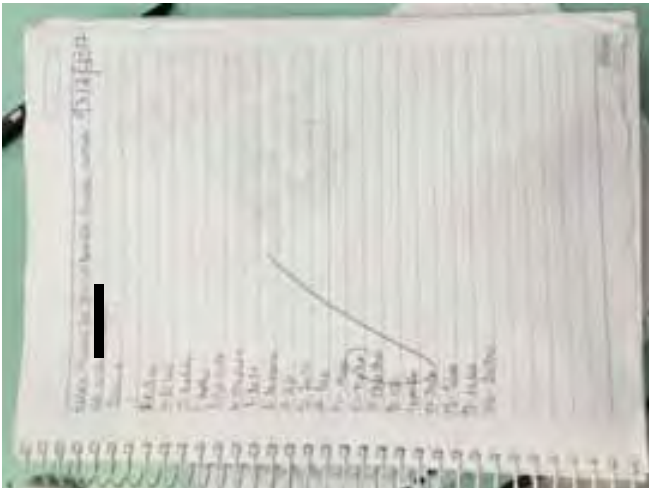
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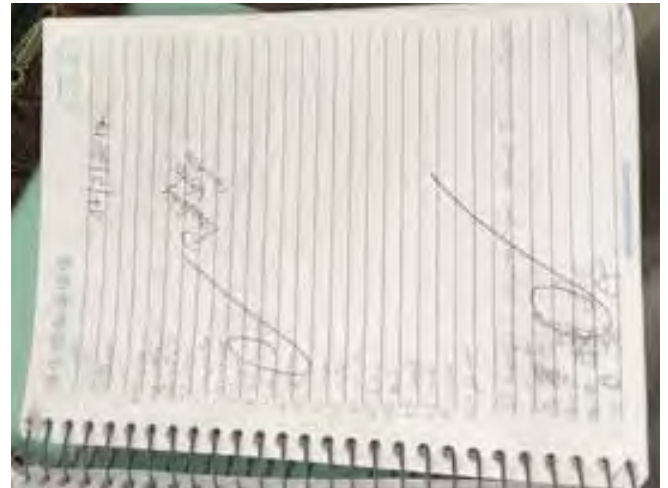
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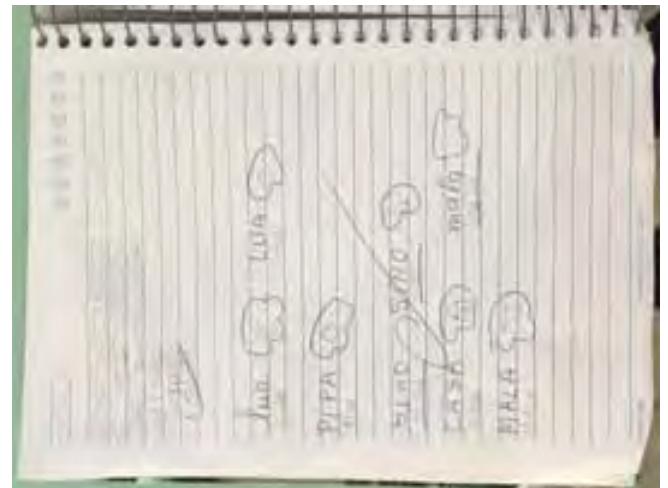
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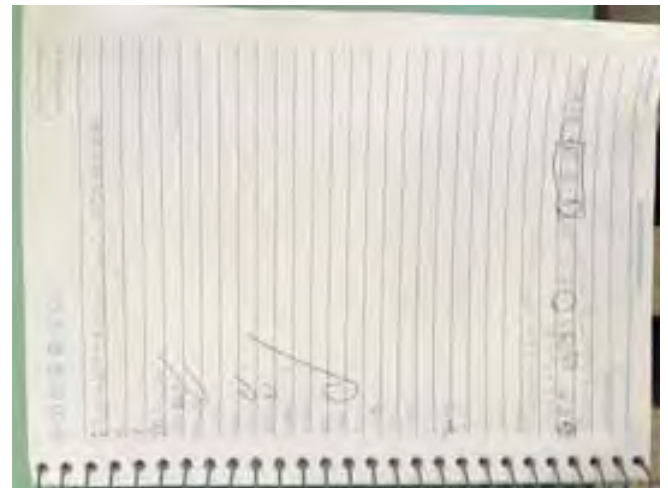
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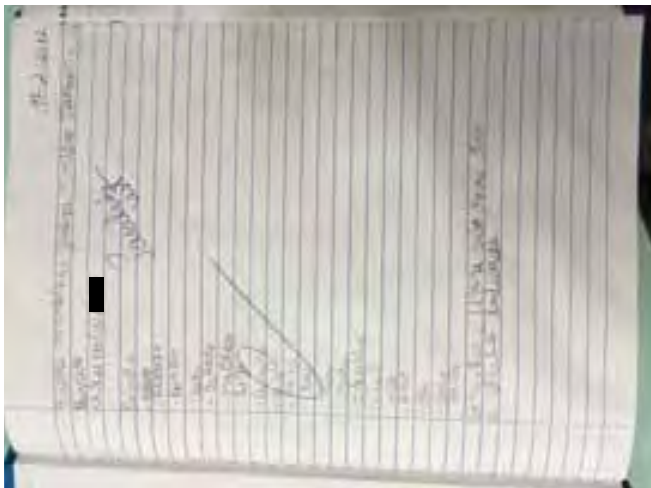
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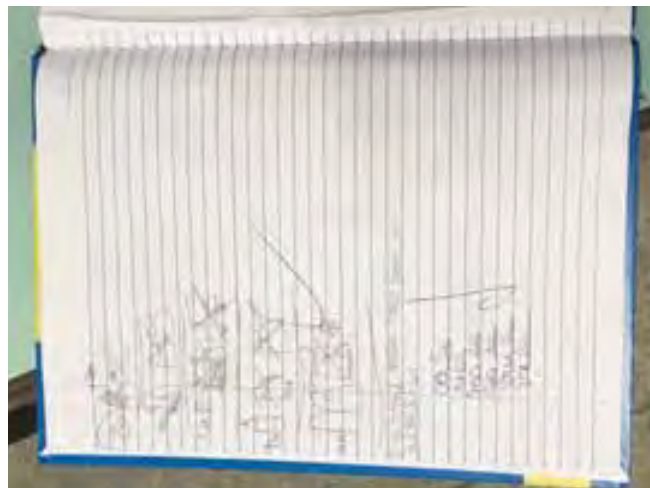
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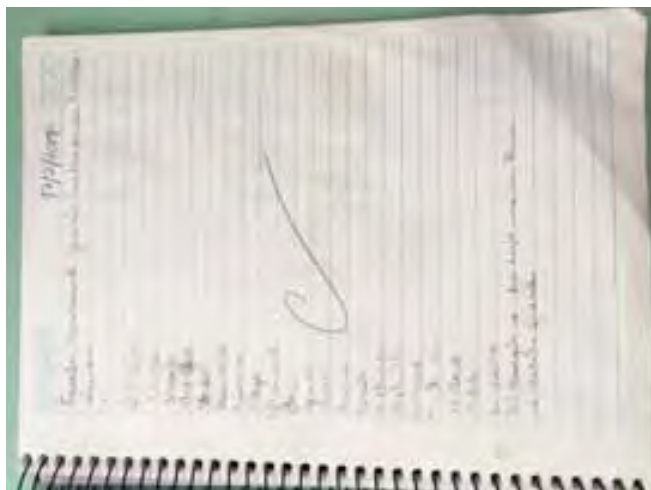
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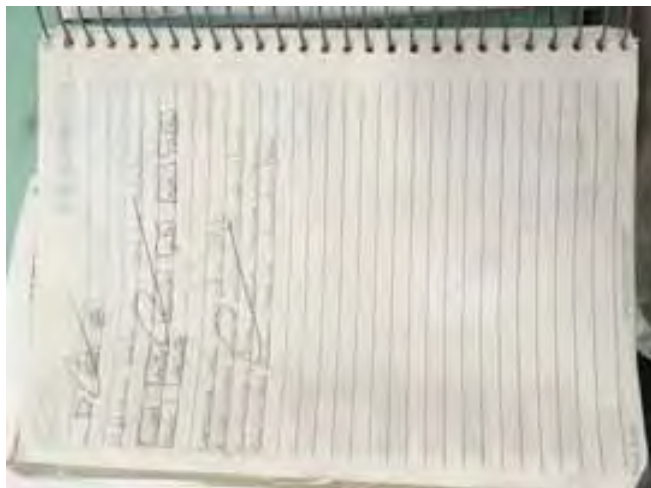
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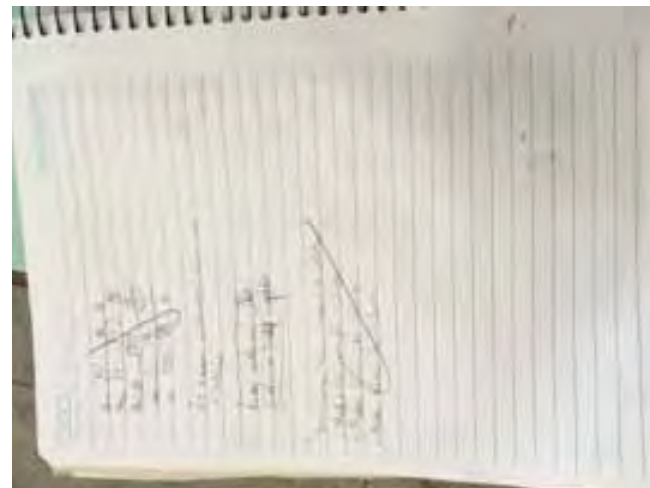
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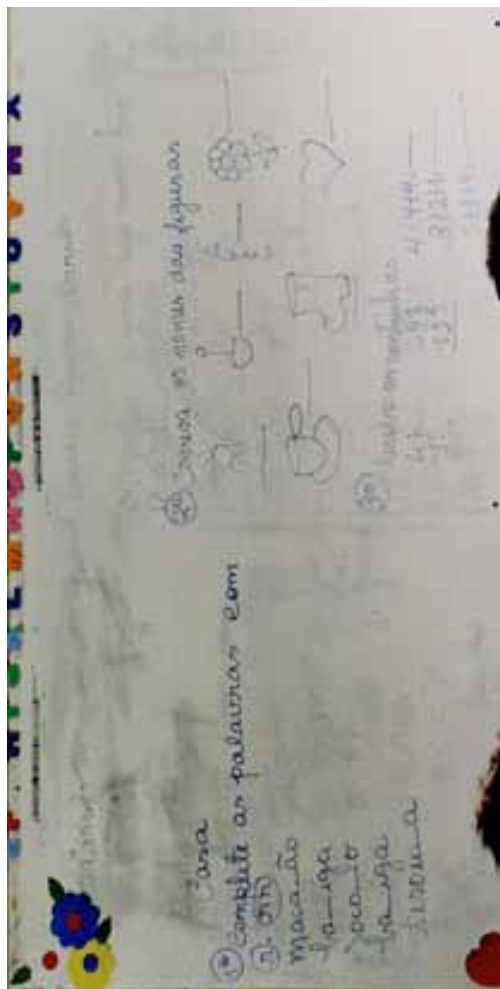
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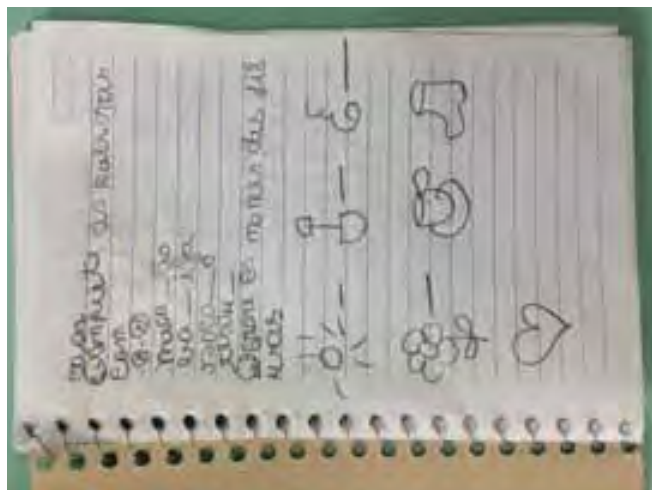
ED0501 - ANDRÉ-3



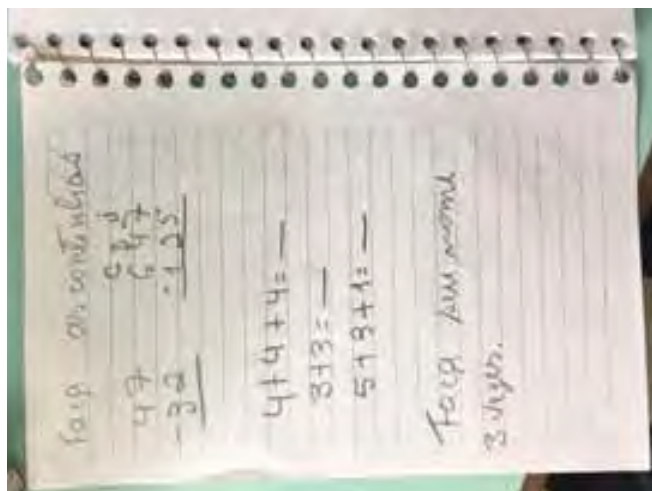
ED0501 - EMANOEL-1



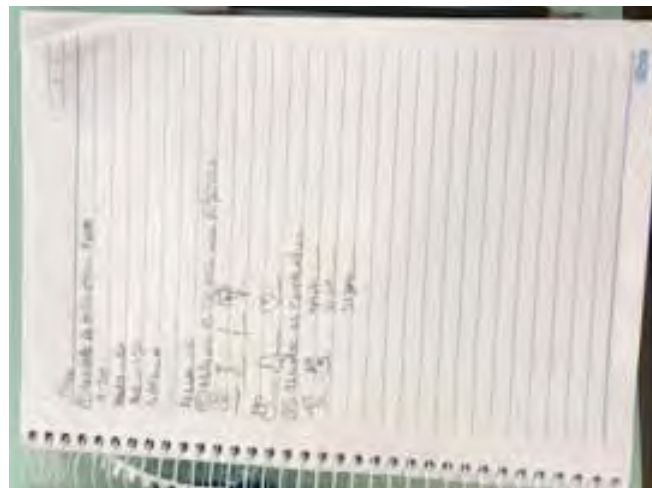
ED0503 - LÚCIA



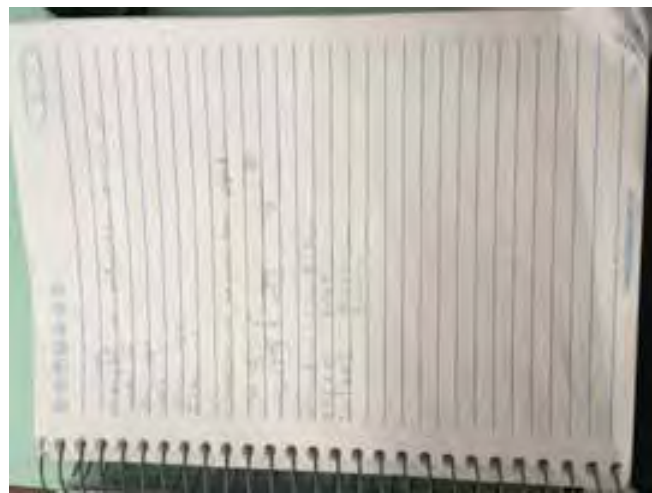
ED0503 - IGOR-1



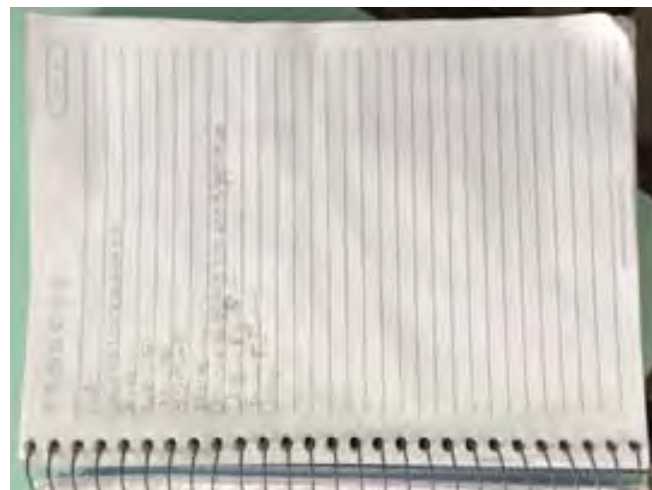
ED0503 - IGOR-2



ED0503 - MARCOS



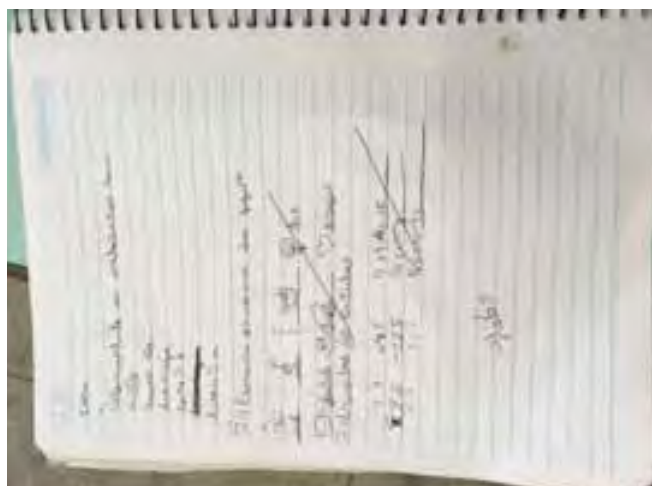
ED0503 - ANDRÉ

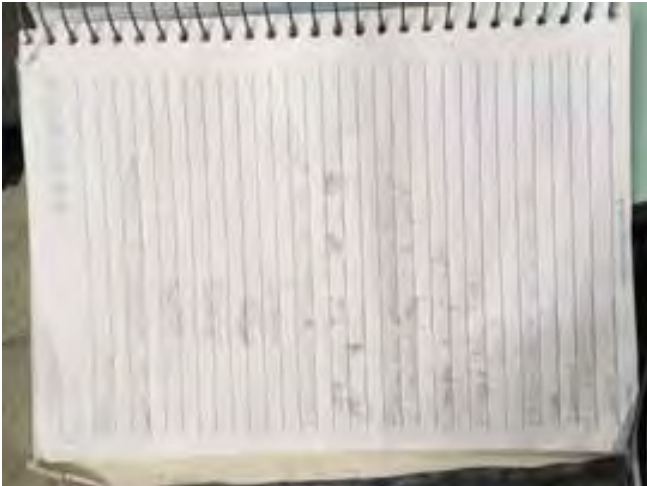


ED0503 - CARLOS



ED0503 - WILSON

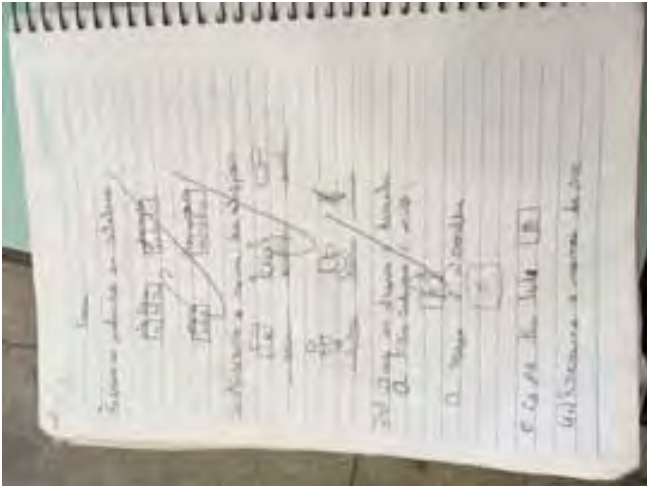




ED0605 - ANDERSON-1



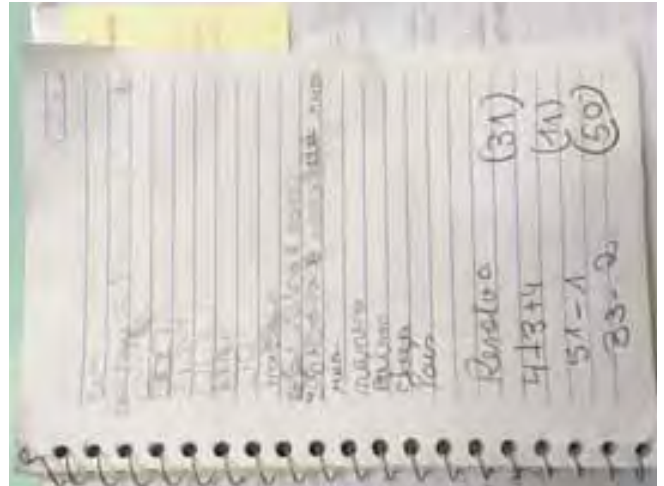
ED0605 - ANDERSON-2



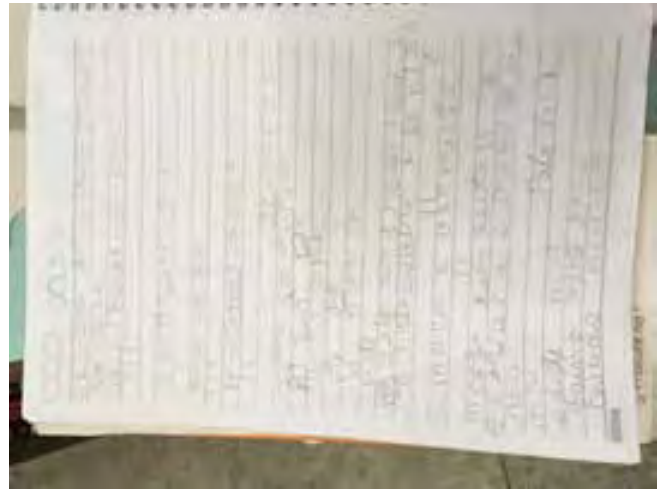
ED0605 - EMANOEL-1



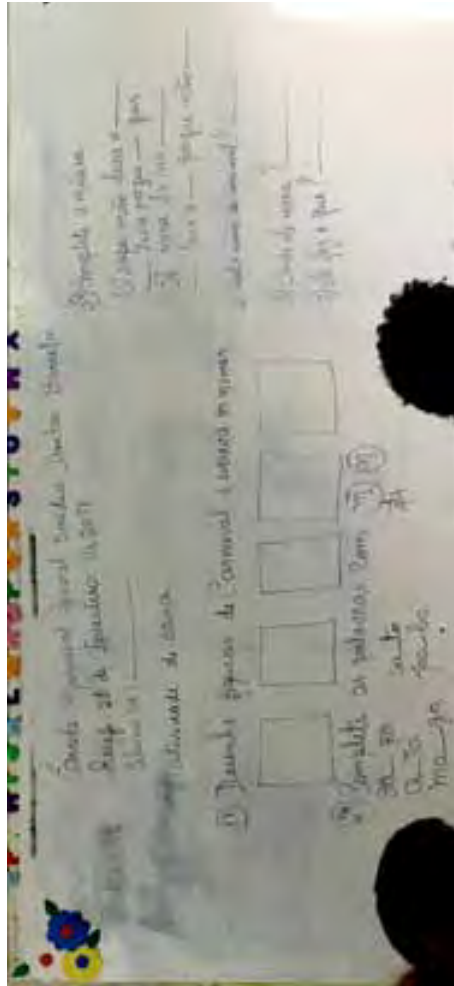
ED0605 - EMANOEL-2



ED0605 - IGOR



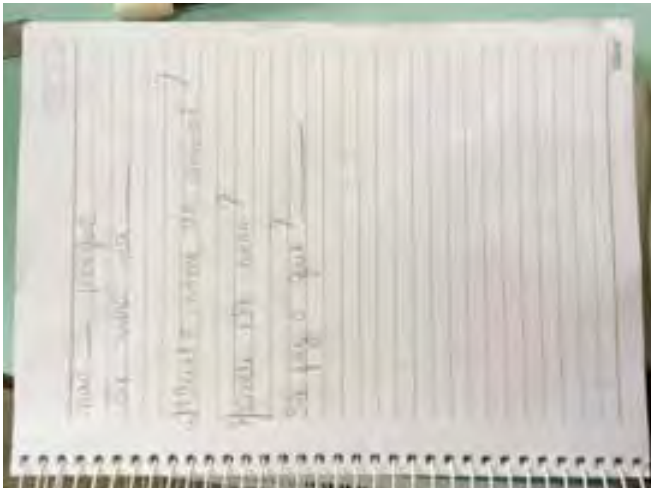
ED0605 - MARCOS



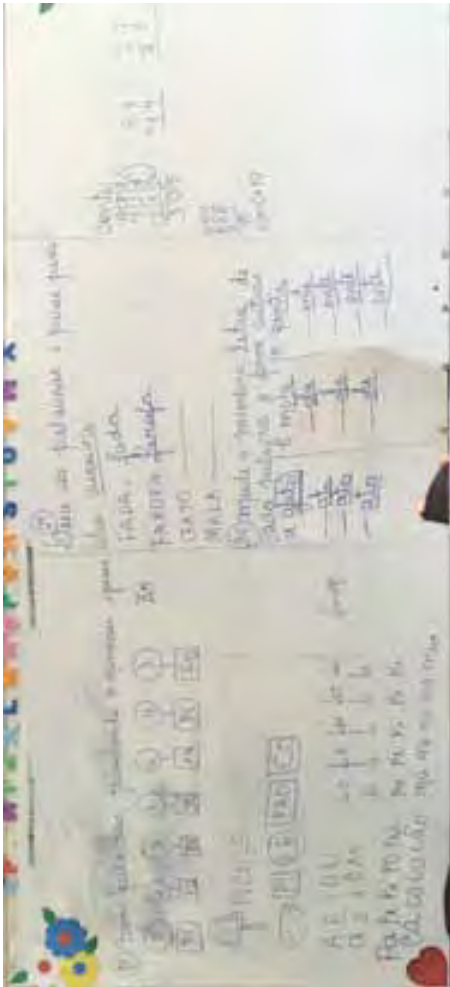
ED0705 - LÚCIA



ED0705 - MARCOS-1



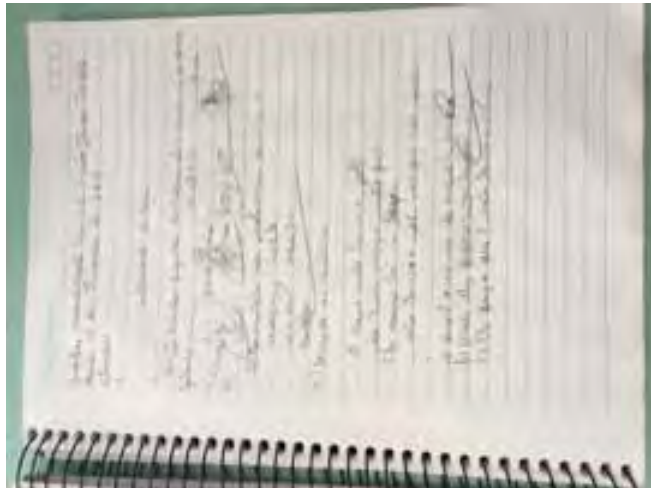
ED0705 - MARCOS-2



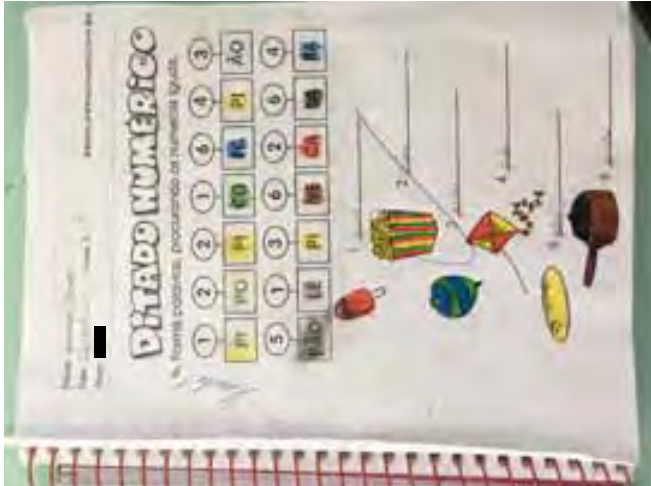
ED0802 - LÚCIA



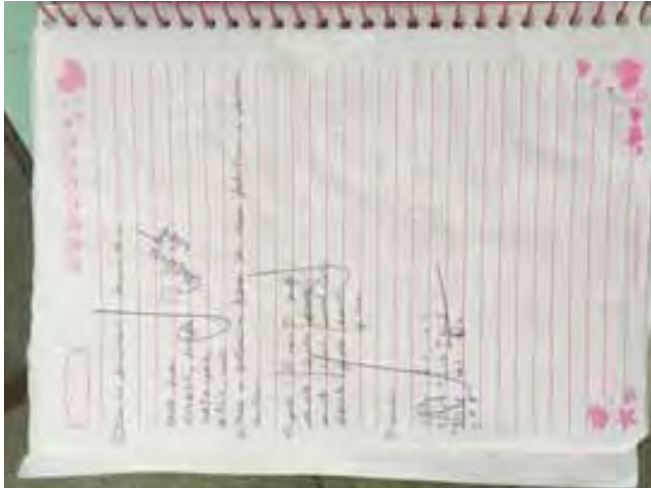
ED0705 - WILSON



ED0705 - EMANOEL



ED0802 - DARA-1



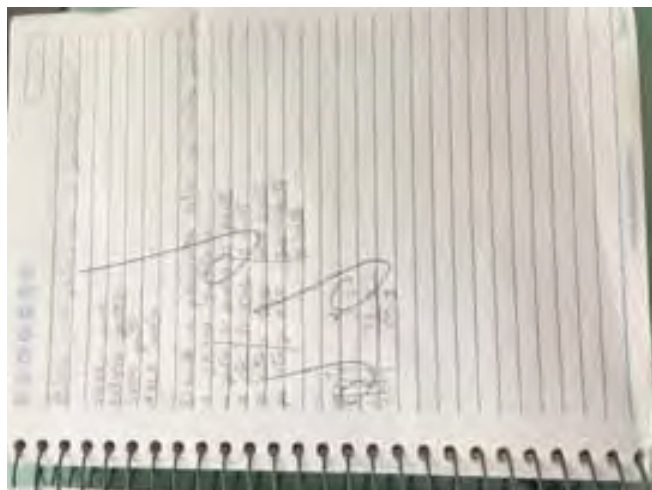
ED0802 - DARA-2



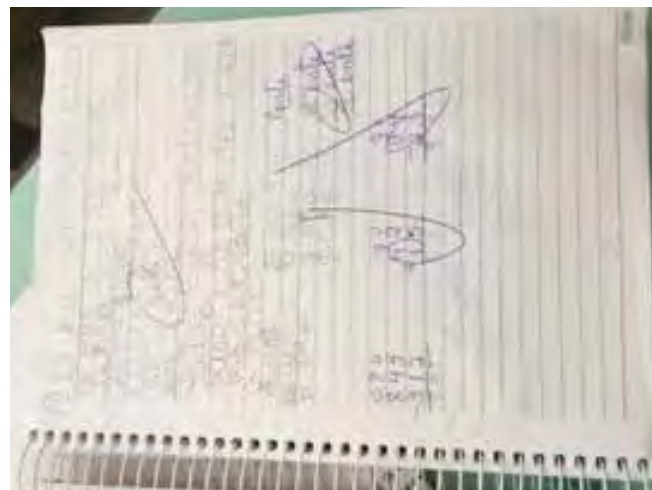
ED0802 - ANDRÉ-1



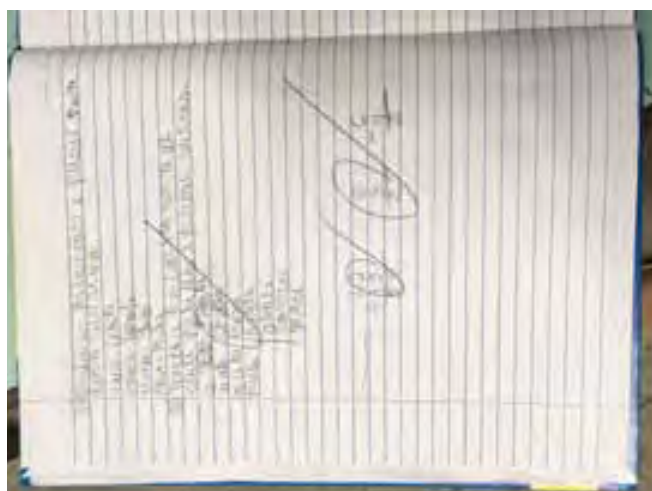
ED0802 - MARCOS-1



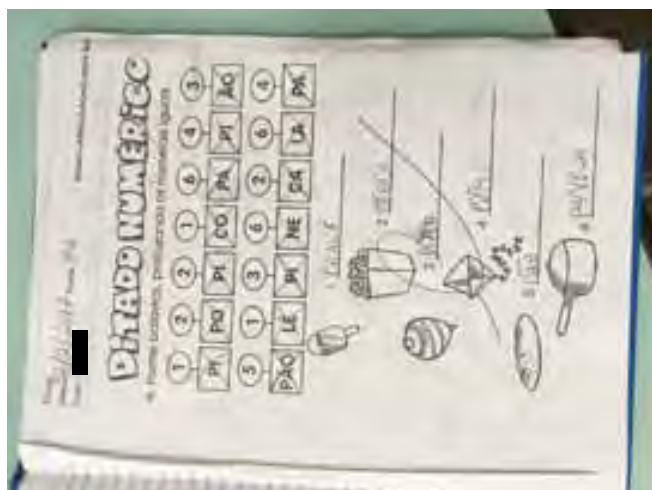
ED0802 - ANDRÉ-2



ED0802 - MARCOS-2



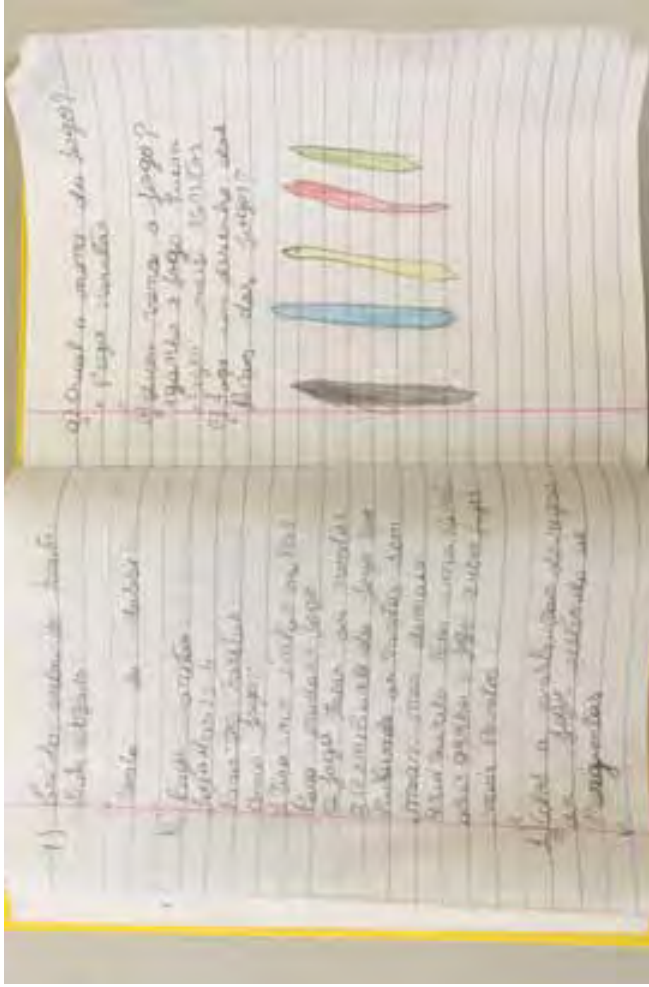
ED0802 - IGOR-2



ED0802 - IGOR-1

Class 2

Campina do Barreto Municipal School [CB]



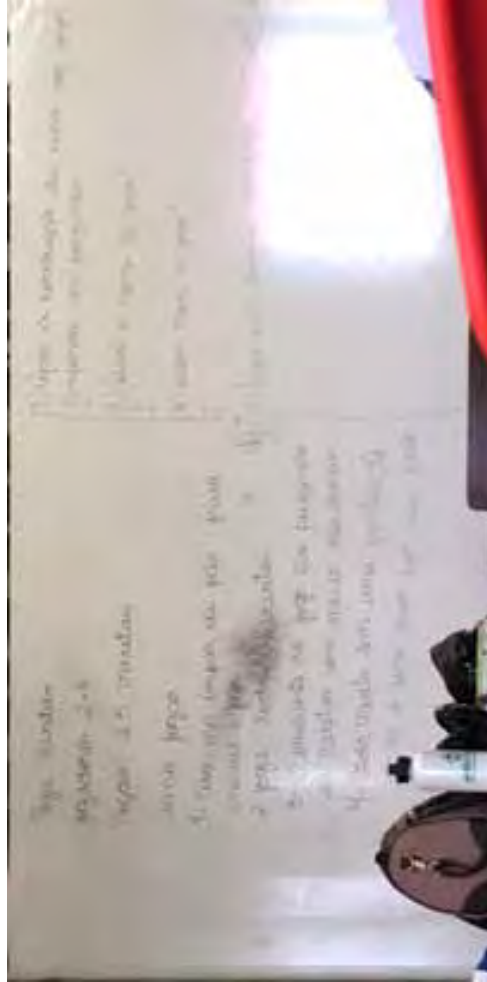
CB0103 - MALU



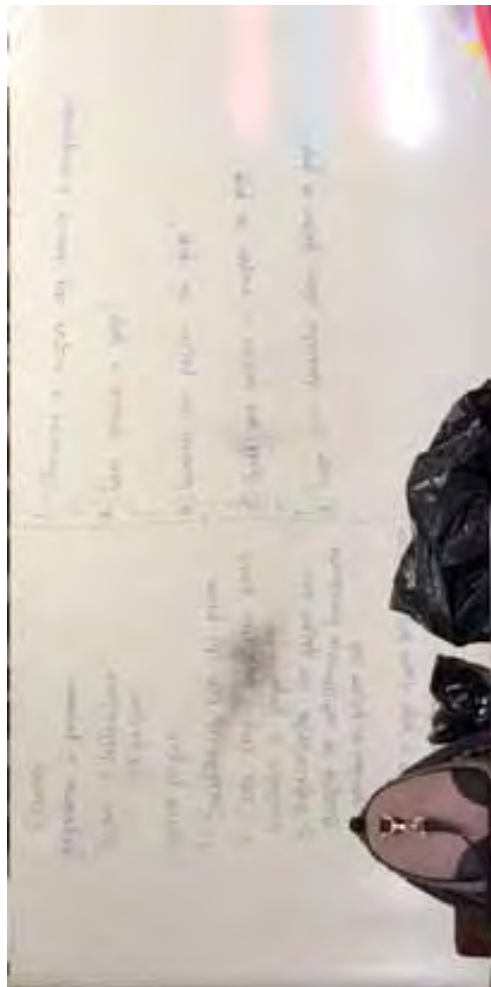
CB0103 - LÍDIA-2



CB0103 - LÍDIA-1



CB0103 - FERNANDA



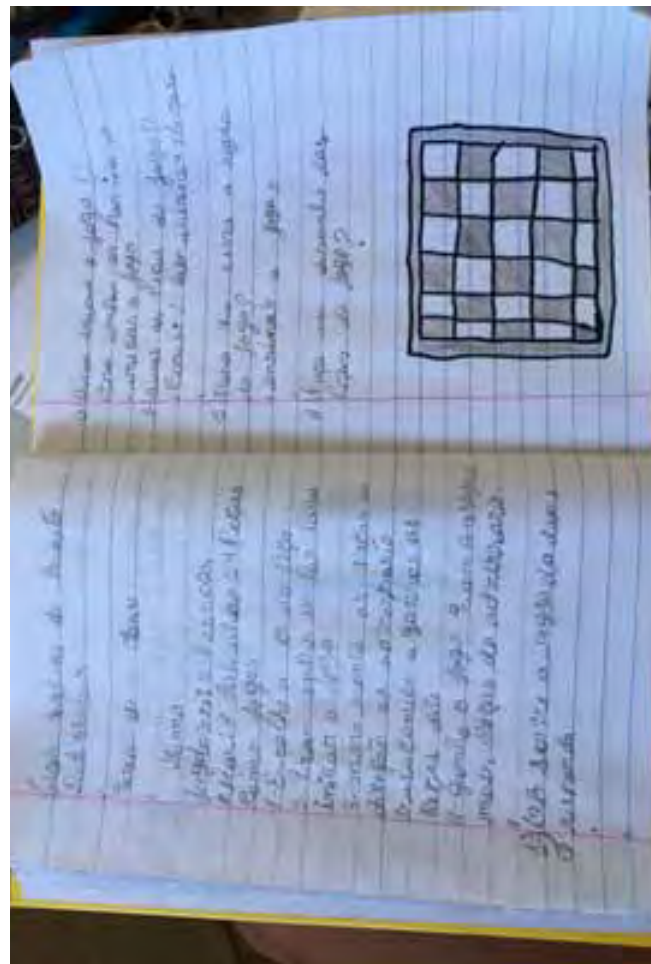
CB0201 - FERNANDA



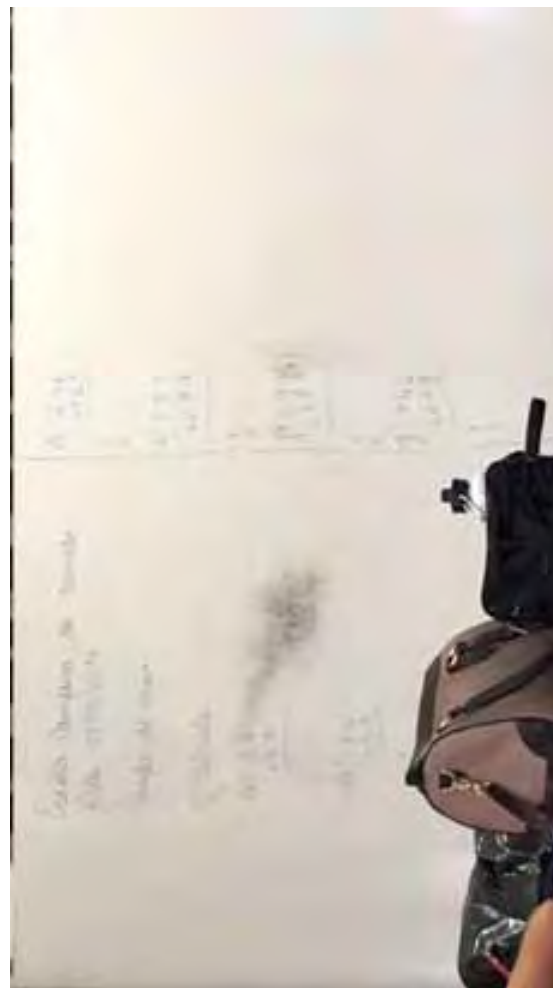
CB0201 - LÍDIA-1



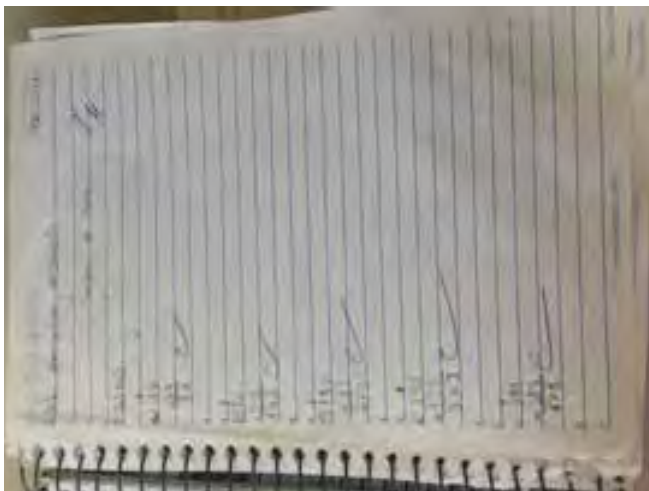
CB0201 - LÍDIA-2



CB0201 - MALU



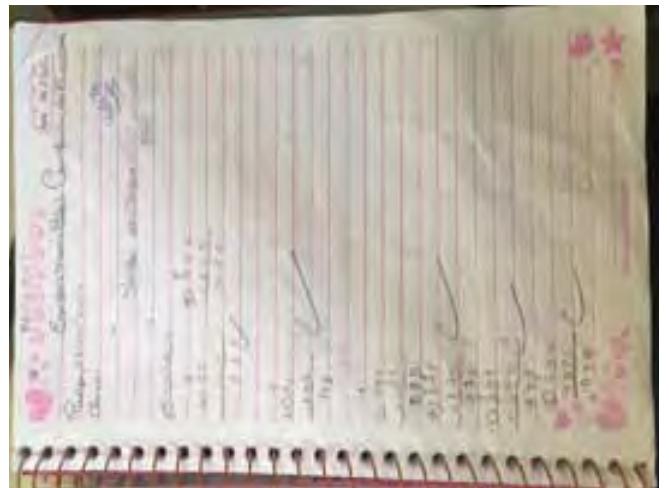
CB0202 - FERNANDA



CB0202 - MALU

CB0202 - VAN-1

CB0202 - VAN-2



CB0202 - LÍDIA-1



CB0202 - LÍDIA-2



CB0202 - LÍDIA-1



CB0202 - LÍDIA-2



CB0302 - FERNANDA



CB0302 - MALU-2



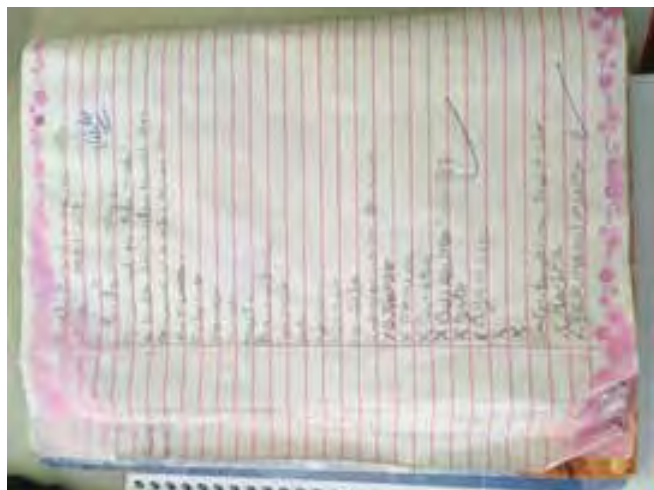
CB0302 - MALU-1



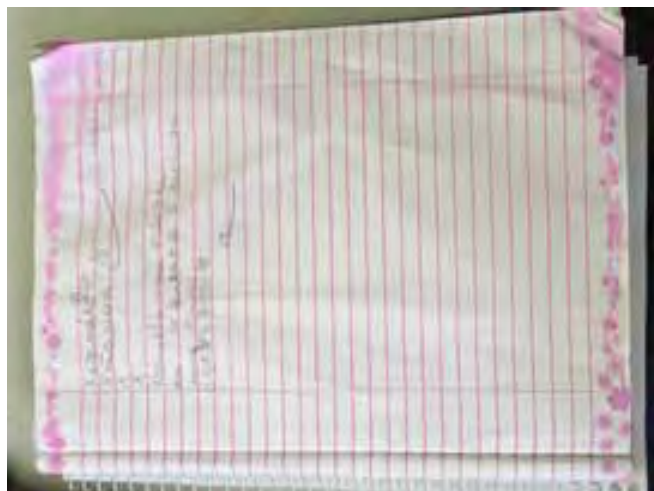
CB0302 - JÉSSICA-1



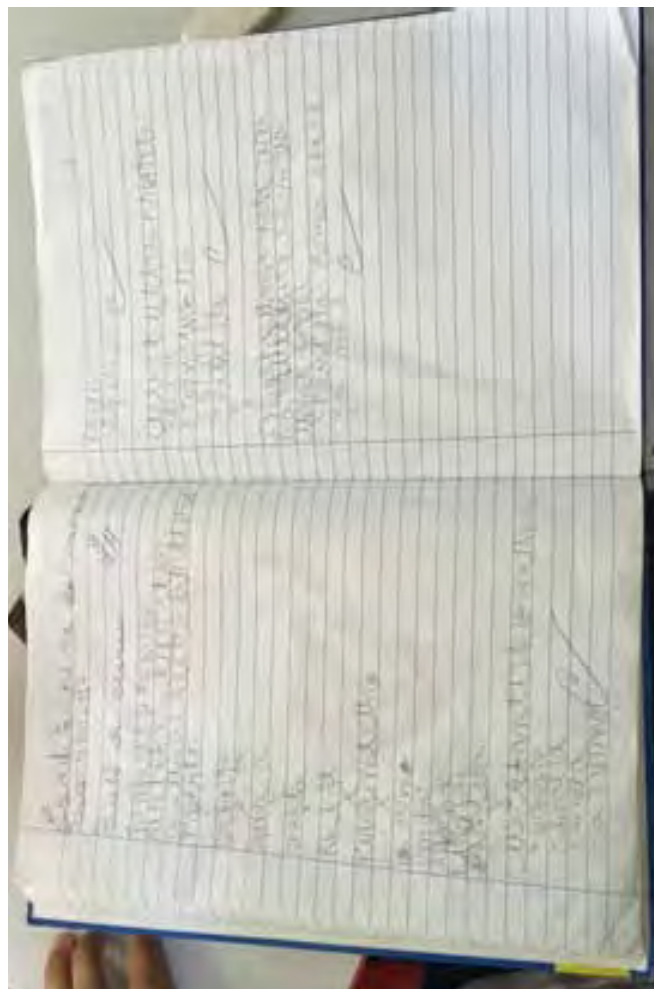
CB0302 - JÉSSICA-2



CB0302 - TERESA-1



CB0302 - TERESA-2



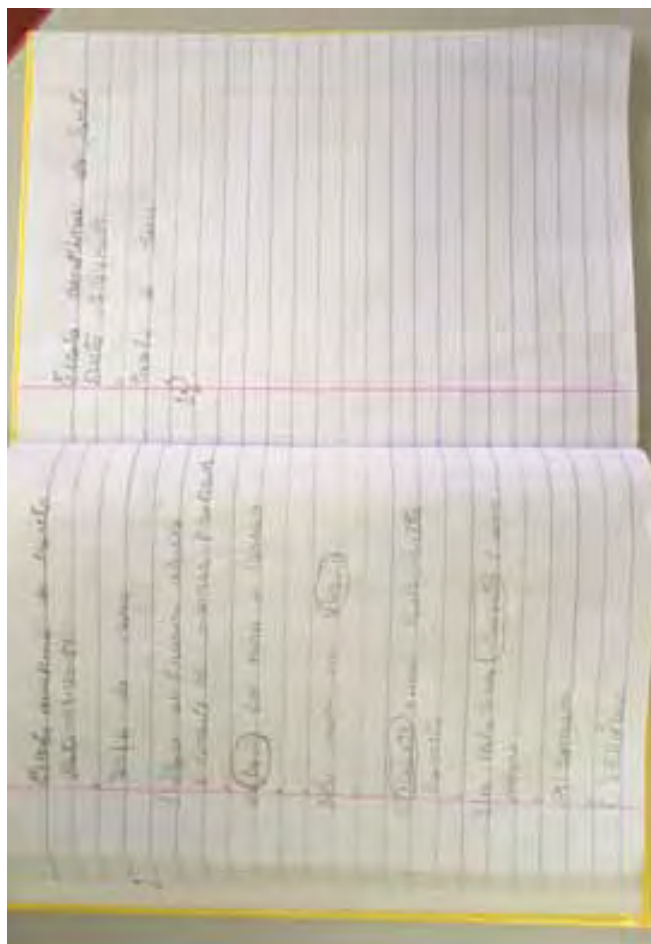
CB0302 - YAN-1



CB0302 - LÍDIA-1



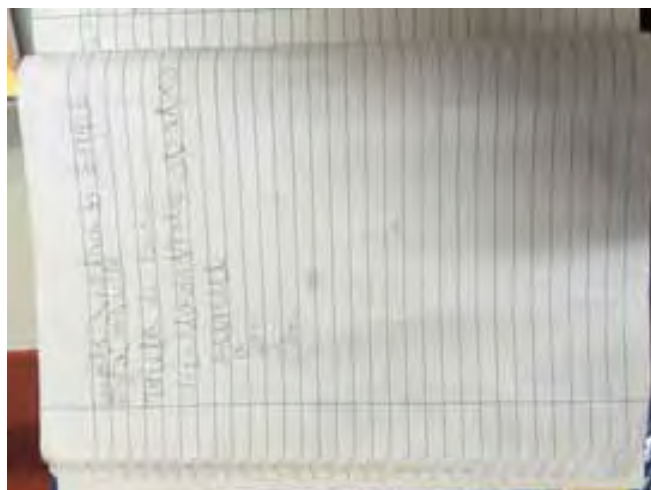
CB0302 - LÍDIA-2



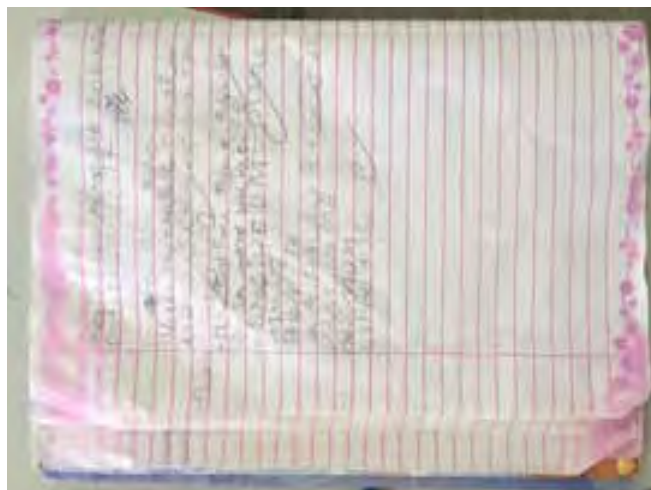
CB0304 - MALU-1



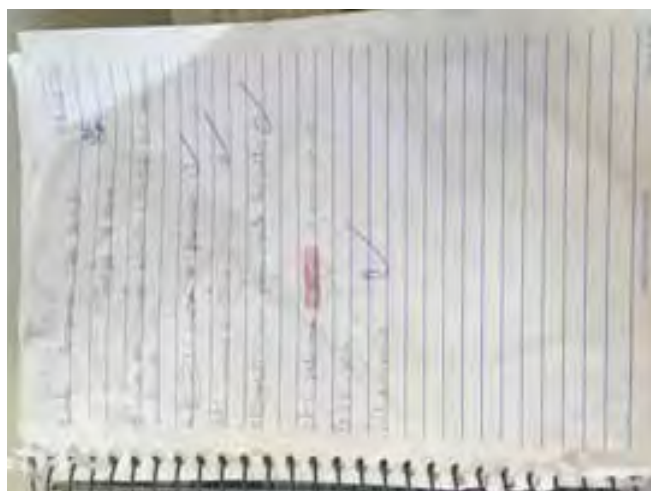
CB0304 - LÍDIA



CB0304 - WAGNER



CB0304 - TERESA



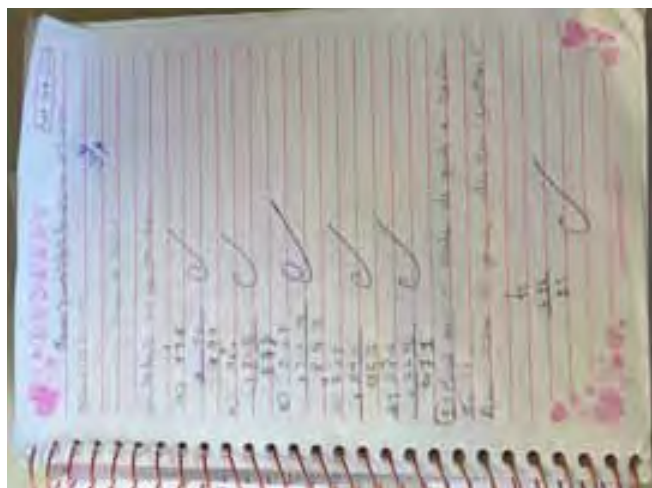
CB0304 - YAN



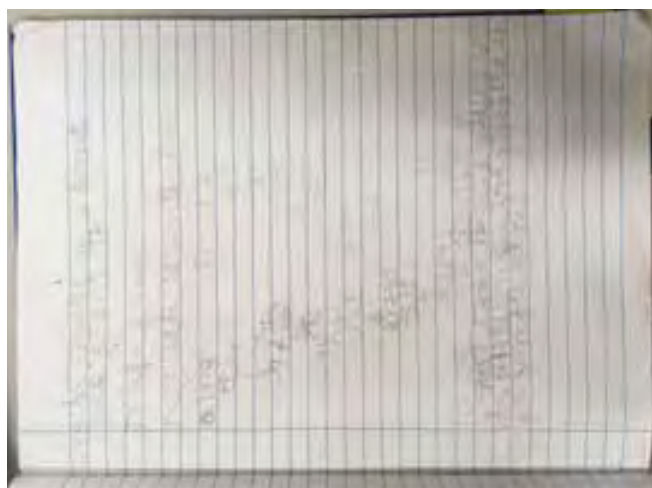
CB0304 - NARA



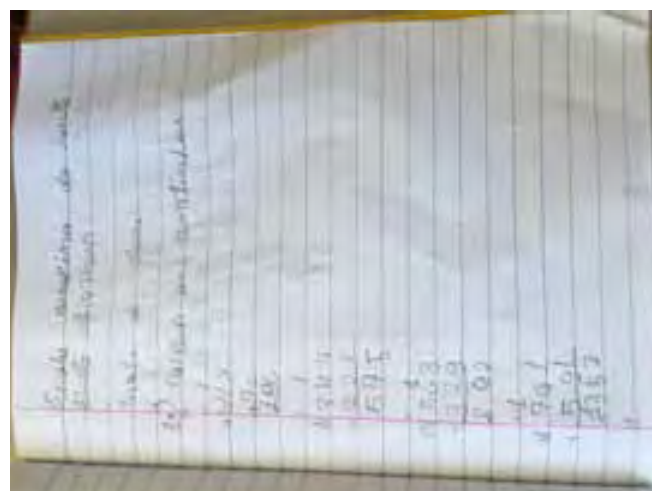
CB0403 - FERNANDA



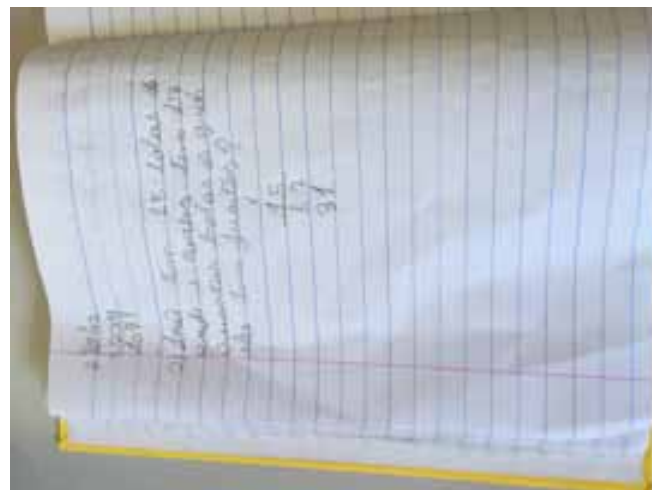
CB0403 - JÉSSICA



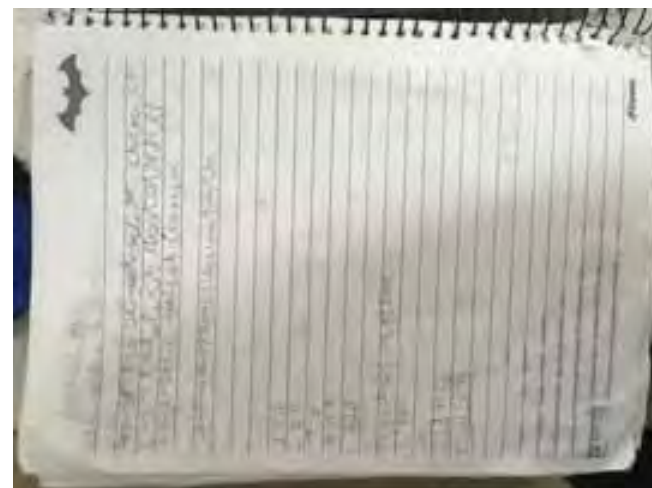
CB0403 - WAGNER



CB0403 - MALU-1



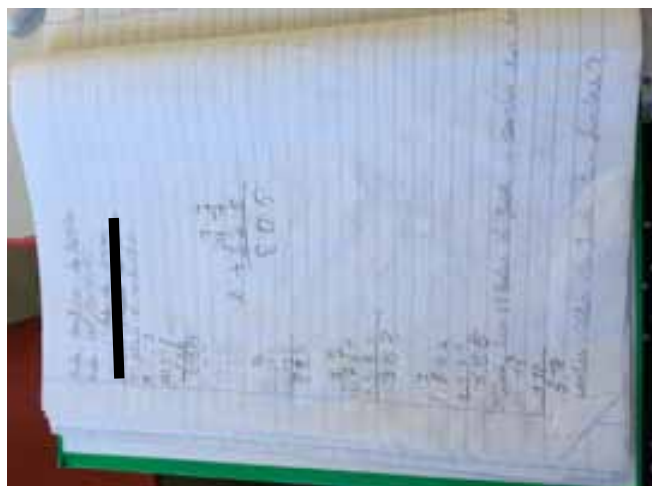
CB0403 - MALU-2



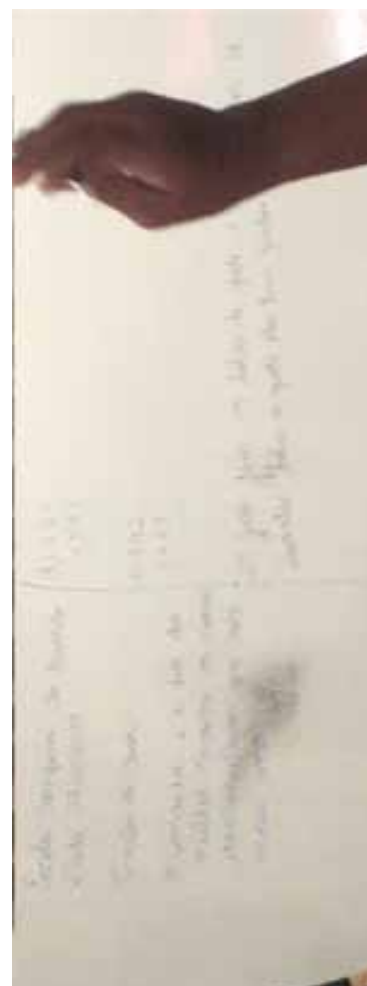
CB0403 - MARCELO



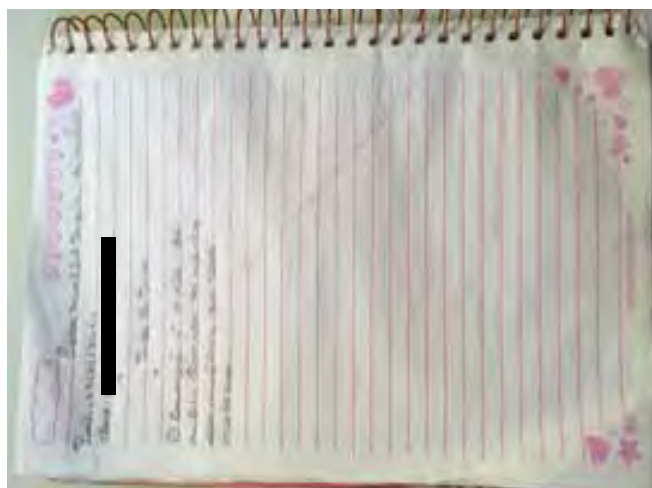
CB0403 - LÚDIA



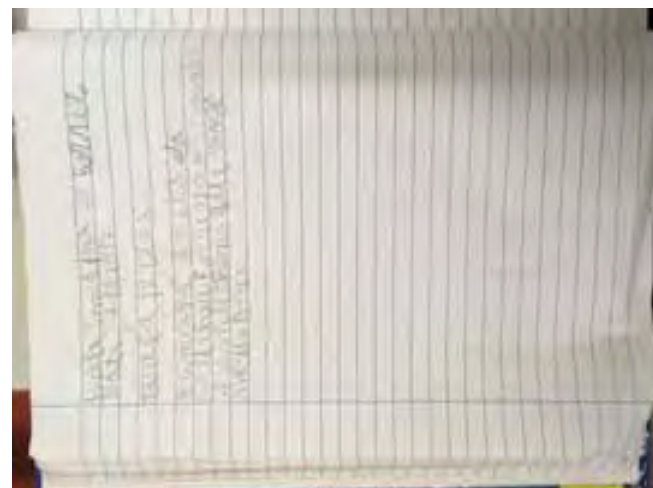
CB0403 - NARA



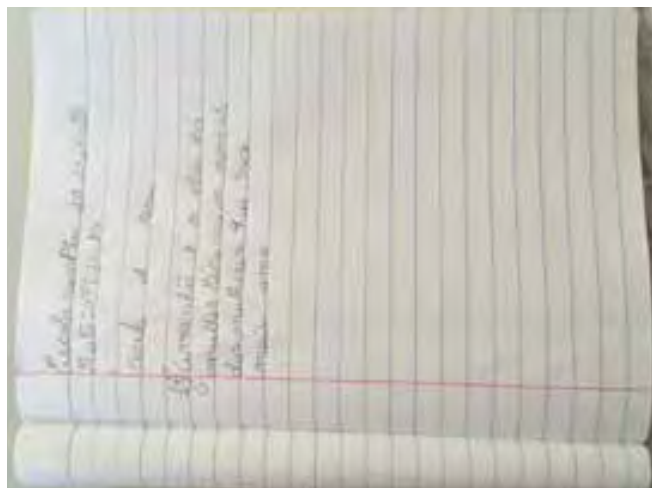
CB0404- FERNANDA



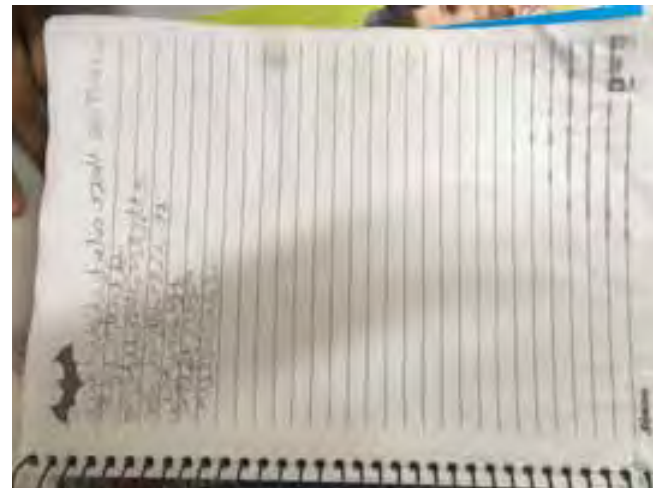
CB0404 - JÉSSICA



CB0404 – WAGNER



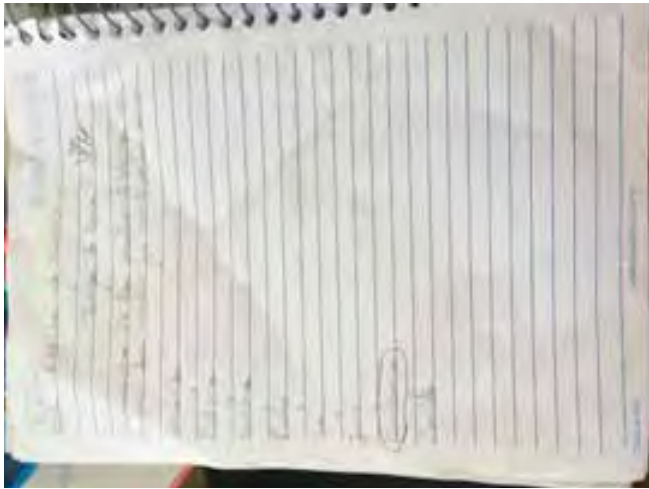
CB0404 - MALU



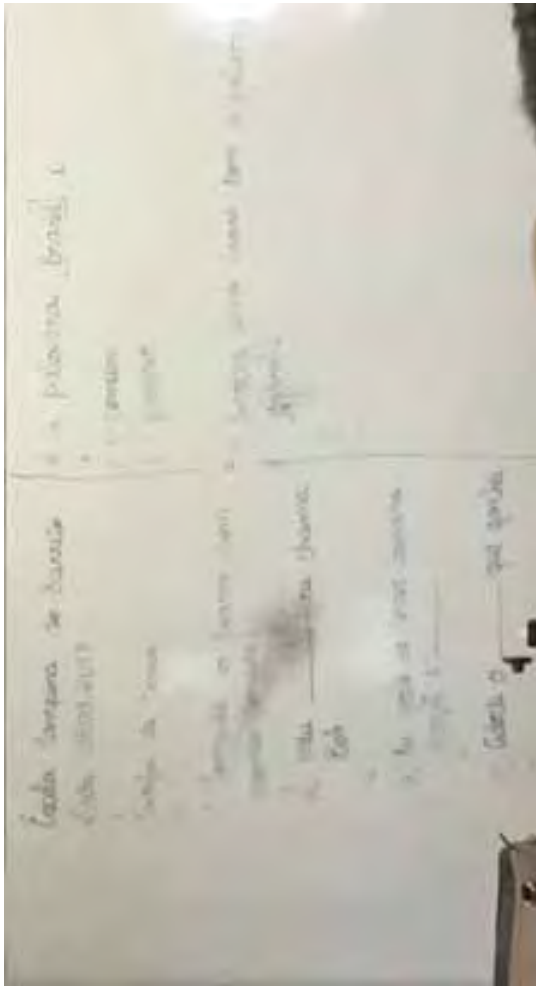
CB0404 - MARCELO



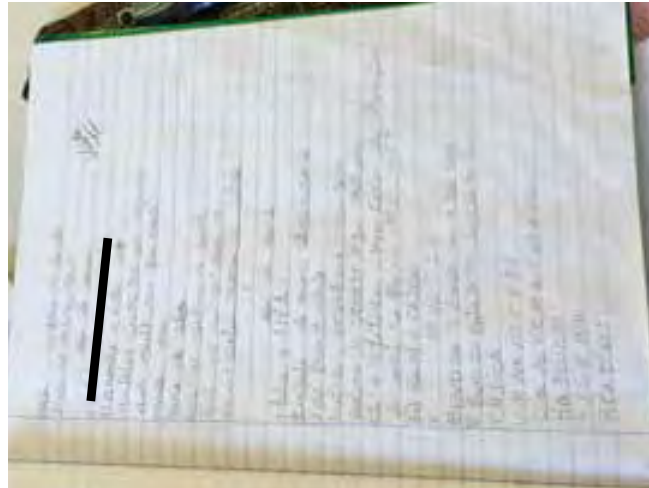
CB0404 - LÍDIA



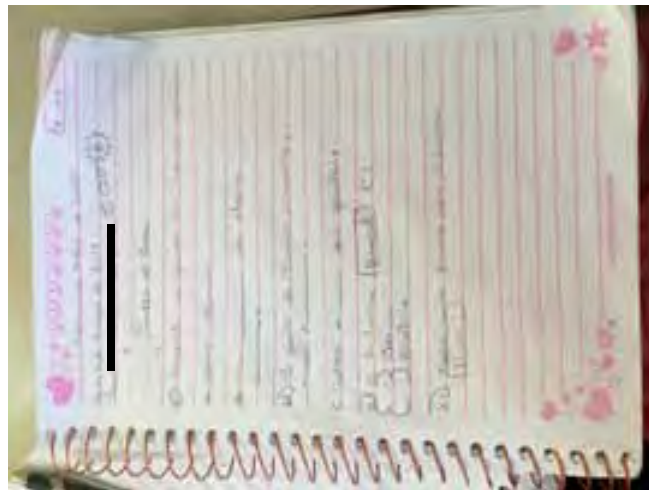
CB0404 - YAN



CB0602 - FERNANDA



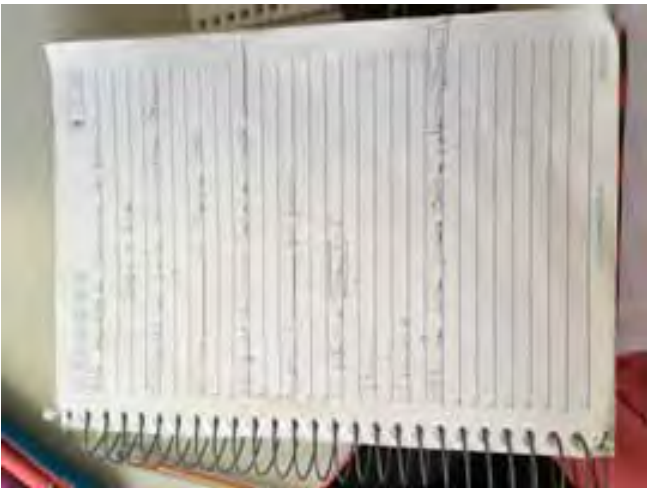
CB0404 - NARA



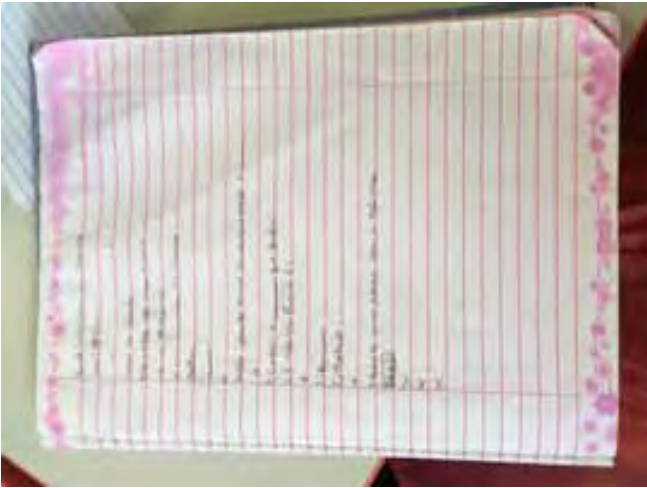
CB0602 - JÉSSICA



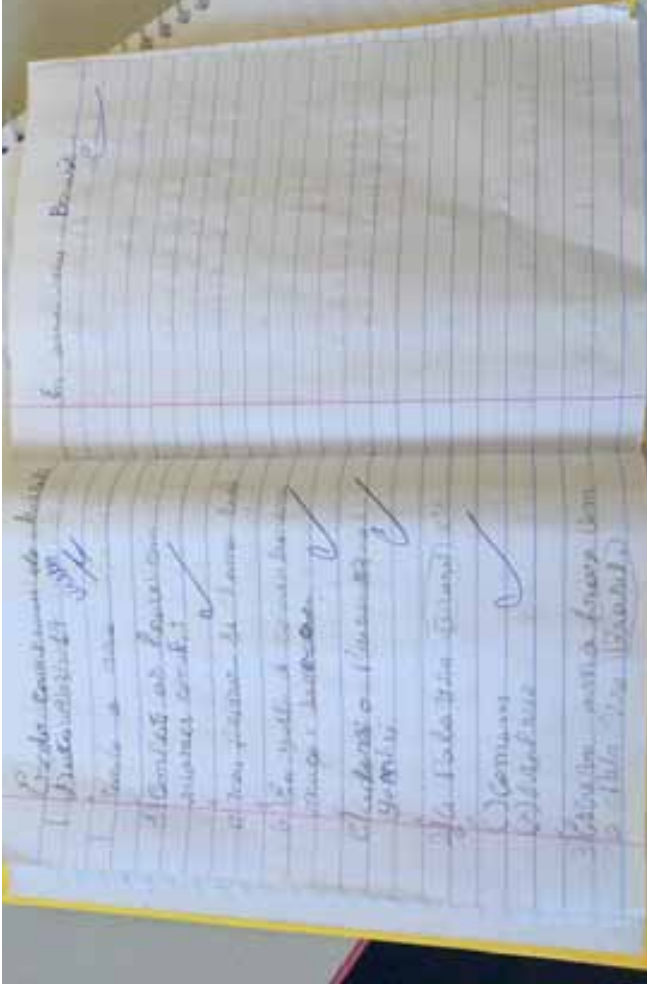
CB0602 - LÍDIA



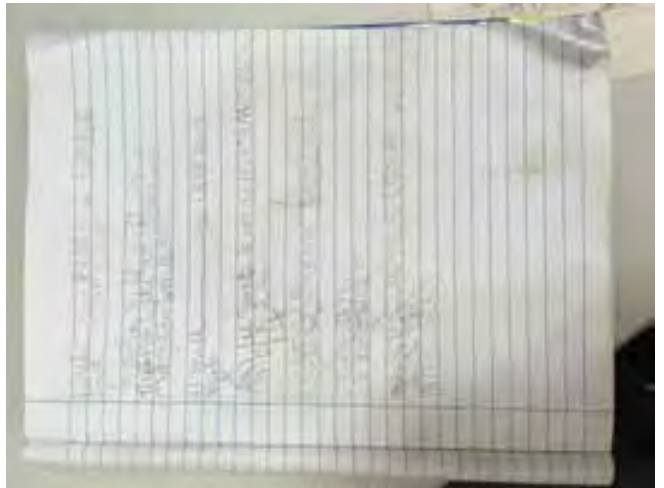
CB0602 - YAN



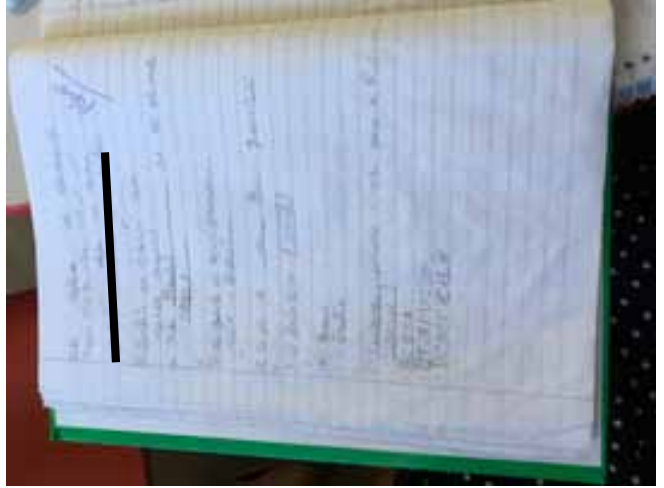
CB0602 - TAINÁ



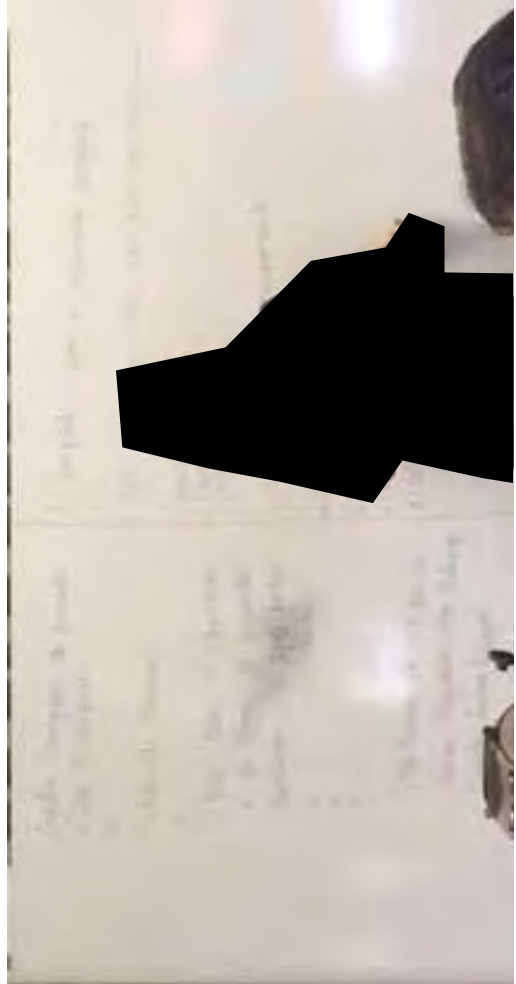
CB0602 - MALU



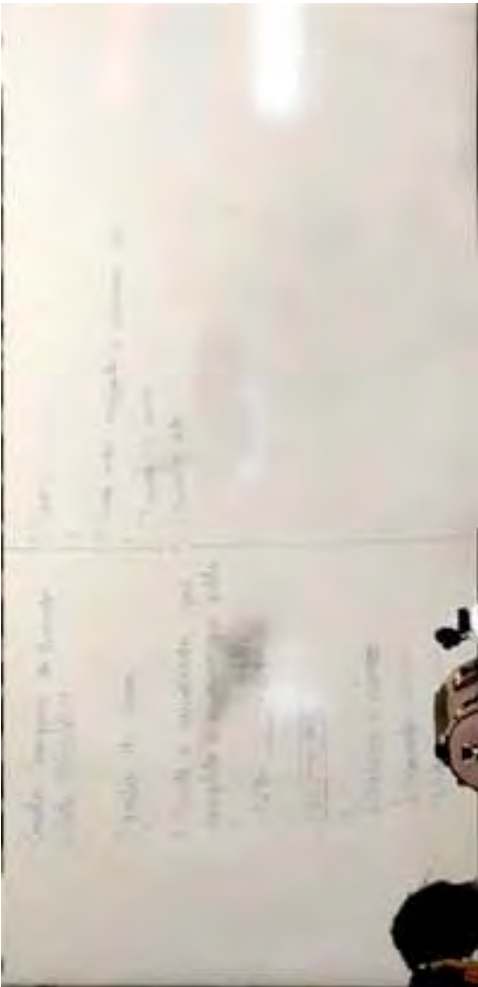
CB0602 - WAGNER



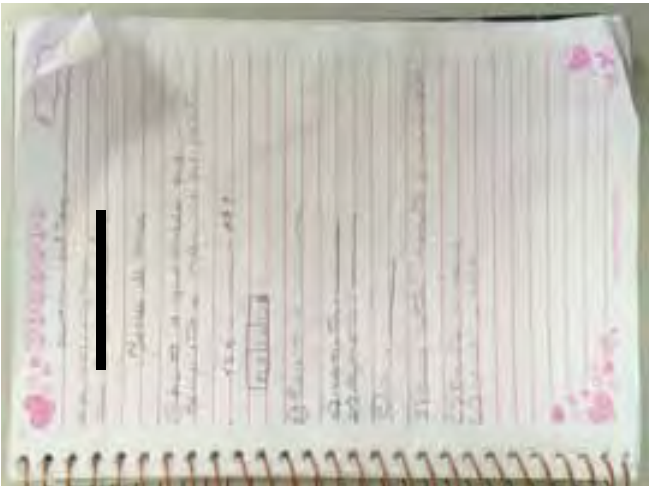
CB0602 - NARA



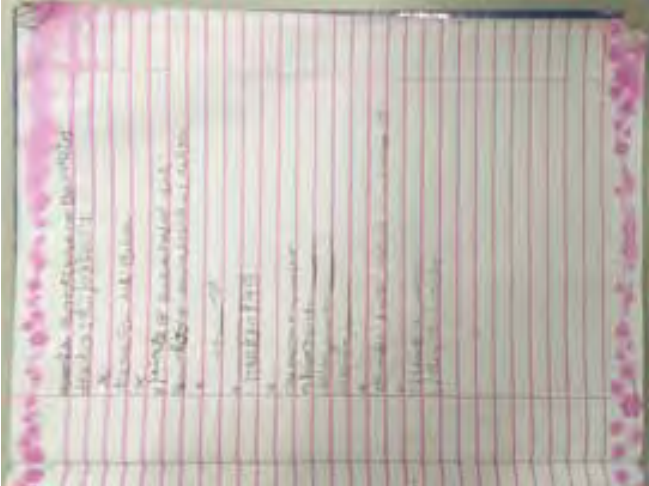
CB0702 - FERNANDA



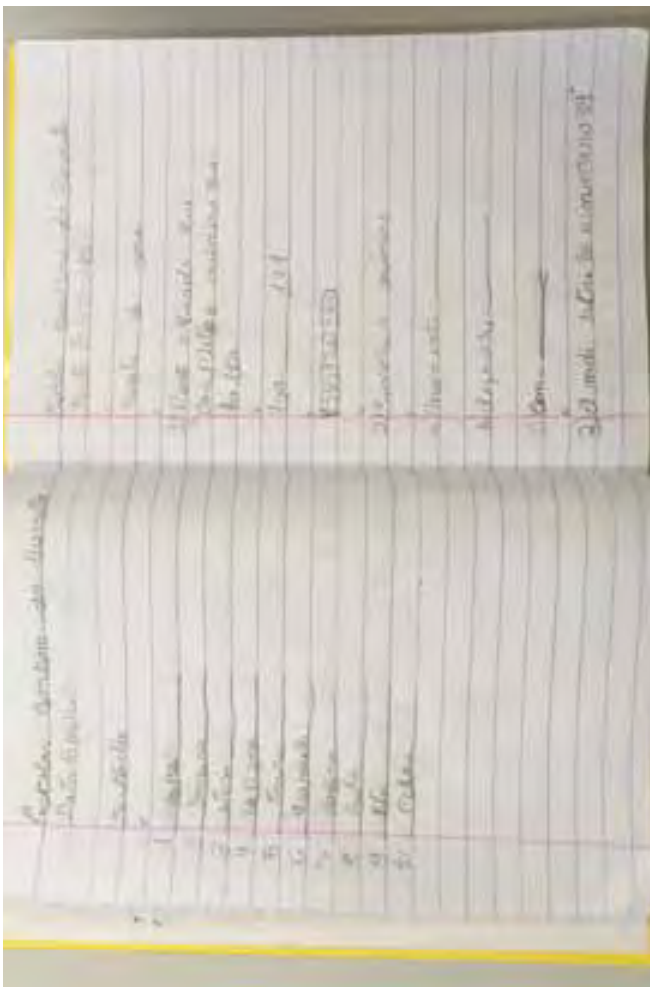
CB0704 - FERNANDA



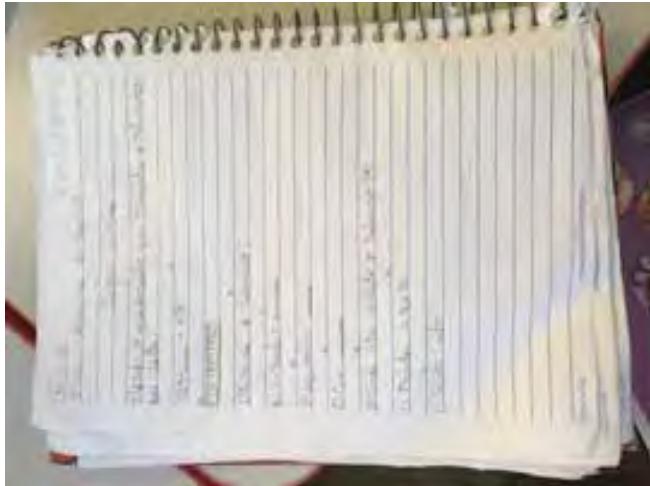
CB0704 - JÉSSICA



CB0704 - TERESA



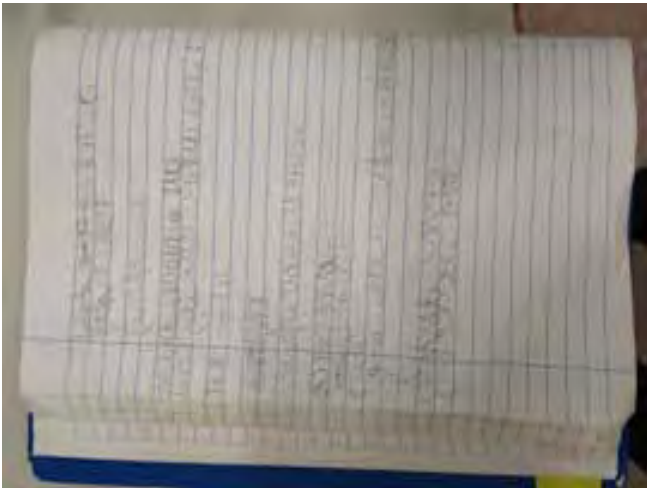
CB0704 - MALU



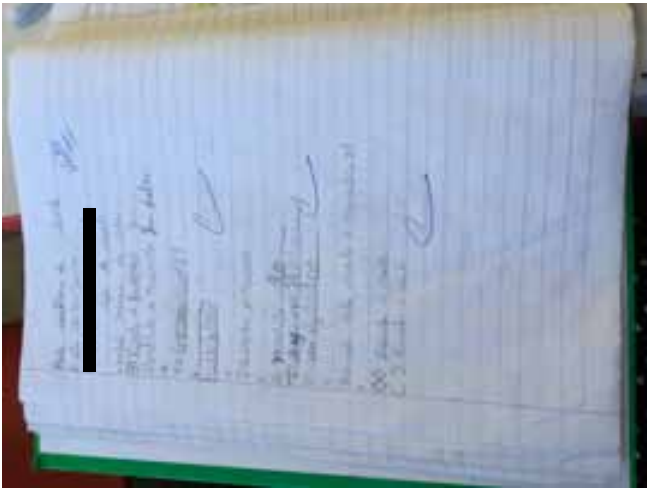
CB0704 - YAN



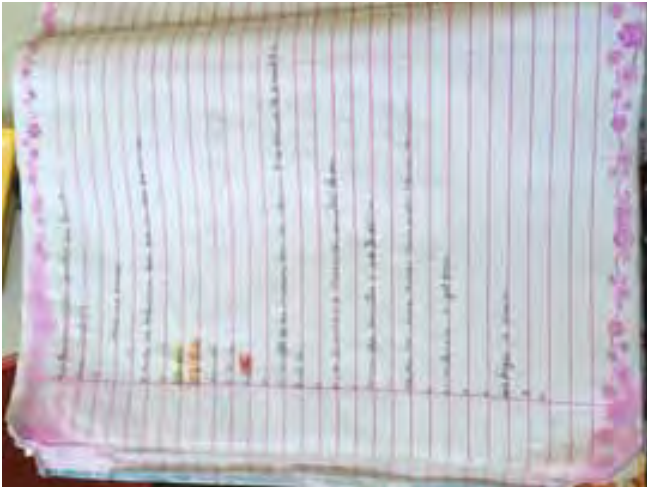
CB0704 - LÍDIA



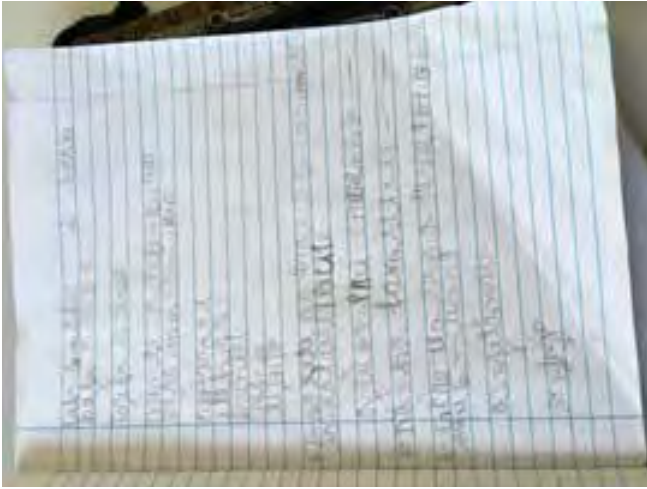
CB0704 - WAGNER



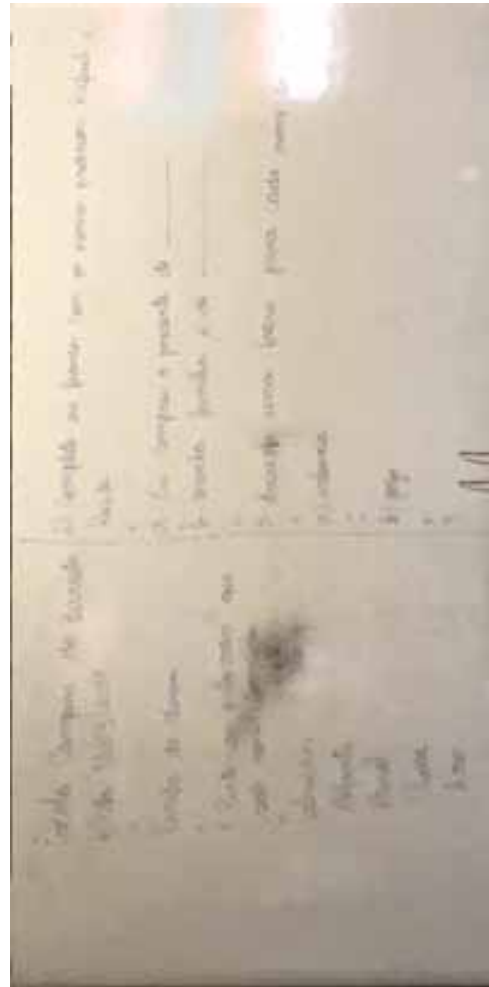
CB0704 - NARA



CB0802 - TERESA



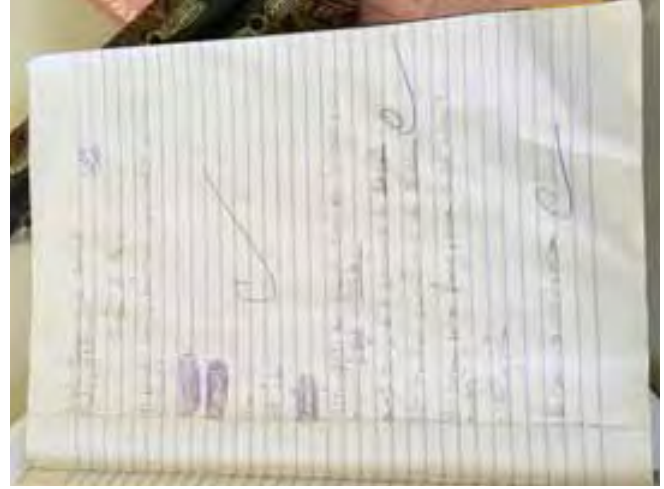
CB0802 - WAGNER



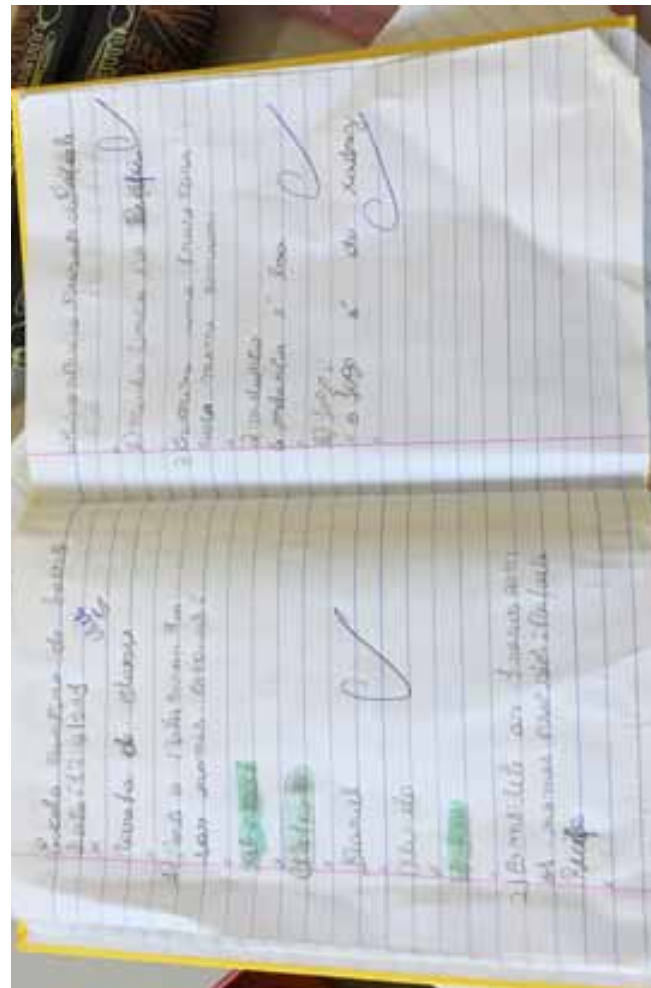
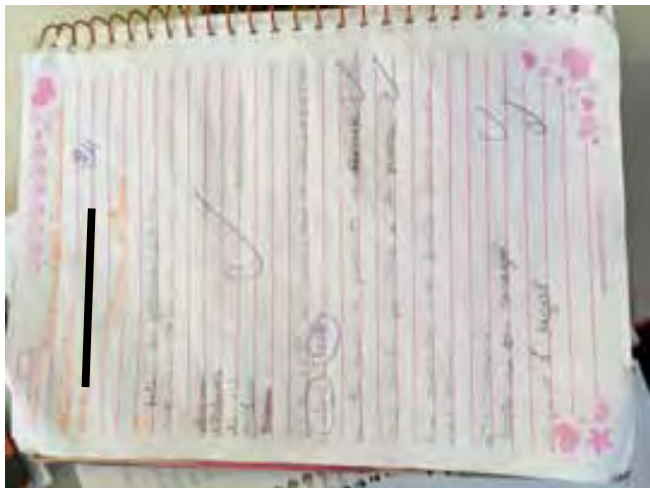
CB0802 - FERNANDA

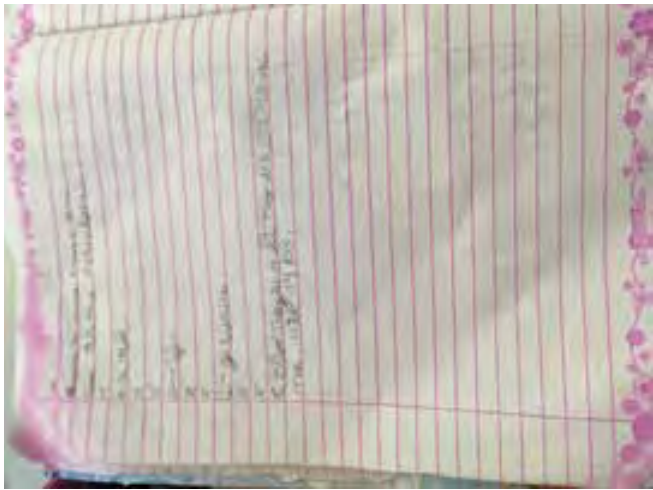


CB0802 - LÍDIA



CB0802 - YAN-1





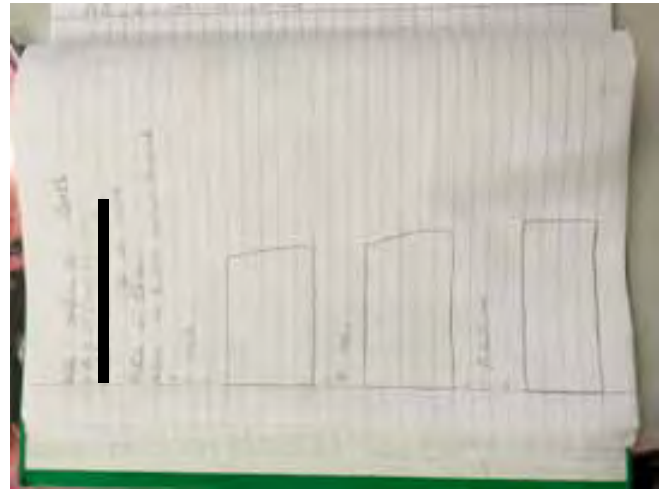
CB0803 - TERESA-2



CB0803 - NARA-2



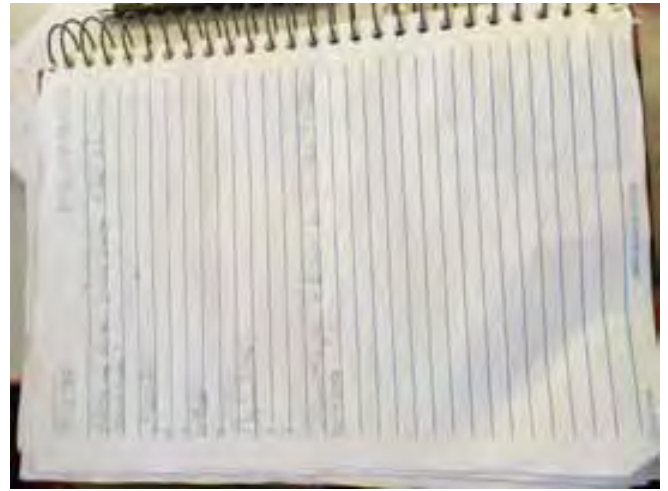
CB0803 - TERESA-1



CB0803 - NARA-1



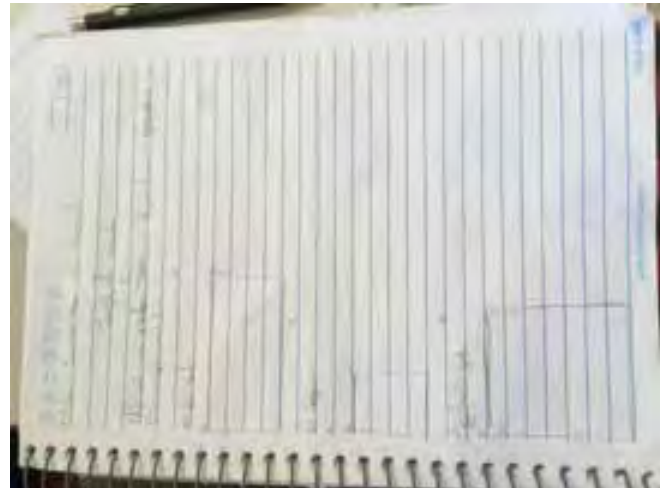
CB0803 - LIDIA-2



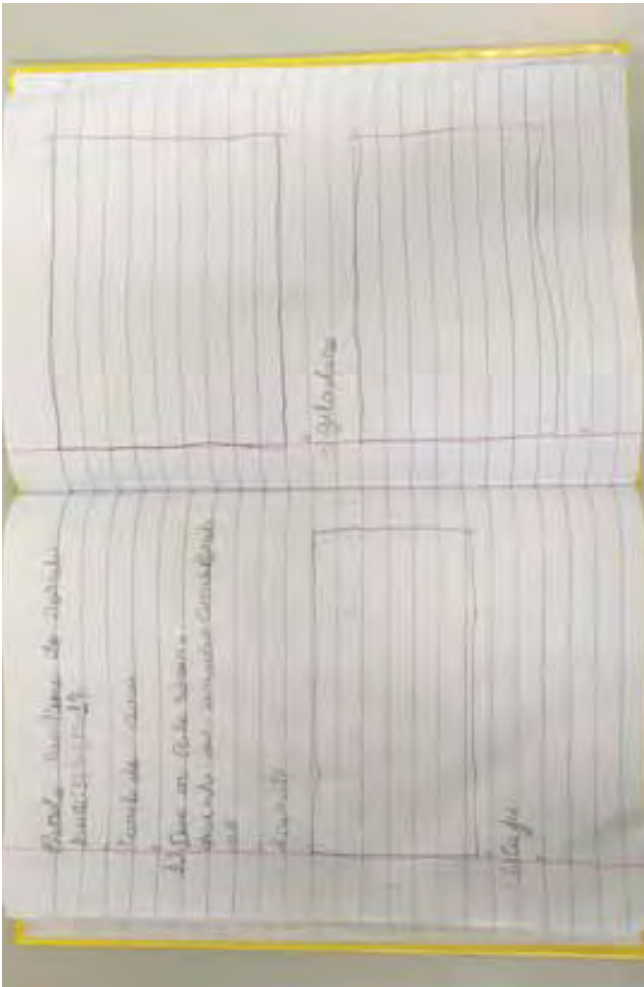
CB0803 - YAN-2



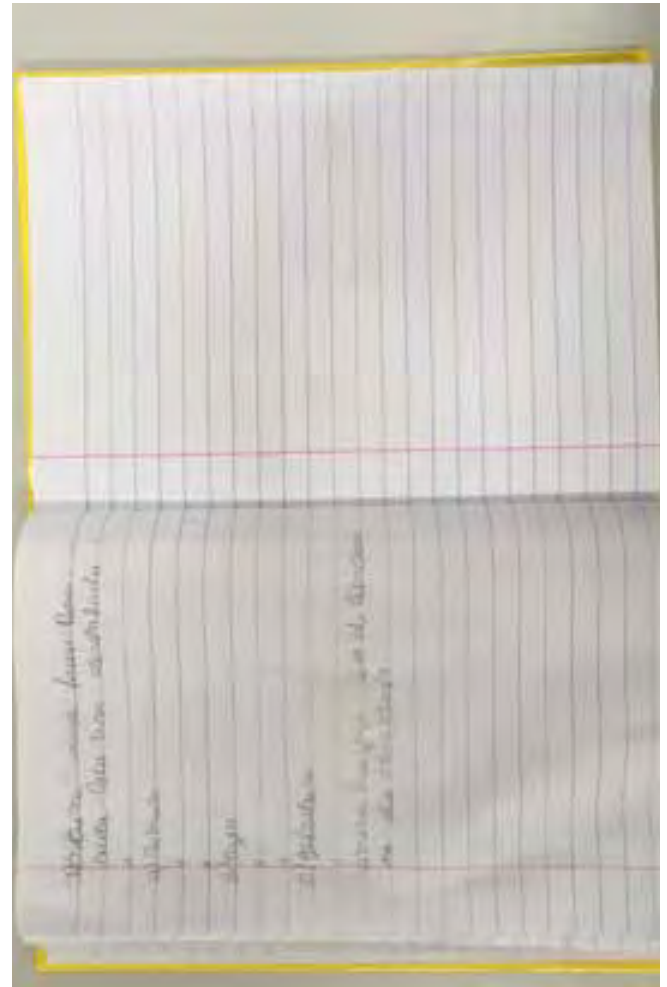
CB0803 - LIDIA-1



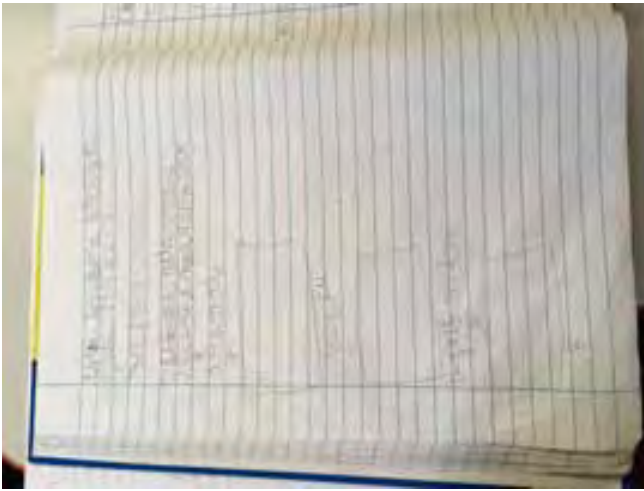
CB0803 - YAN-1



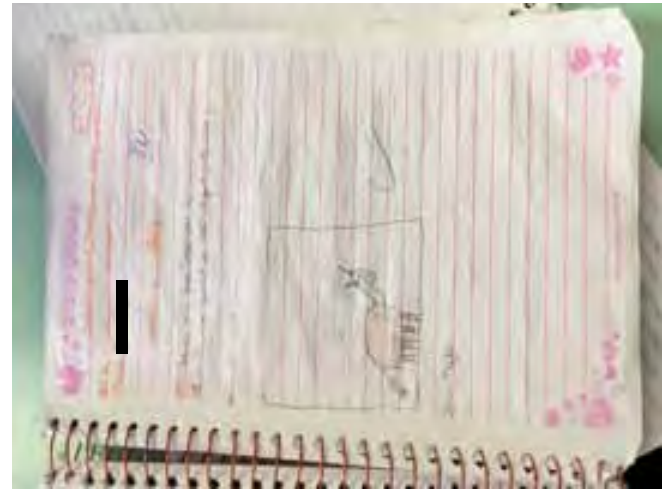
CB0803 - MALU-1



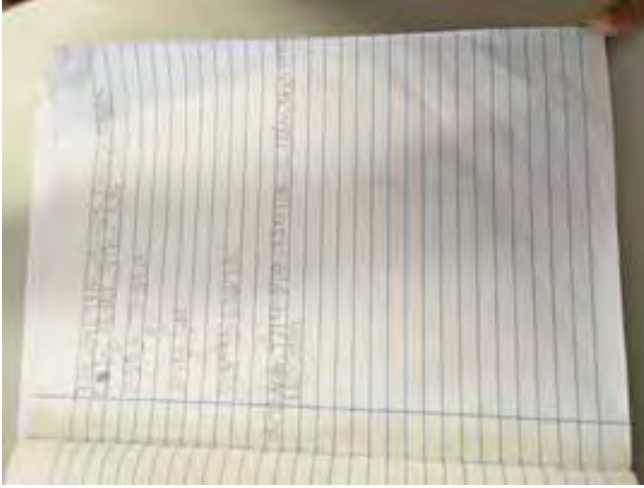
CB0803 - MALU-2



CB0803 - WAGNER-1



CB0803 - JÉSSICA-1



CB0803 - WAGNER-2



CB0803 - JÉSSICA-2



CB0803 - JÉSSICA-3



CB0903 - MARCELO



CB0903 - NARA



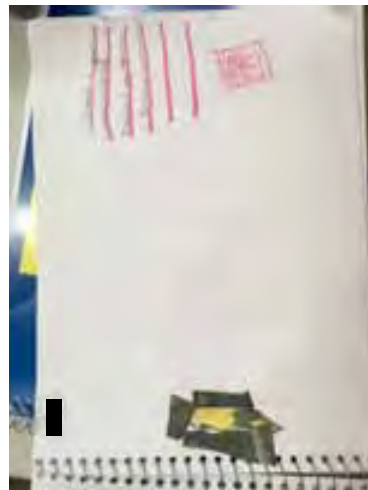
CB0903 - JÉSSICA



CB0903 - LÍDIA



CB0903 - MALU



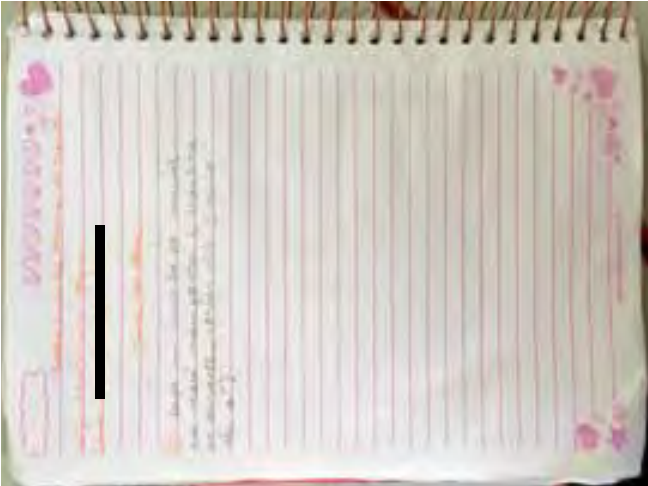
CB0903 - TERESA



CB0903 - YAN



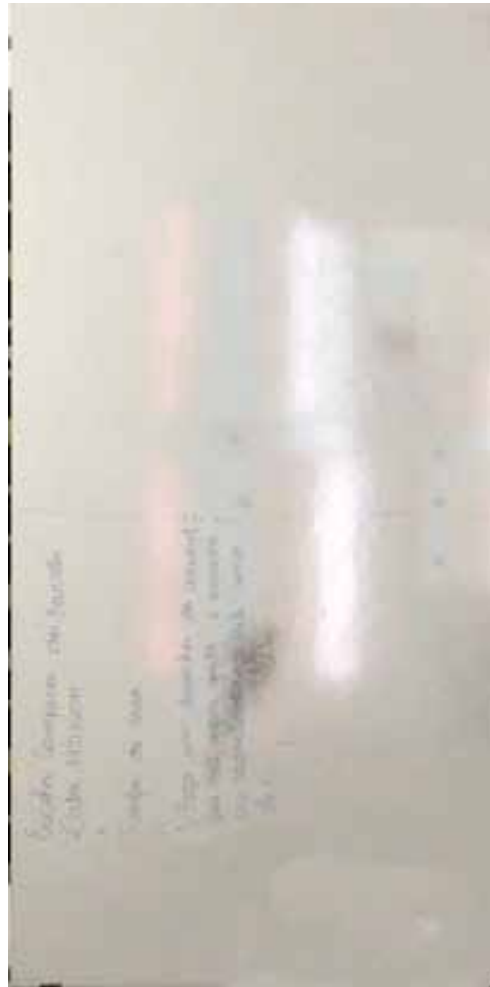
CB0903 - WAGNER



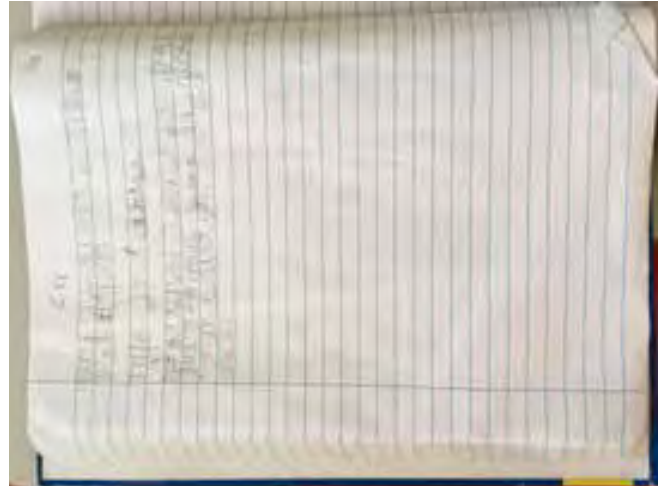
CB0904 - JÉSSICA



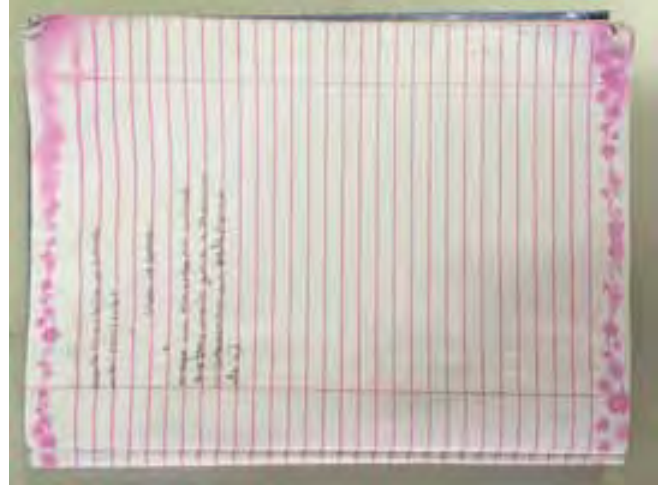
CB0904 - LÍDIA



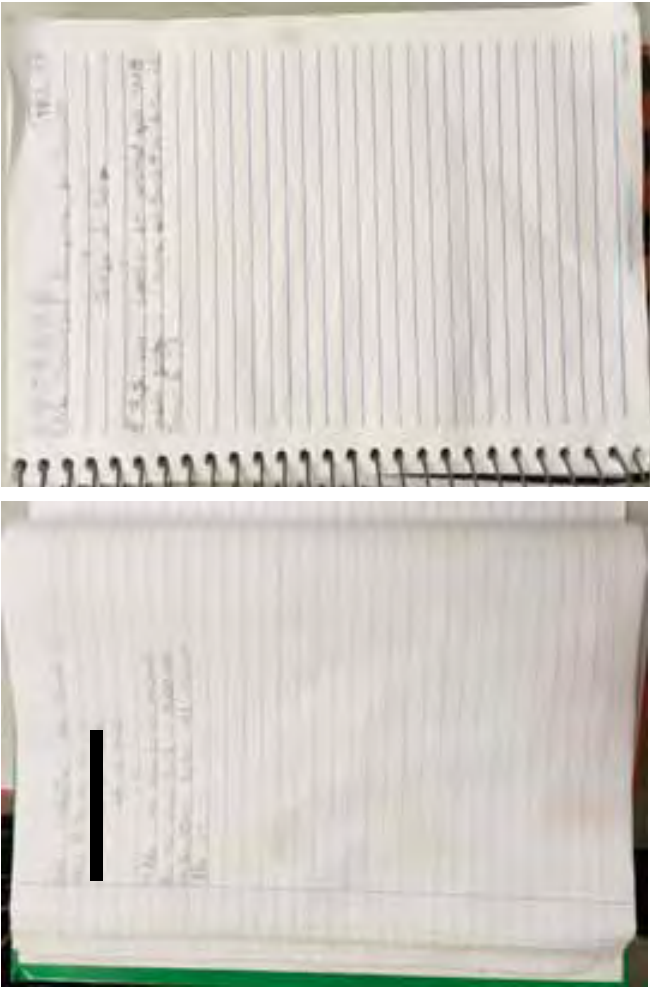
CB0904 - FERNANDA



CB0904 - WAGNER



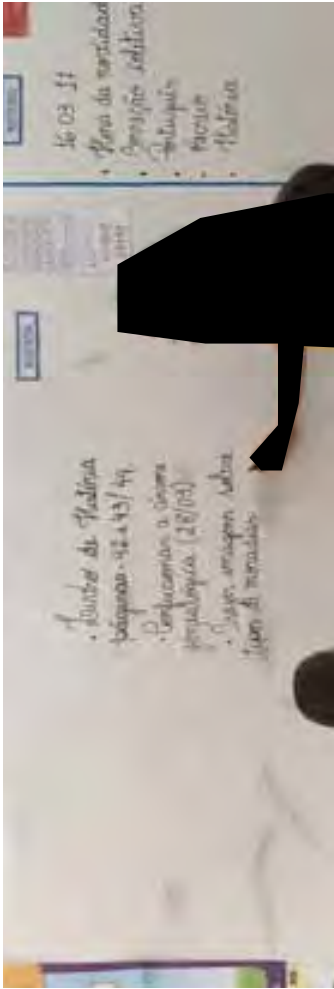
CB0904 - TERESA



CB0904 - NARA

CB0904 - YAN

Class 3 Arco-Íris School [AI]



AJ0105 - LUCILA



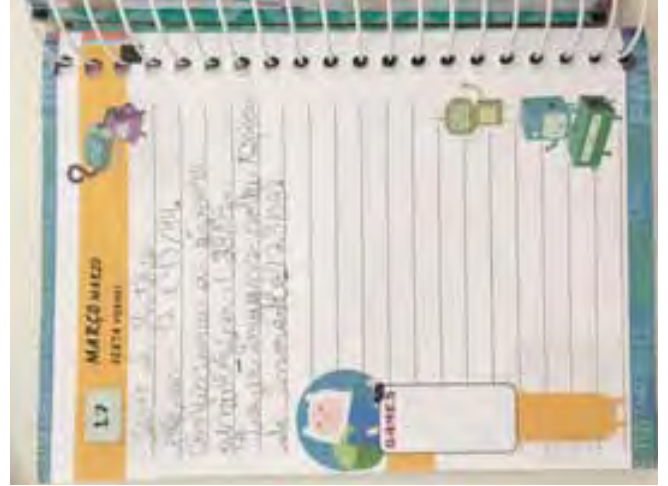
A10105 - CIRO



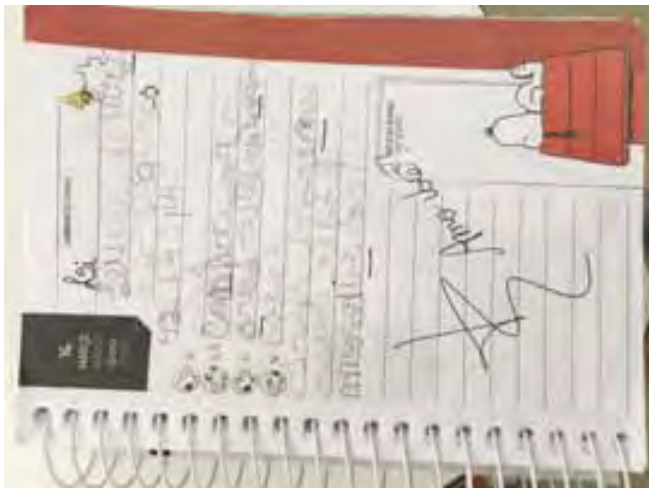
A10105 - ITALO



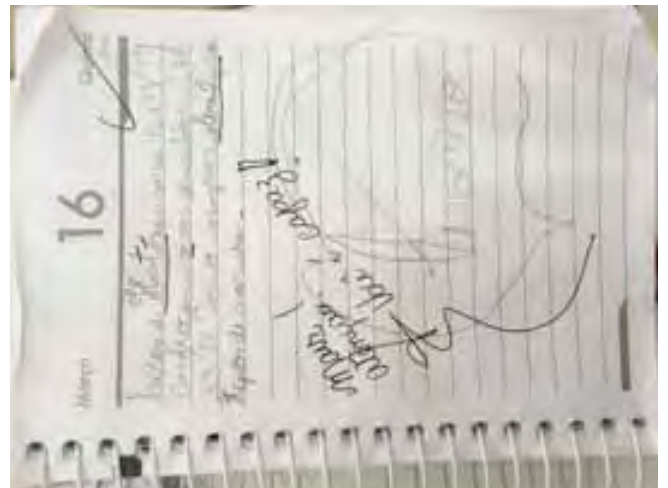
A10105 - BENJAMIN



A10105 - BENICIO



A10105 - DANILO



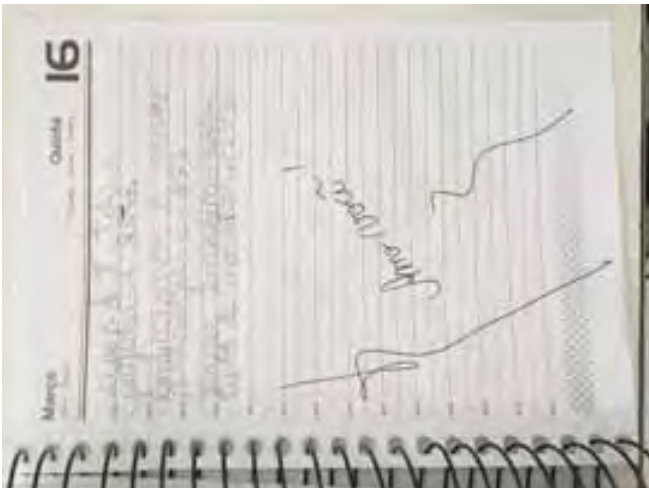
A10105 - VICENTE



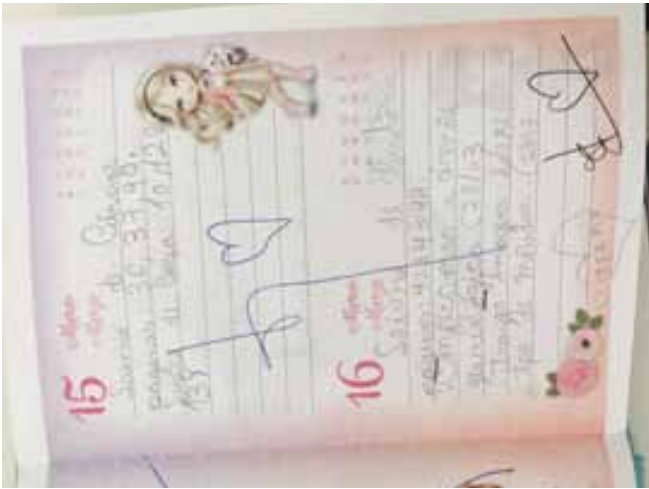
A10105 - DIEGO



A10105 - LAURA



AI0105 - GEORGE



AI0105 - CÉLIA



AI0205 - LUCILA



AI0105 - HÉLIDA



AI0205 - CIRO



AI0205 - VICENTE



A10205 - GEORGE



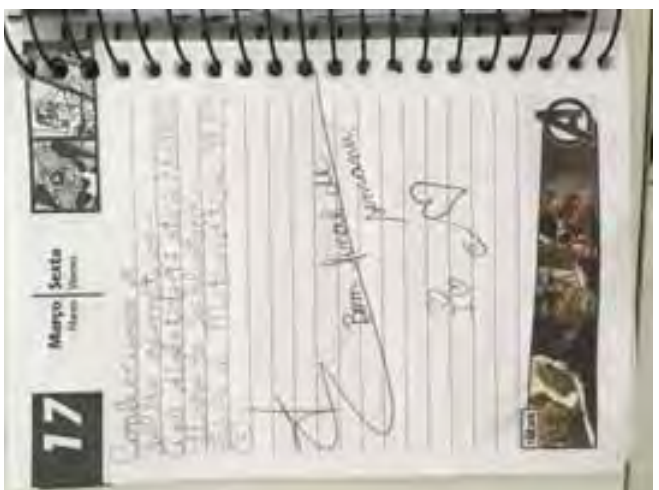
A10205 - HÉLIDA



A10205 - LAURA



A10205 - CÉLIA



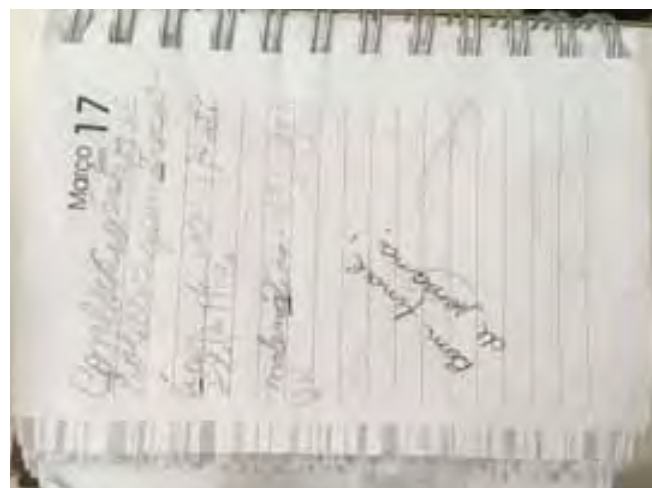
A10205 - ÍTALO



A10205 - DANILO



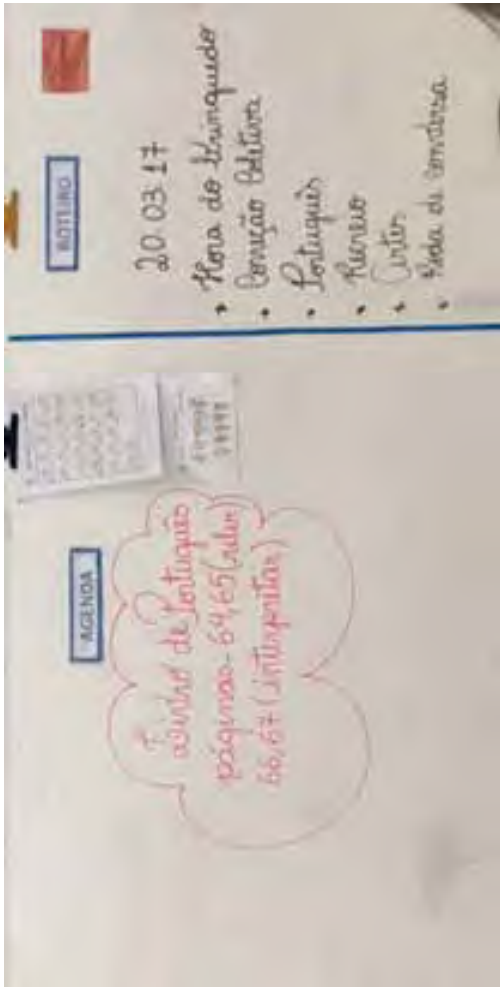
A10205 - BENÍCIO



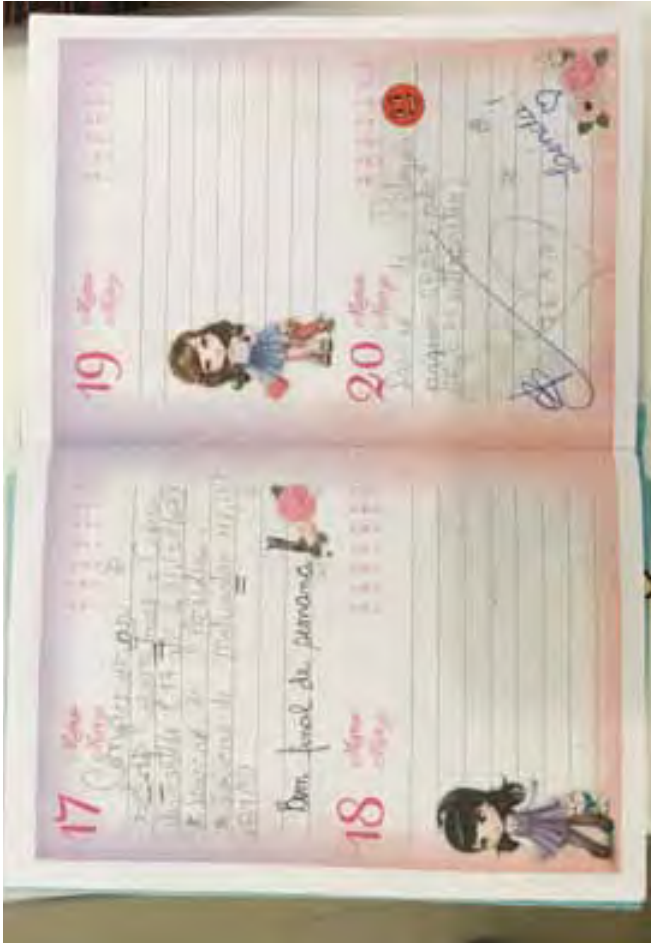
A10205 - DIEGO



AI0205 - BENÍCIO



AI0304 - LUCILA



AI0304 - CÉLIA



AI0304 - LAURA



AI0304 - GEORGE



A10304 - BENÍCIO



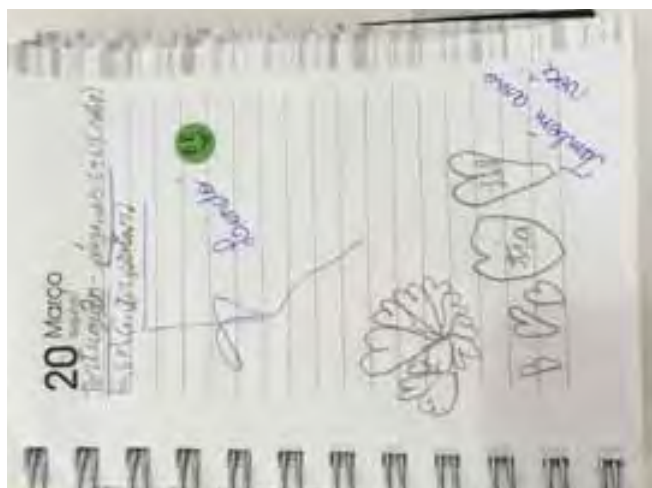
A10304 - CIRO



A10304 - HÉLIDA



A10304 - EVERALDO



A10304 - DIEGO



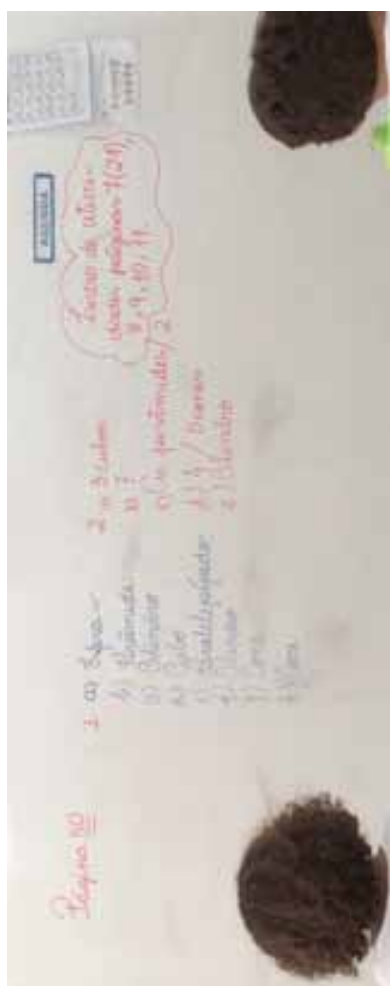
A10304 - VICENTE



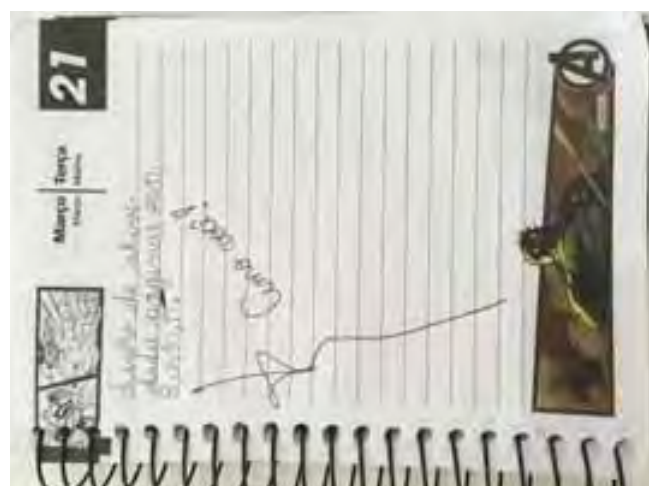
A10304 - ÍTALO



A10304 - BENJAMIN



AI0404 - LUCILA



AI0404 - DIEGO

AI0404 - LAURA

AI0404 - ÍTALO

AI0404 - BENÍCIO

AI0404 - CIRO

AI0404 - BENJAMIN



AI0404 - VICENTE



AI0404 - EVERALDO



AI0404 - CÉLIA



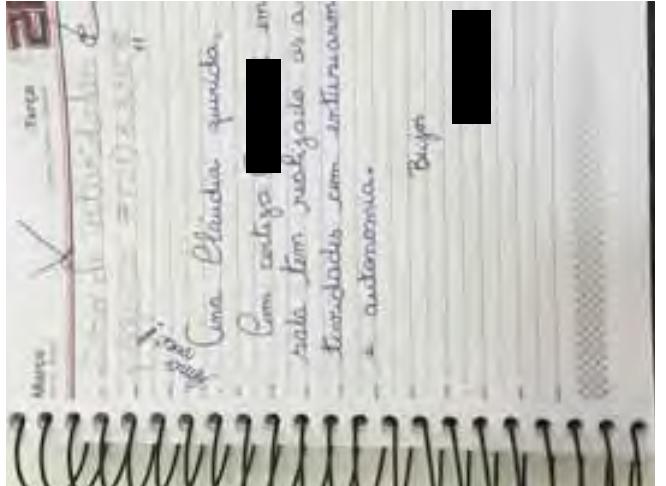
AI0405 - DIEGO



AI0405 - CIRO



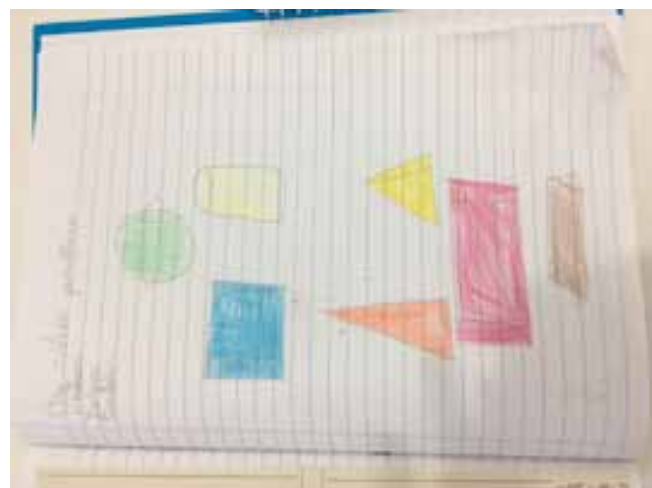
AI0404 - HÉLIDA



AI0404 - GEORGE



A10405 - HÉLIDA



A10405 - CÉLIA



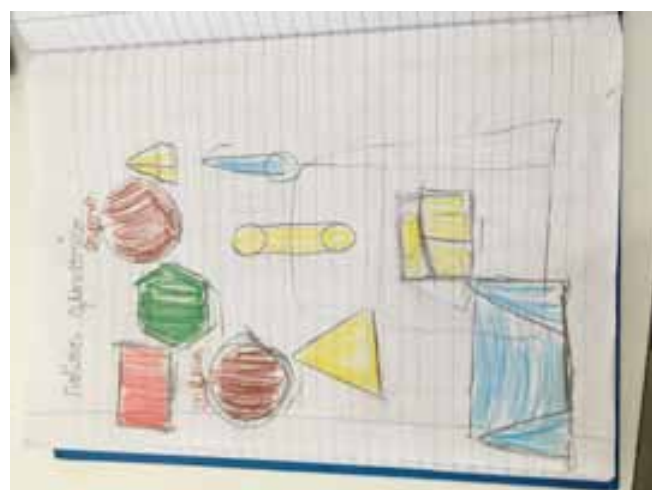
A10405 - BENJAMIN



A10405 - LAURA



A10405 - BENÍCIO



A10405 - EVERALDO



A10405 - GEORGE



A10405 - ÍTALO



A10505 - LUCILA



A10505 - BENÍCIO



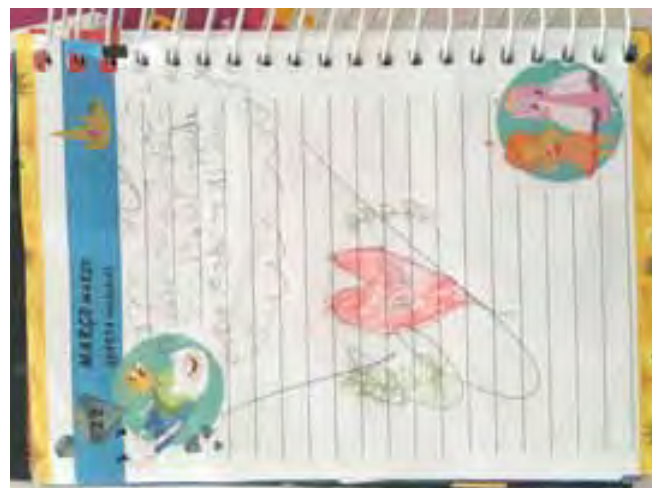
A10505 - HÉLIDA



A10505 - CIRO



A10505 - ÍTALO



A10505 - BENJAMIN



A10505 - EVERALDO

Os dias de tratamento para todas as crianças na fase 1 serão 26, 29 e 30

22 Março
Inglês para a Lúcia

Cartão de matrícula
Cobrança de mensalidades

Comunicado ao
pai/mãe




AT0505 - DIEGO

22 Março

Cartão de matrícula
Cobrança de mensalidades

Comunicado ao
pai/mãe



AT0505 - VICENTE

22 Março

Cartão de matrícula
Cobrança de mensalidades



AT0505 - GEORGE

Página 68

Depoimento


Manejar e
produzir

10 linhas

Título:
Luz


AT0605 - LUCILA

Depoimento

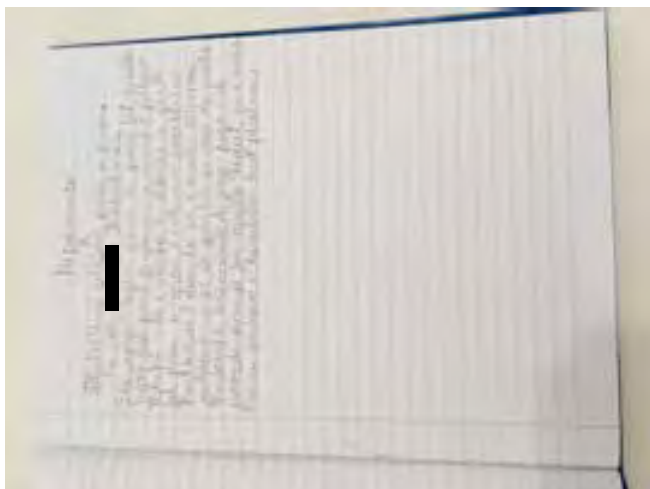


AT0605 - CÉLIA

Depoimento



AT0605 - DIEGO



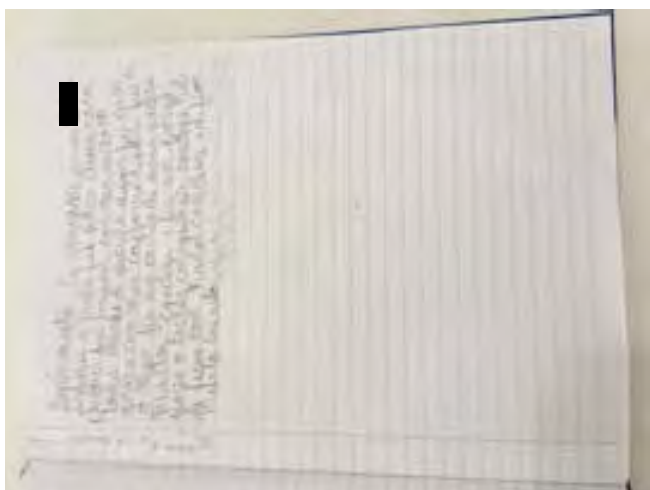
A10605 - LAURA



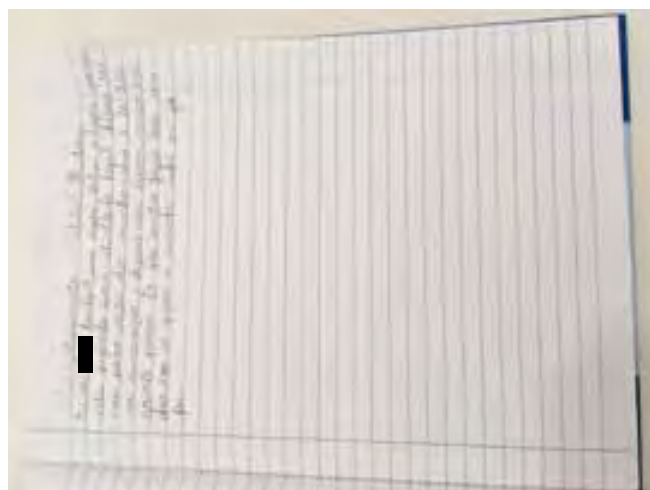
A10605 - BENÍCIO



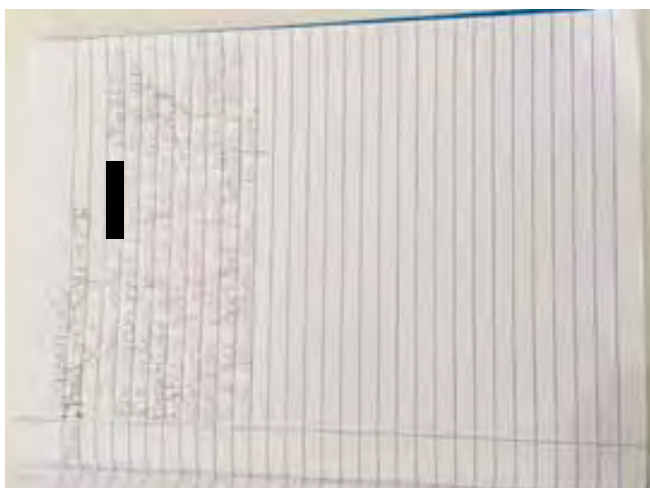
A10605 - HÉLIDA



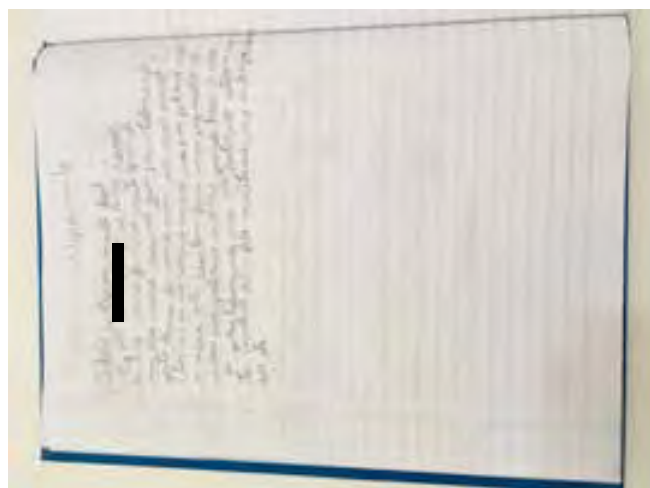
A10605 - CIRO



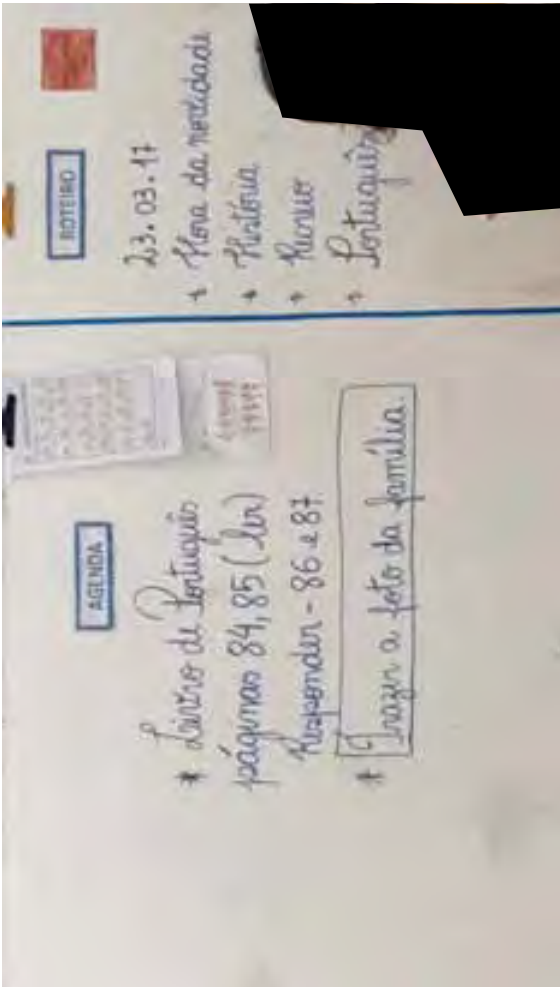
A10605 - ÍTALO



A10605 - GEORGE



A10605 - VICENTE



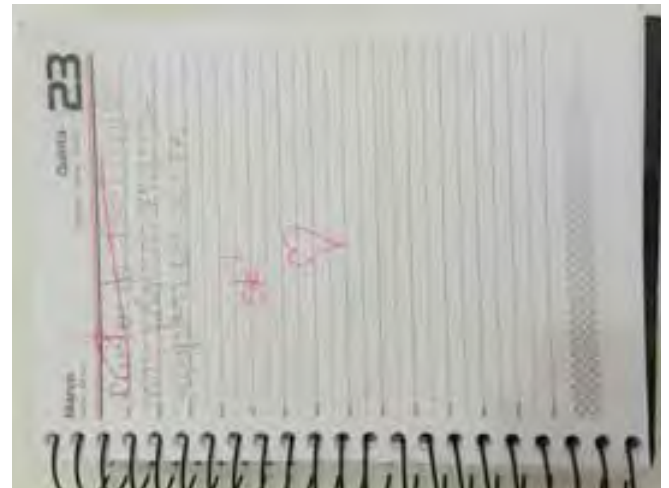
A10606 - LUCILA



A10606 - BENÍCIO



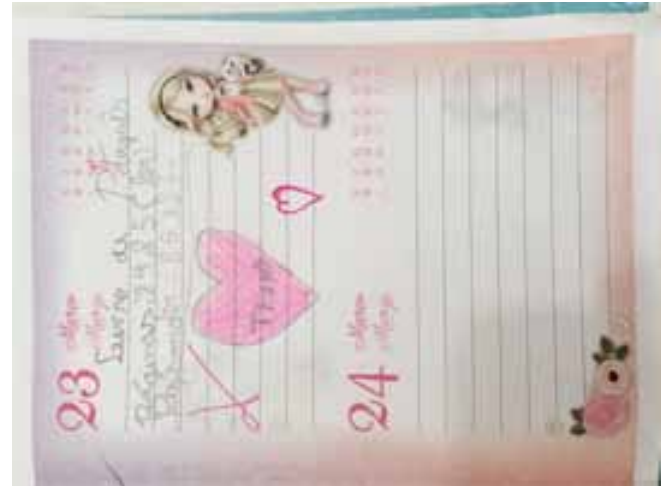
A10606 - EVERALDO



A10606 - GEORGE



A10606 - CIRO



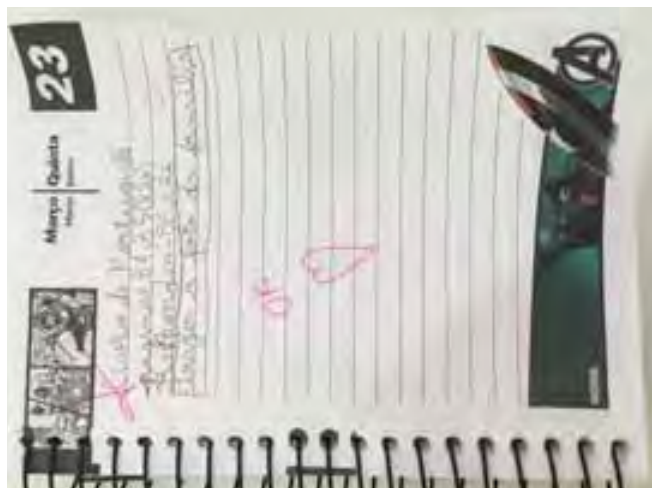
A10606 - CÉLIA



A10606 - LAURA



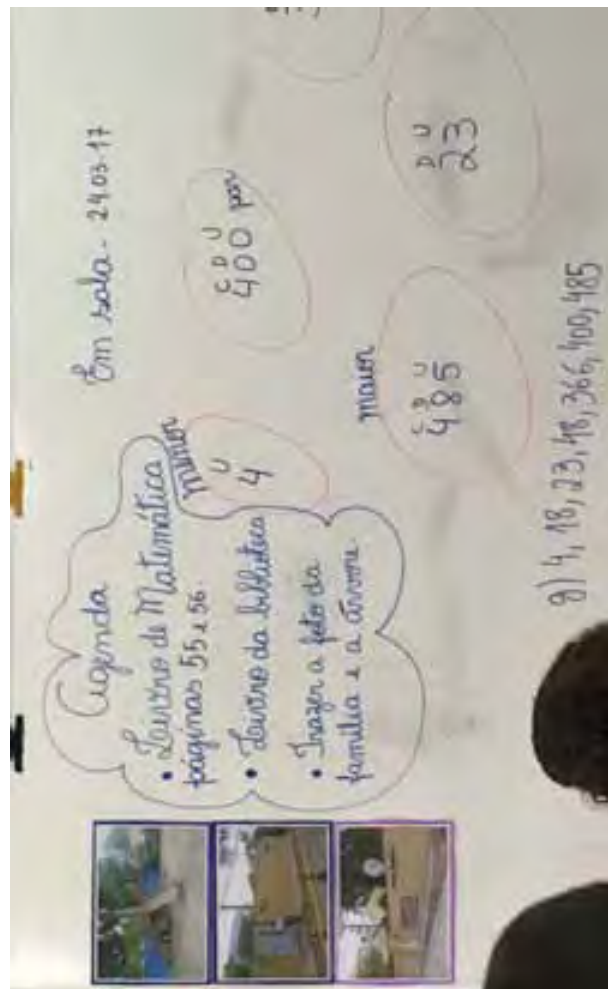
A10606 - HÉLIDA



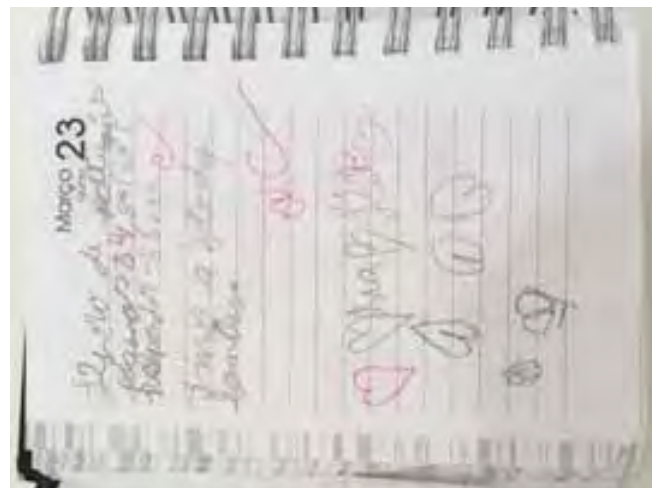
A10606 - ITALO



A10606 - VICENTE



A10706 - LUCILA



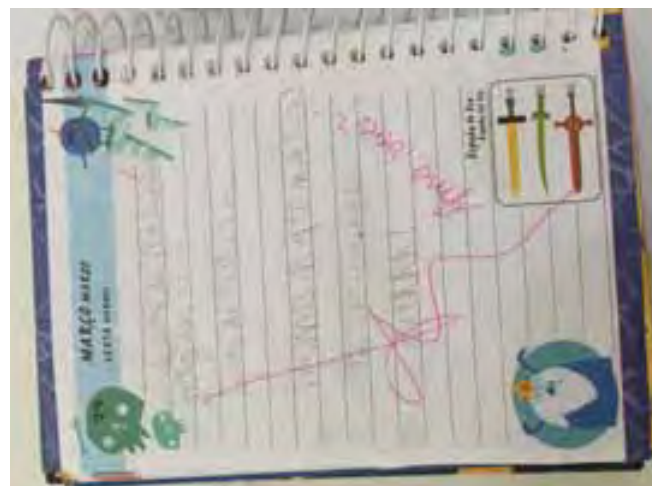
A10606 - DIEGO



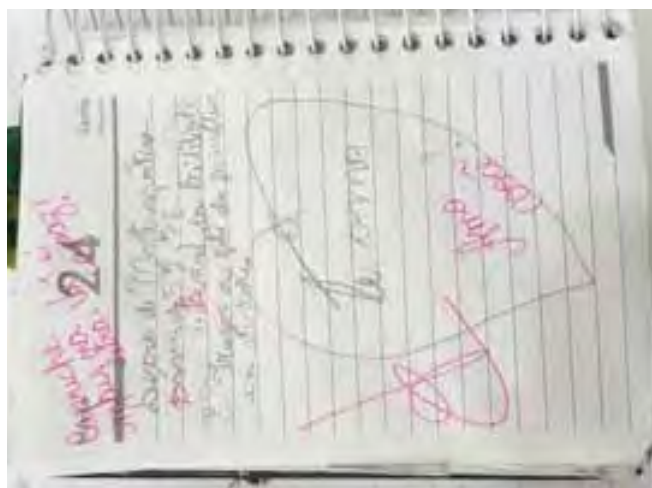
A10606 - BENJAMIN



A10706 - GEORGE



A10706 - BENJAMIN



A10706 - VICENTE



A10706 - BENÍCIO



A10706 - ÍTALO



A10706 - LAURA



A10706 - CIRO



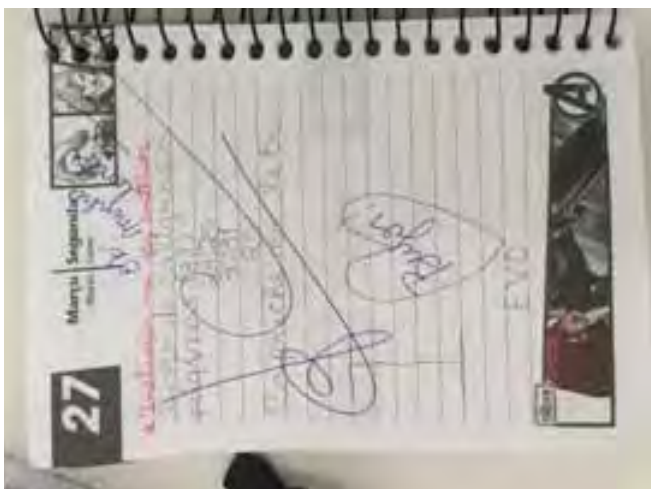
A10706 - DIEGO



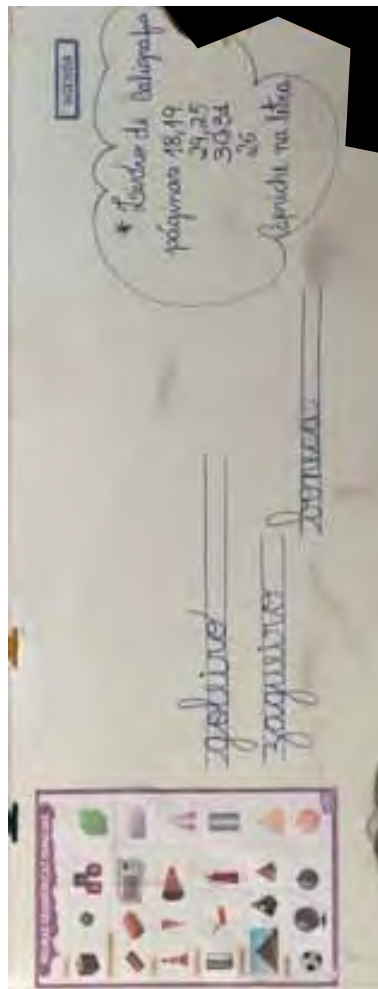
A10706 - HÉLIDA



A10807 - HÉLIDA



A10807 - ÍTALO



A10807 - LUCILA



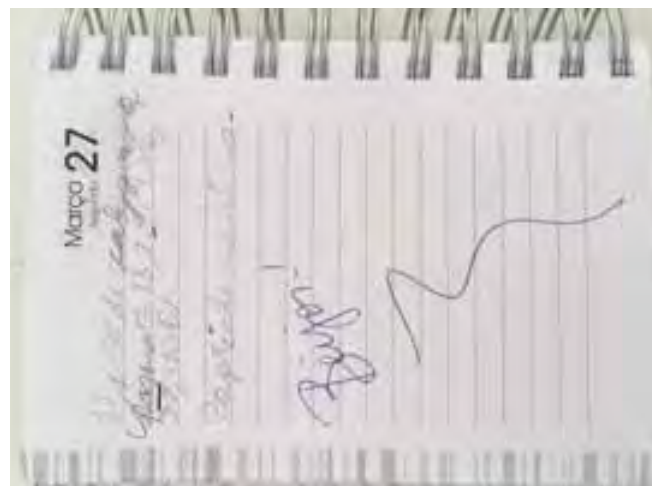
A10807 - EVERALDO



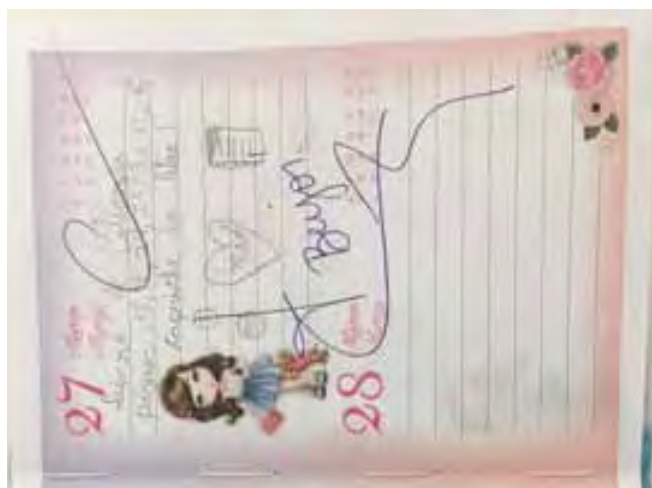
A10807 - CIRO



A10807 - DANILO



A10807 - DIEGO



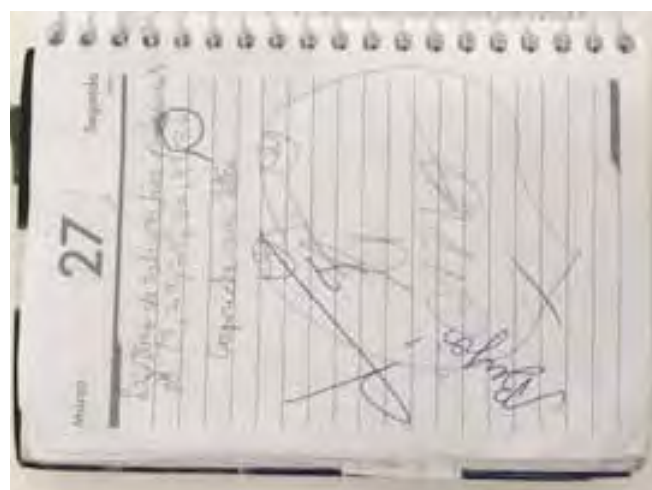
A10807 - CÉLIA



A10807 - BENJAMIN



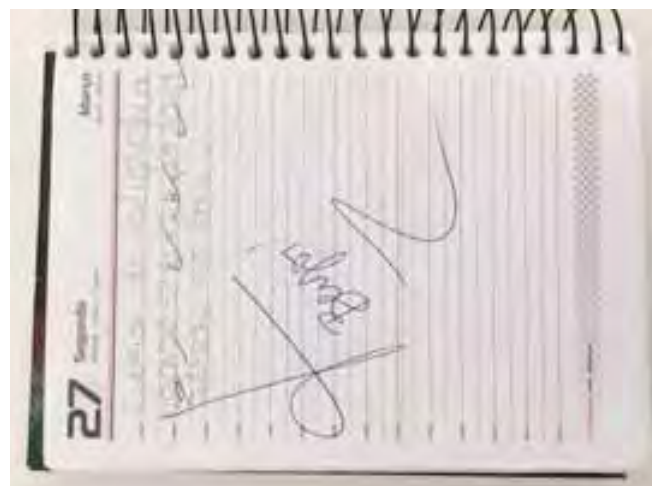
A10807 - LAURA



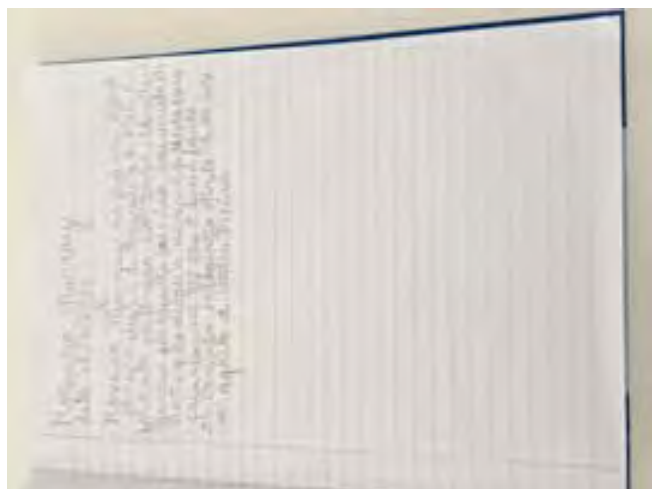
A10807 - VICENTE



A10807 - BENÍCIO



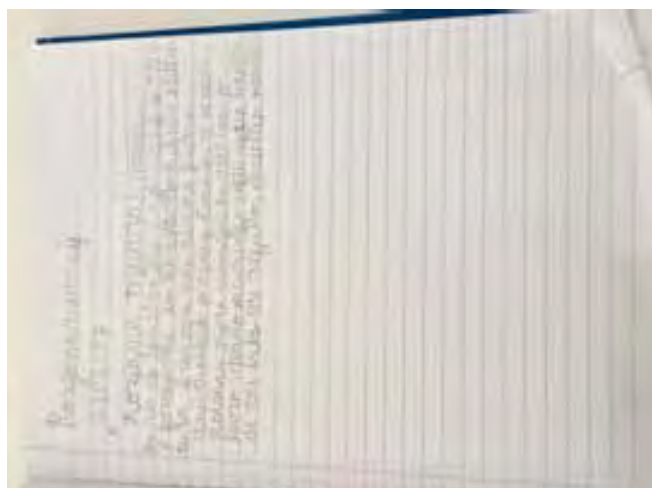
A10807 - GEORGE



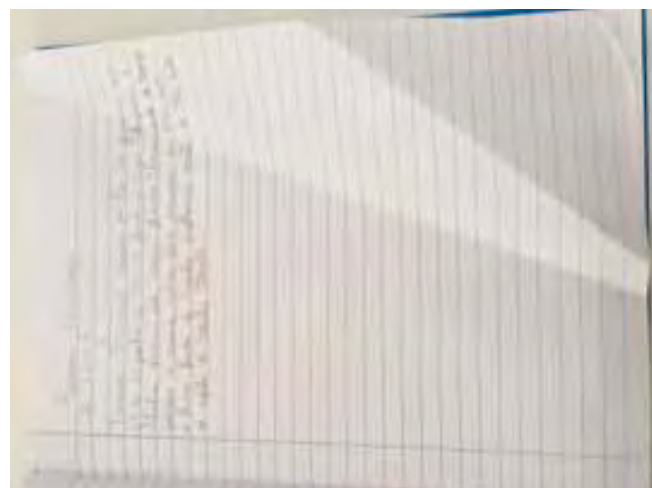
AI0903 - CIRO



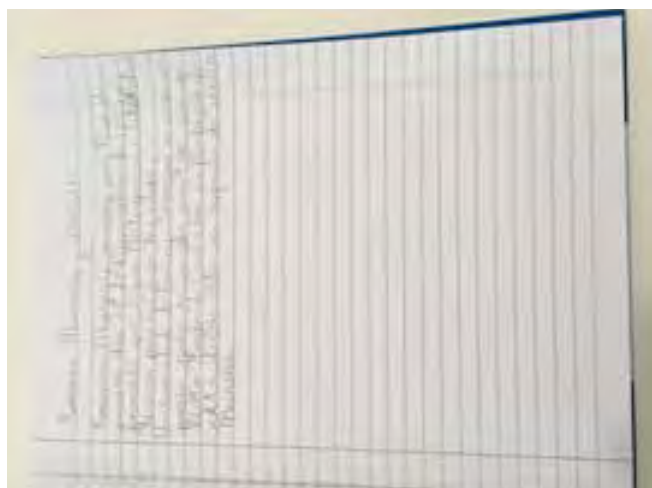
AI0903 - HÉLIDA



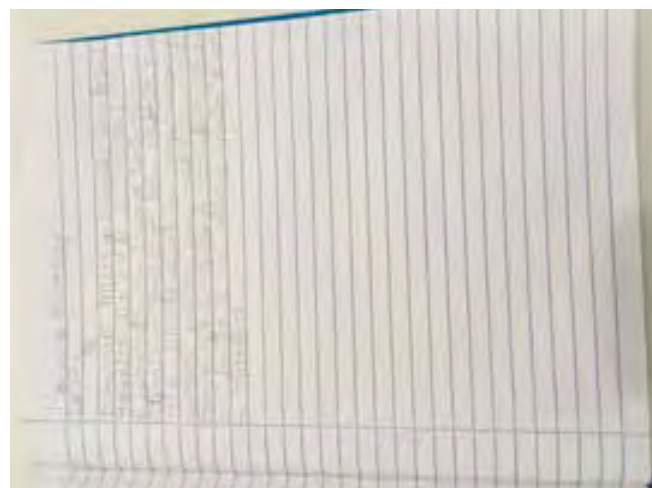
AI0903 - EVERALDO



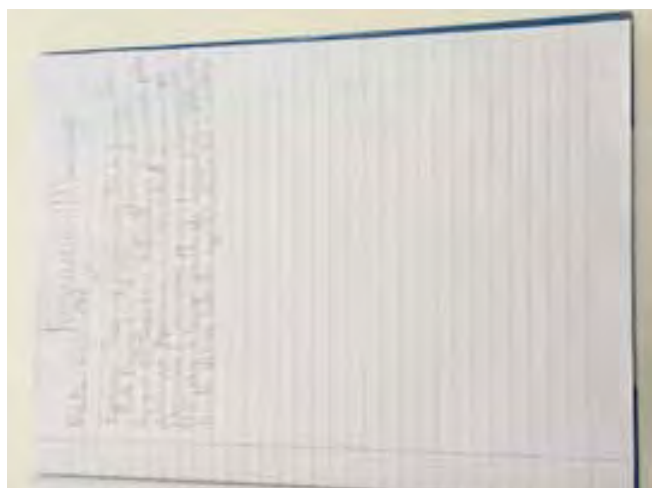
AI0903 - CÉLIA



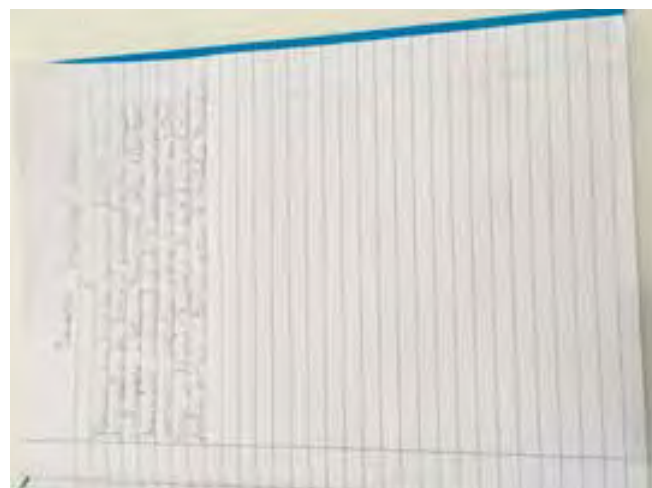
AI0903 - ÍTALO



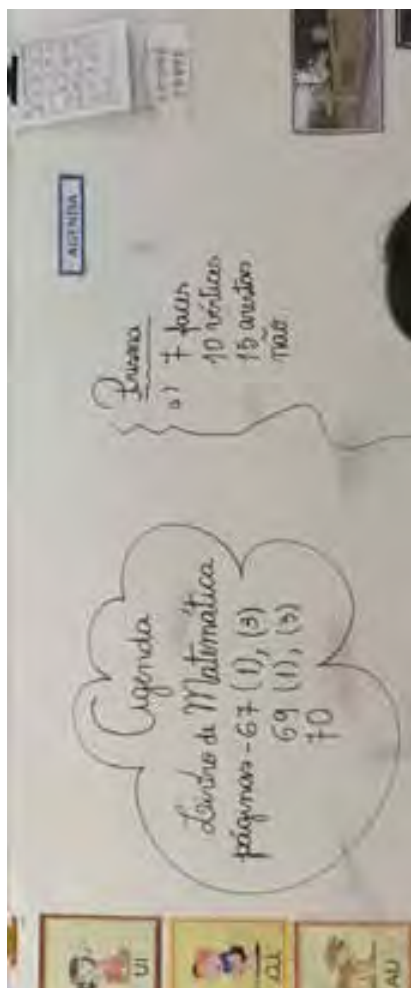
AI0903 - GEORGE



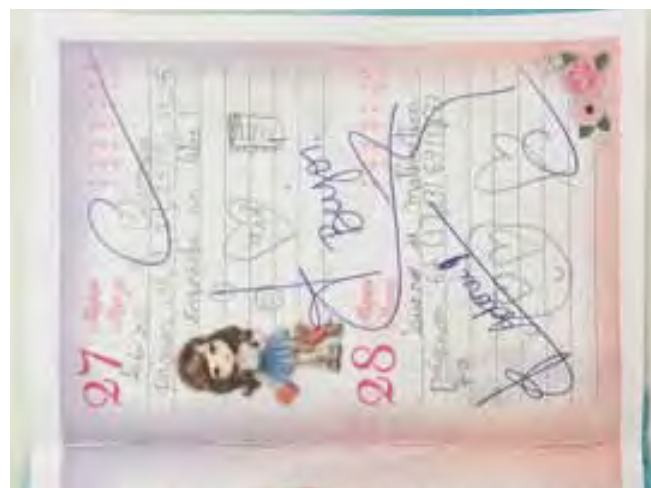
AI0903 - LAURA



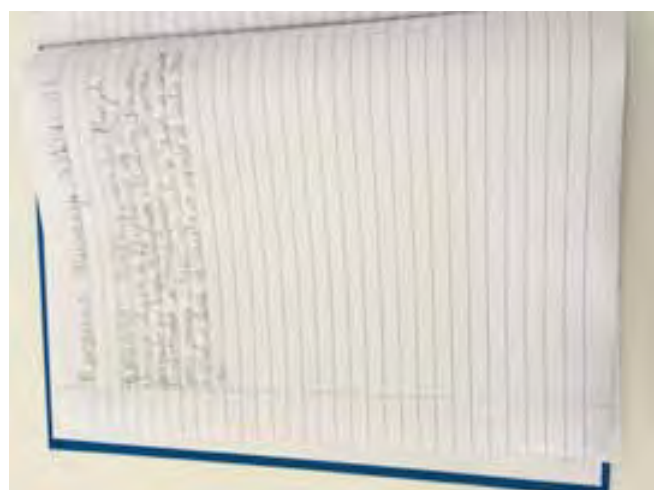
AI0903 - BENÍCIO



AI0905 - LUCILA



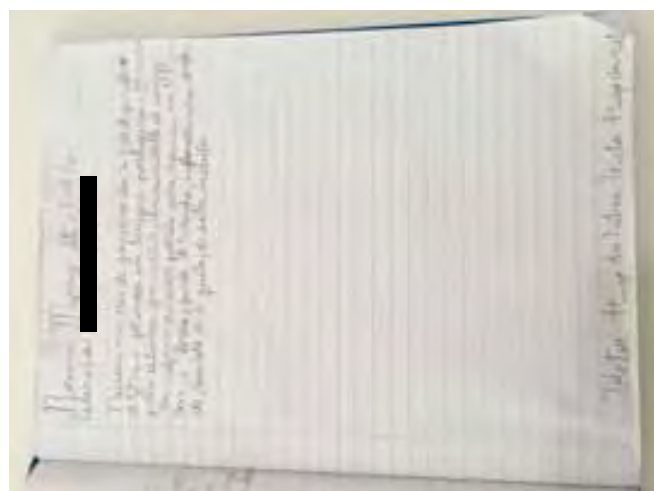
AI0905 - CÉLIA



AI0903 - DIEGO



AI0903 - DANILLO



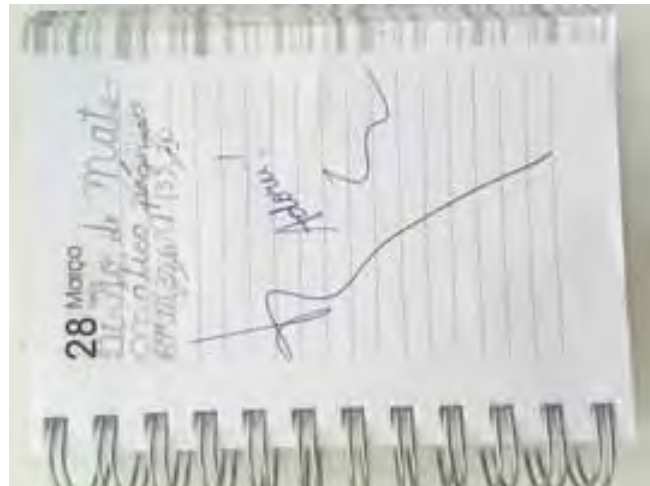
AI0903 - VICENTE



AI0903 - BENJAMIN



AI0905 - LAURA



AI0905 - DIEGO



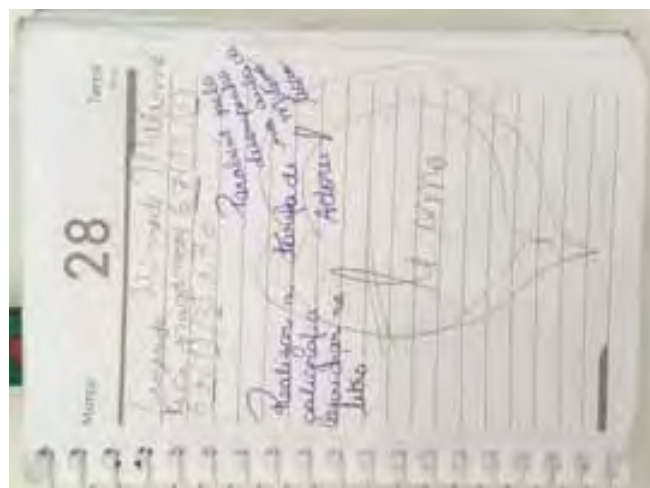
AI0905 - DANILO



AI0905 - GEORGE



AI0905 - CIRO



AI0905 - VICENTE



AI0905 - ÍTALO



AI0905 - BENJAMIN



AI0905 - HÉLIDA



AI1004 - BENÍCIO



AI1004 - DIEGO



AI1004 - LUCILA



AI1004 - CIRO



AI1004 - GEORGE



AT1004 - LAURA



AT1004 - BENJAMIN



AT1004 - EVERALDO



AT1004 - VICENTE



AT1004 - DIEGO



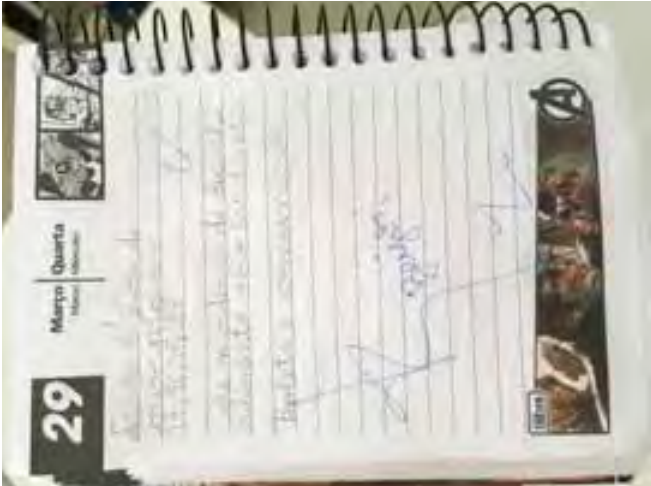
AT1004 - GEORGE



AT1004 - BENÍCIO



AT1004 - CÍRO



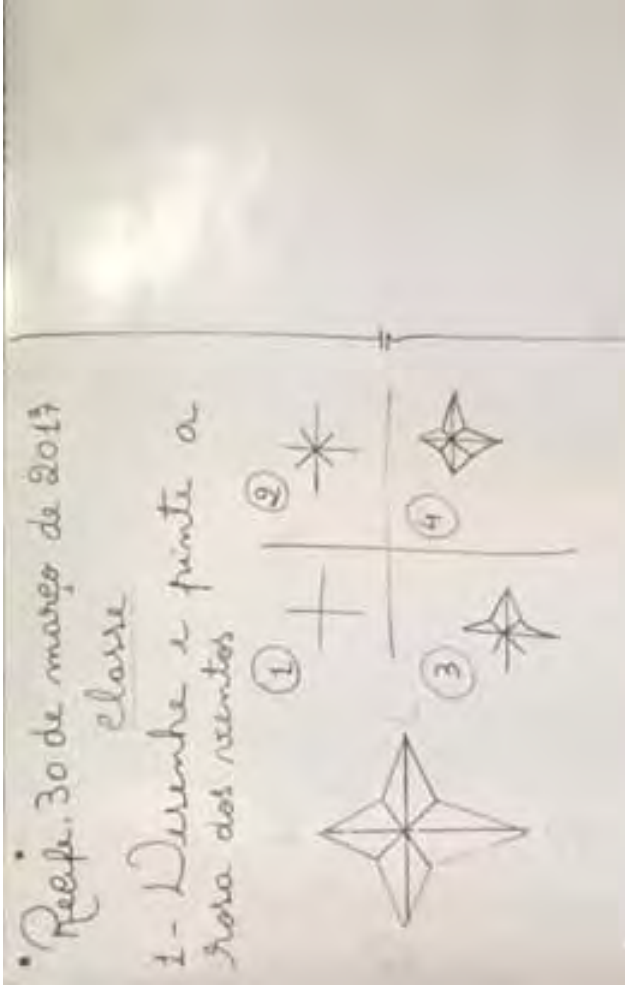
AT1004 - ÍTALO

Class 4

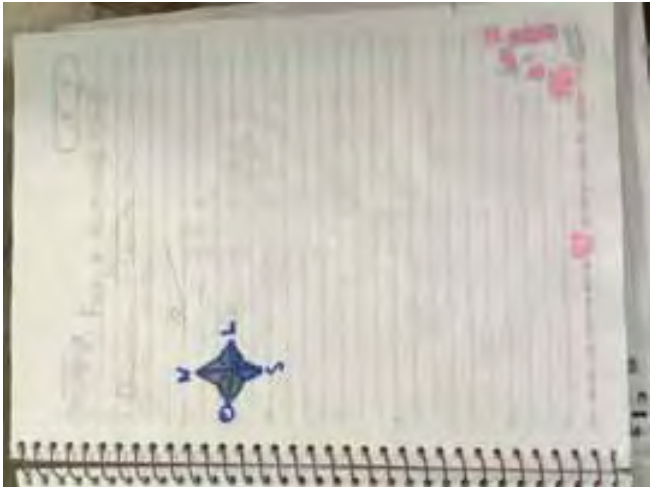
Santa Rita de Cássia

Institute - Morning

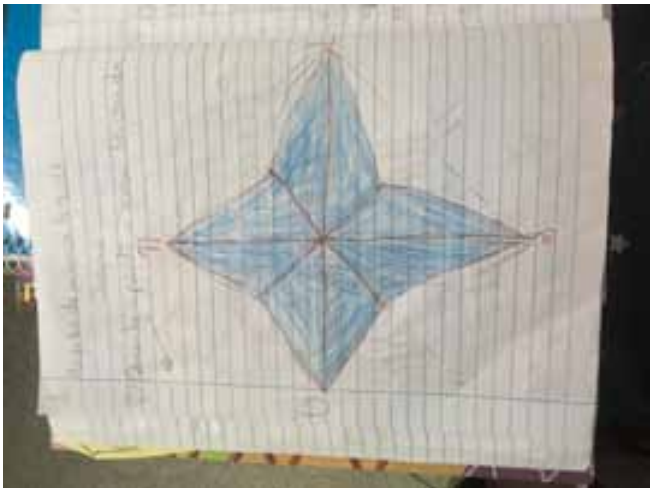
[RCM]



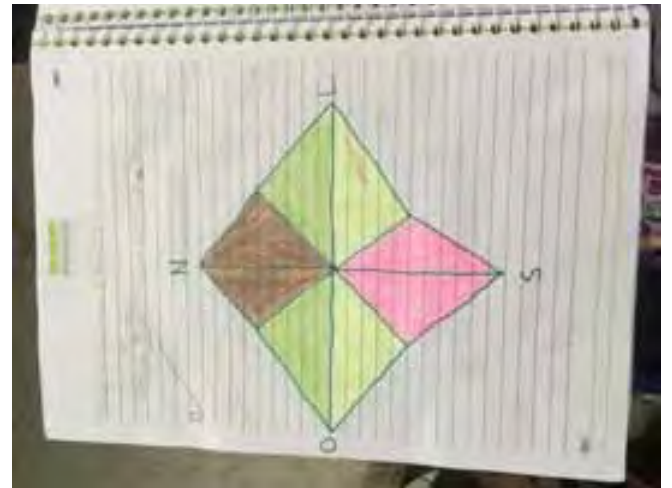
RCM0103 - PAULA



RCM0103 - MARINA



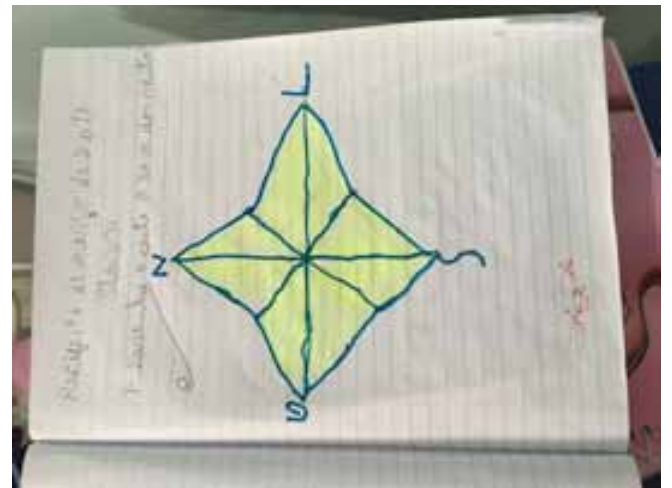
RCM0103 - ERIKA



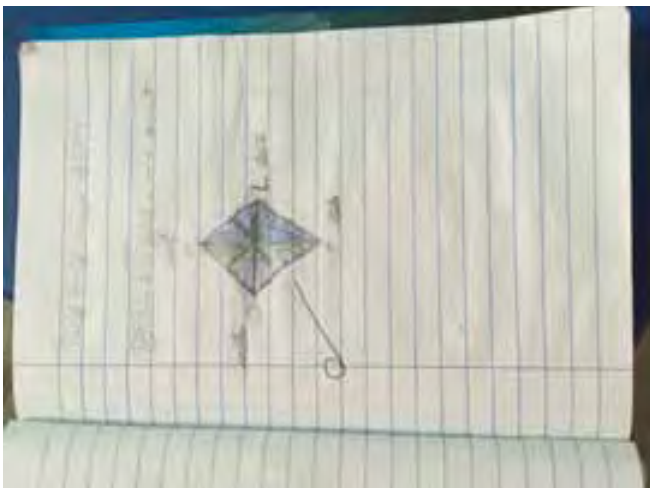
RCM0103 - YARA



RCM0103 - TAI5



RCM0103 - ISAAC



RCM0103 - TALE5



RCM0103 - ROSA

Instituto Santa Rita de Cassia
 Ref. 3 e 4 de março de 2019
 2019
 1- Concede a Adalberto Lima
 das seguintes notas:
 2- 100%
 3- 100%
 4- 100%
 5- 100%
 6- 100%
 7- 100%
 8- 100%

RCM0203 - PAULA

1- 100%
 2- 100%
 3- 100%
 4- 100%
 5- 100%
 6- 100%
 7- 100%
 8- 100%
 9- 100%
 10- 100%

RCM0203 - ROSA

1- 100%
 2- 100%
 3- 100%
 4- 100%
 5- 100%
 6- 100%
 7- 100%
 8- 100%
 9- 100%
 10- 100%

RCM0203 - MARTINA

1- 100%
 2- 100%
 3- 100%
 4- 100%
 5- 100%
 6- 100%
 7- 100%
 8- 100%
 9- 100%
 10- 100%

RCM0203 - ERIKA

1- 100%
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 5- 100%
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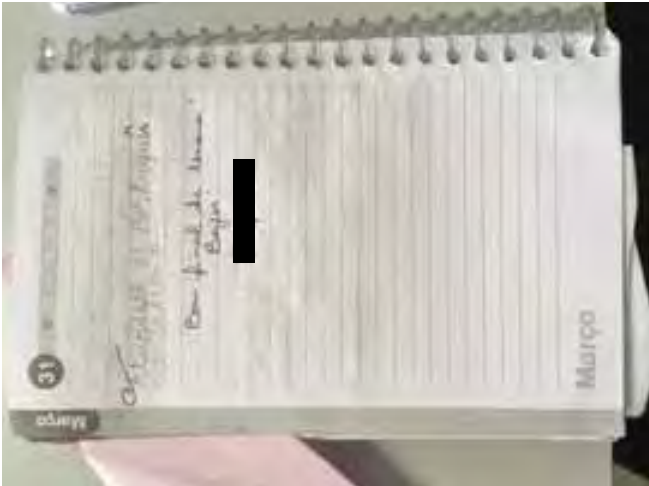
RCM0203 - TAI'S

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 9- 100%
 10- 100%

RCM0203 - TAI'S

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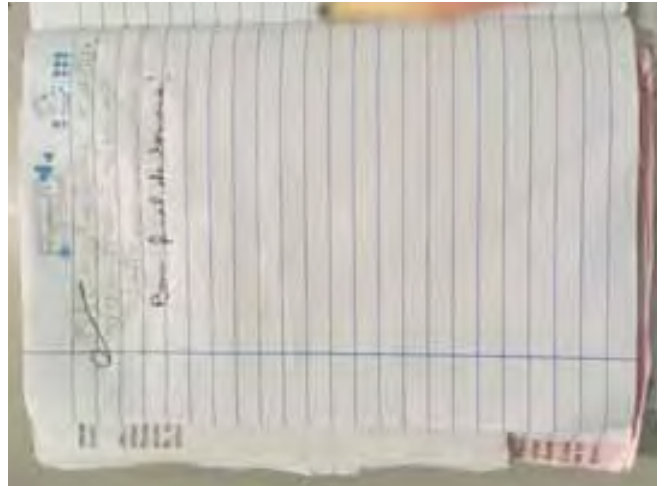
RCM0203 - TAI'S



RCM0204 - ISAAC



RCM0204 - TALES



RCM0204 - GERMANA



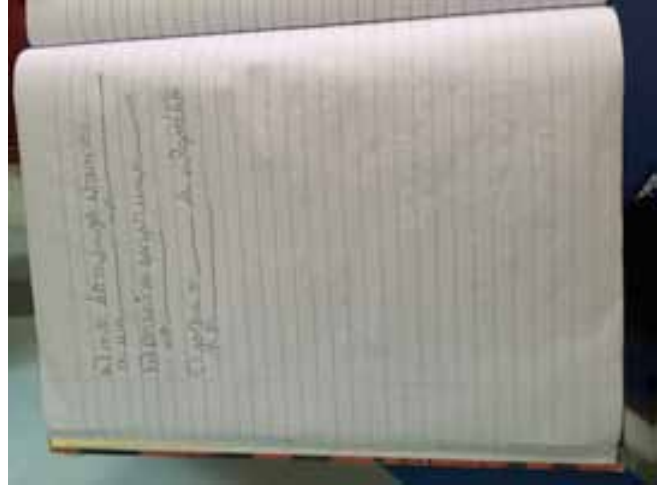
RCM0204 - YARA



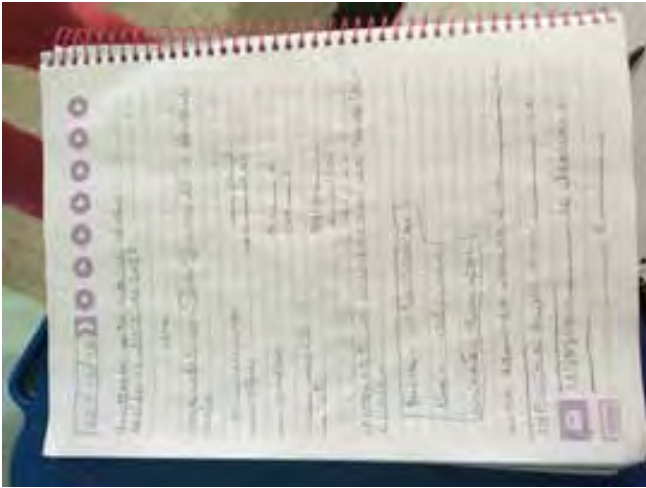
RCM0303 - PAULA



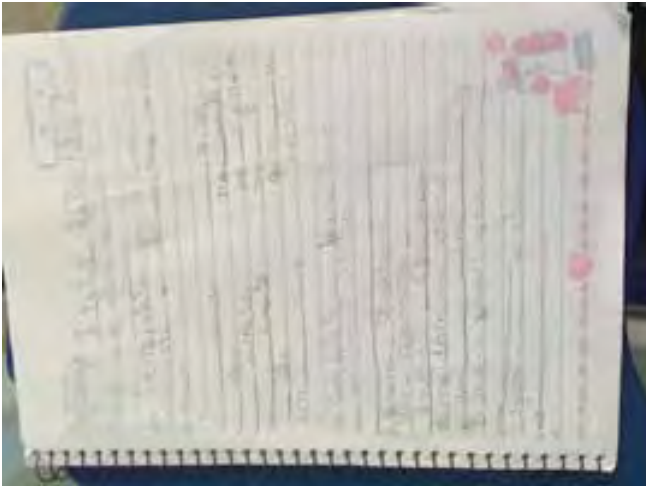
RCM0303 - ISAAC-1



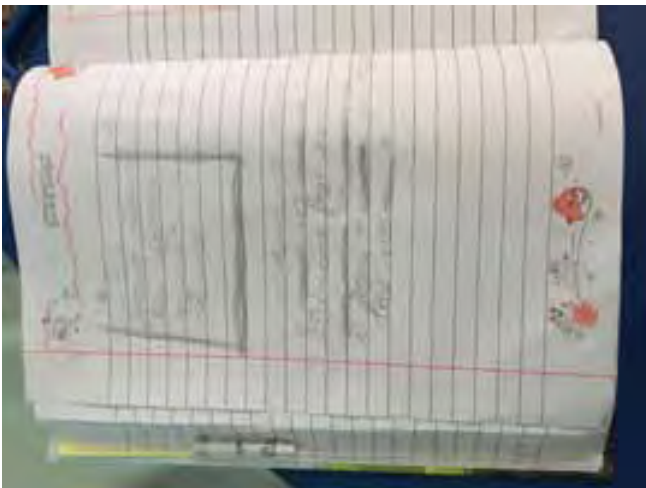
RCM0303 - ISAAC-2



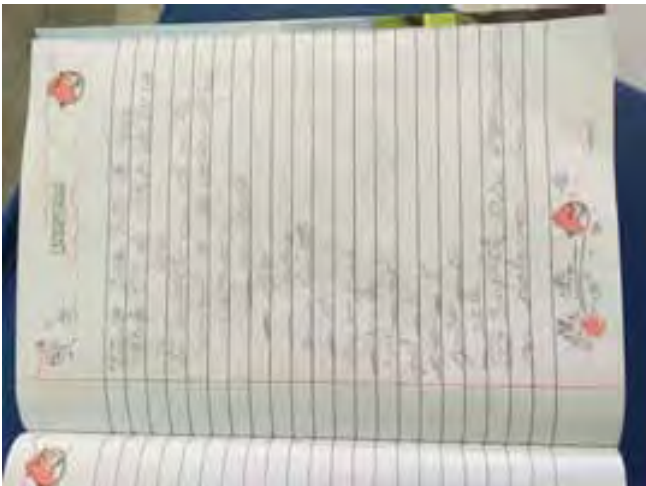
RCM0303 - ROSA



RCM0303 - MARINA



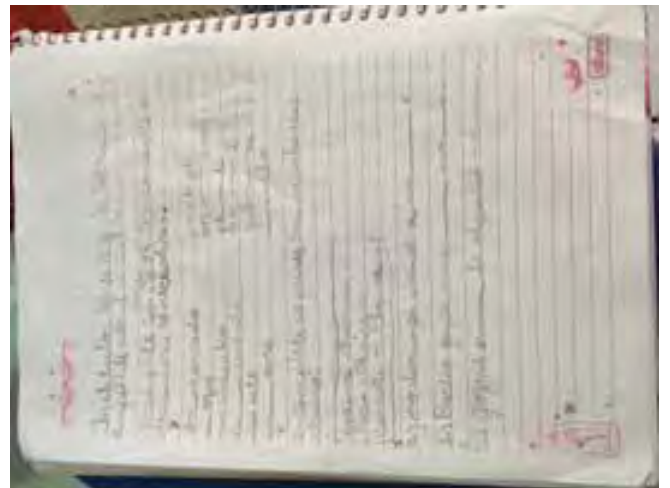
RCM0303 - TALE5-2



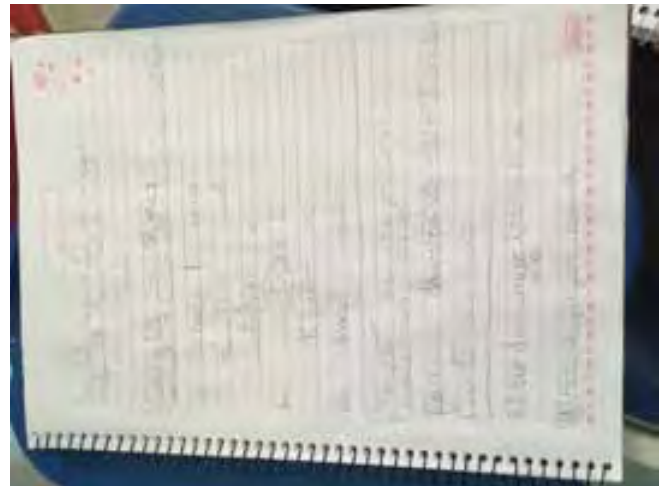
RCM0303 - TALE5-1



RCM0303 - YARA



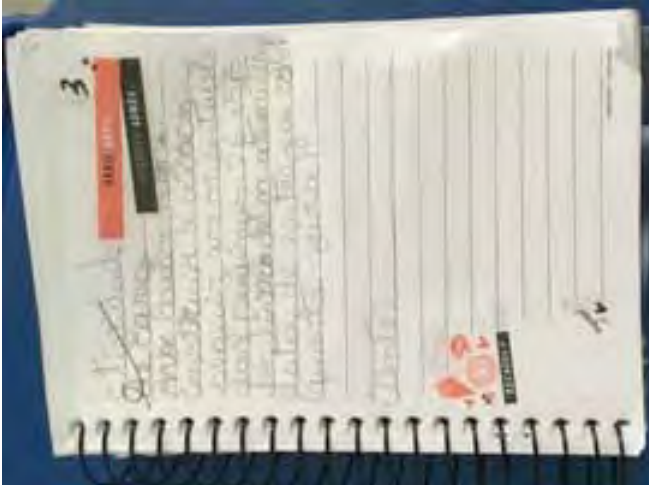
RCM0303 - TALE5



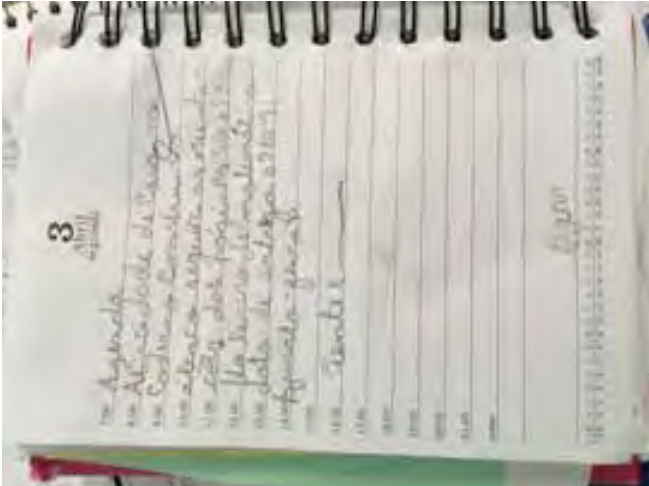
RCM0303 - ERIKA



RCM0304 - PAULA



RCM0304 - ERIKA



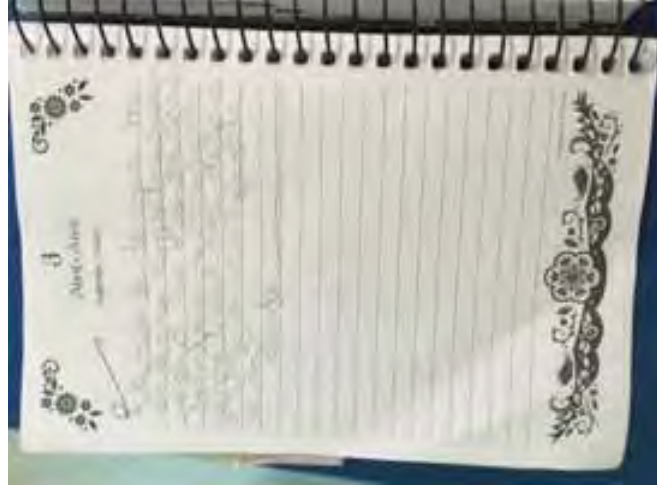
RCM0304 - TAI'S



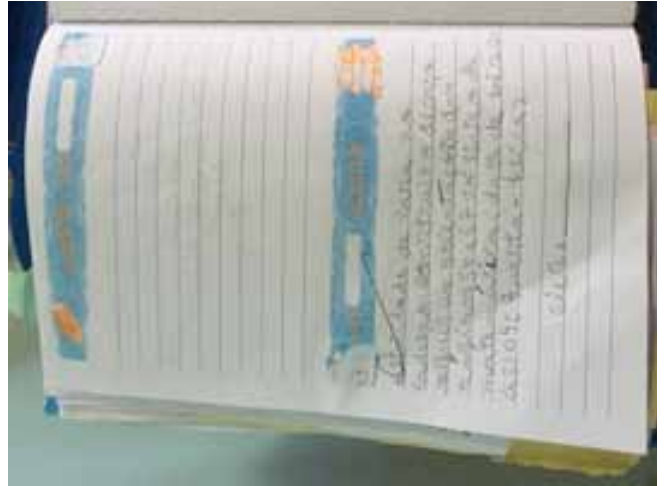
RCM0304 - ISAAC



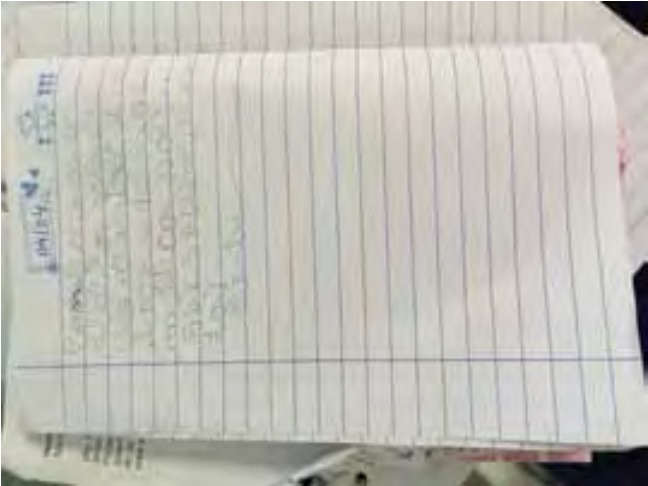
RCM0304 - TAI'S



RCM0304 - MARINA



RCM0304 - ROSA



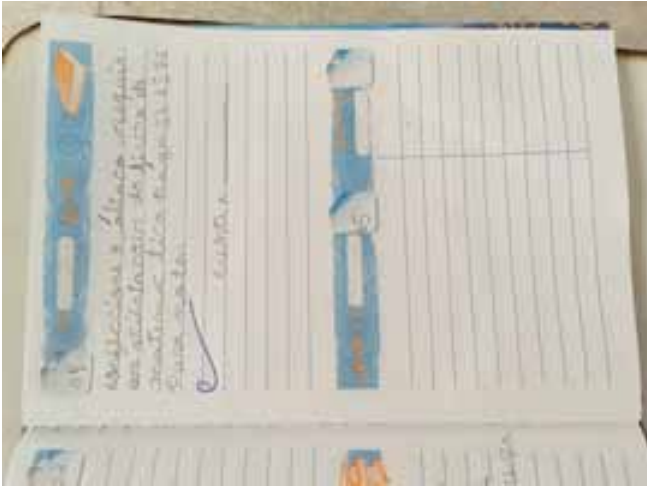
RCM0404 - GERMANA



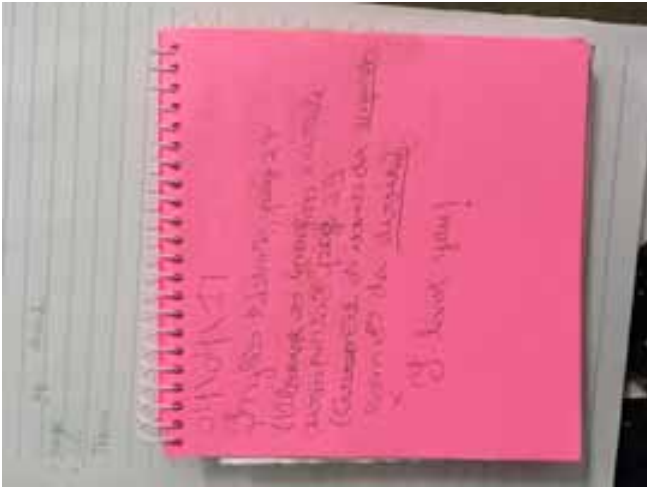
RCM0404 - MELISSA



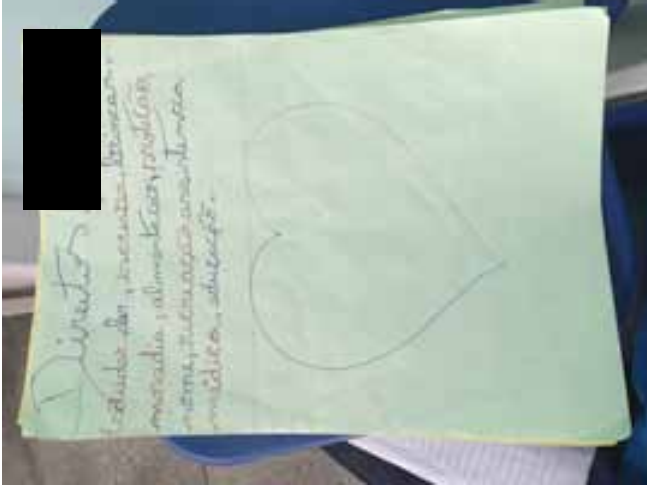
RCM0503 - PAULA



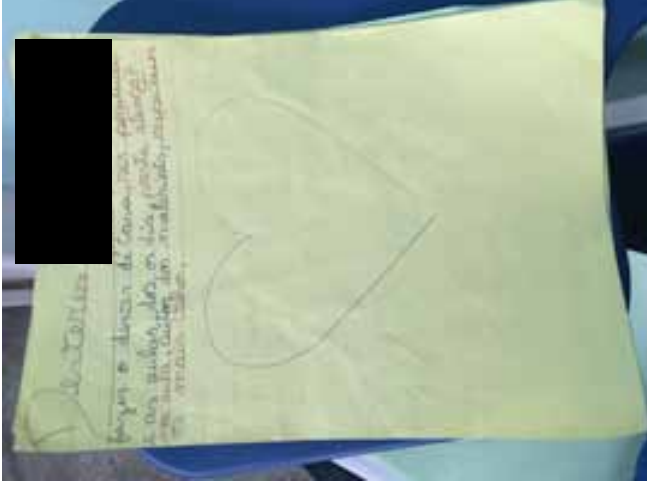
RCM0404 - ROSA



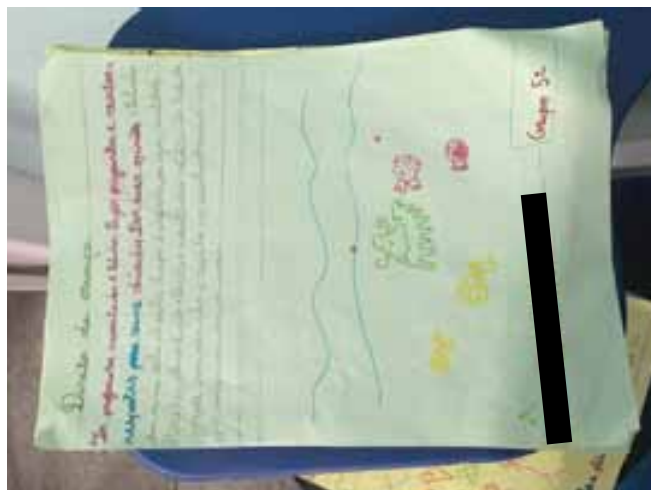
RCM0404 - YARA



RCM0503 - ERIKA, GERMANA-1



RCM0503 - ERIKA, GERMANA-2



RCM0503 - TAÍS, TALES, YARA - 2



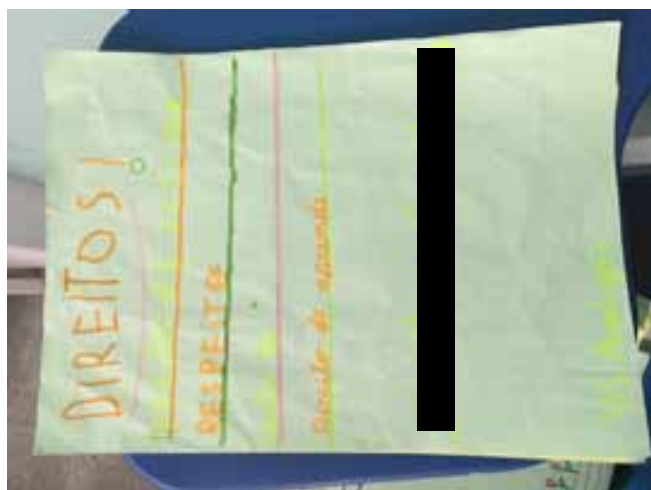
RCM0503 - MELISSA-2



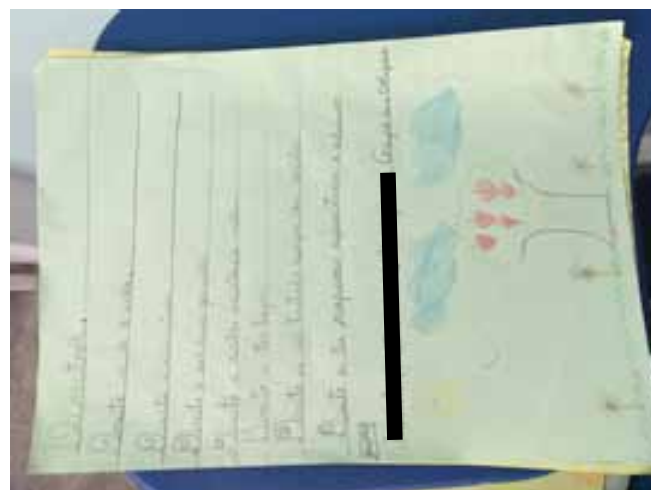
RCM0503 - TAÍS, TALES, YARA - 1



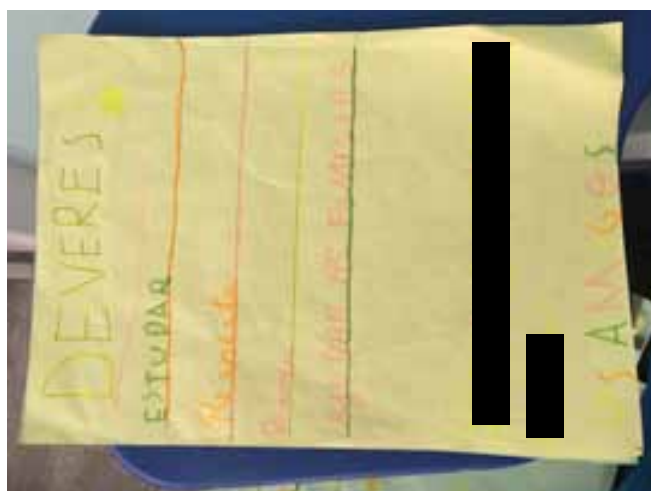
RCM0503 - MELISSA-1



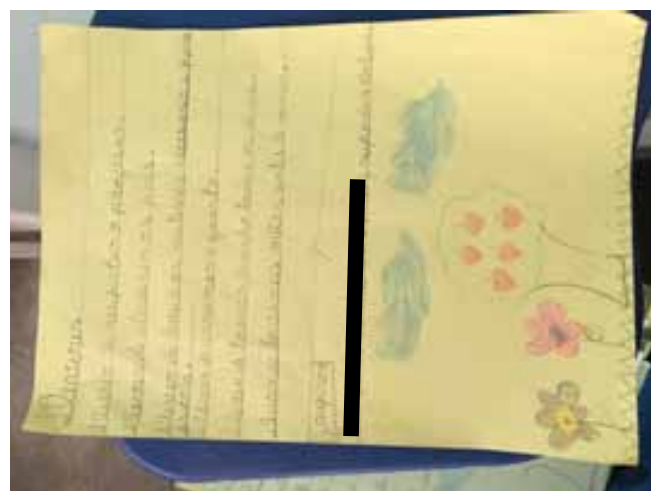
RCM0503 - ISAAC, MARINA-1



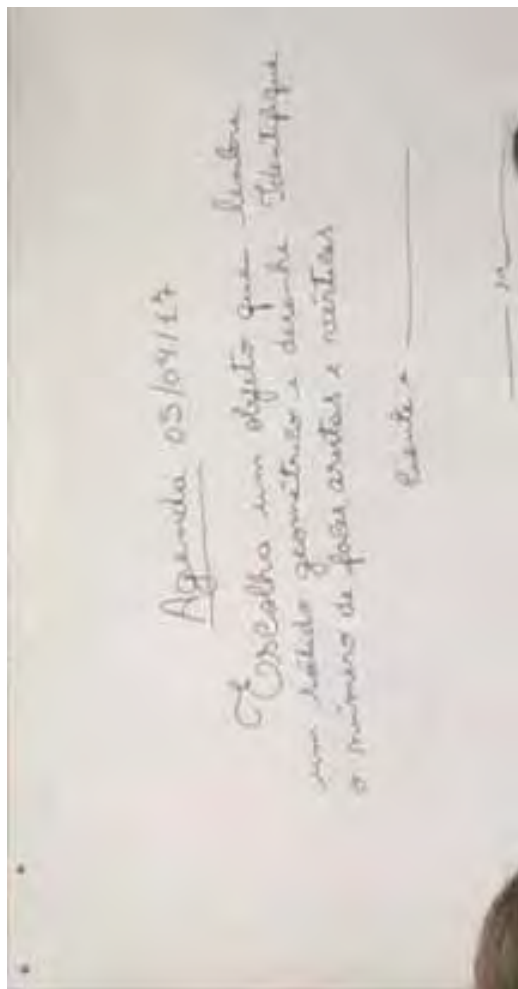
RCM0503 - ROSA-1



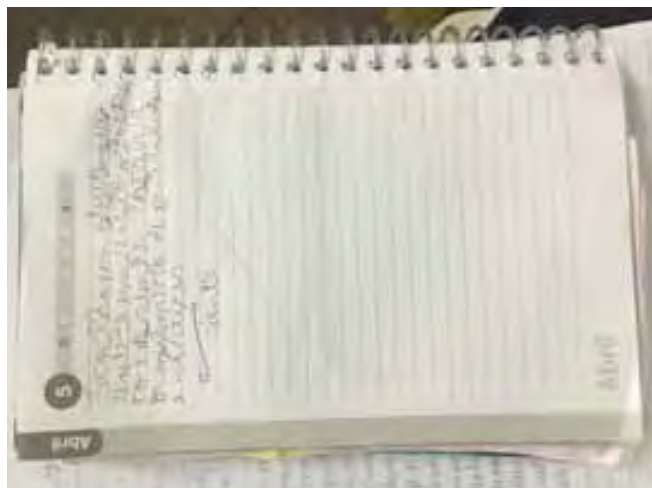
RCM0503 - ISAAC, MARINA-2



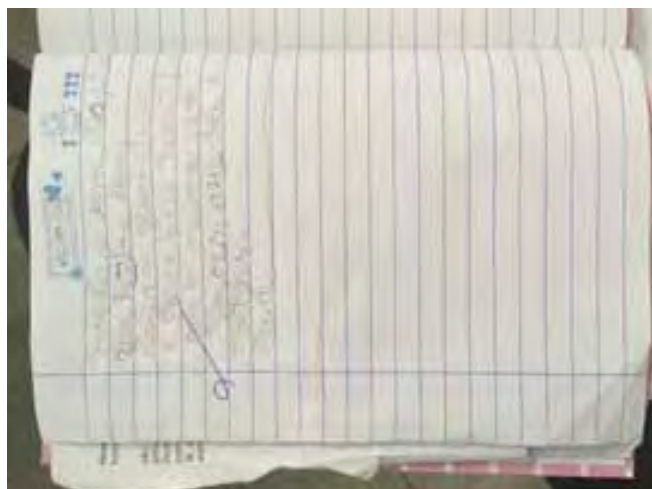
RCM0503 - ROSA-2



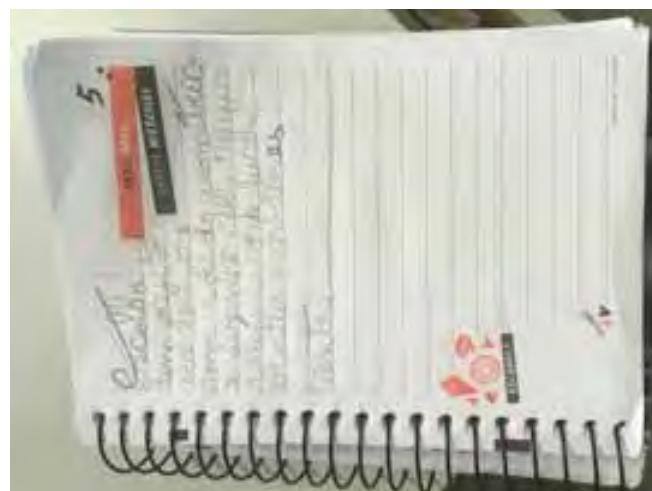
RCM0504 - PAULA



RCM0504 - ISAAC



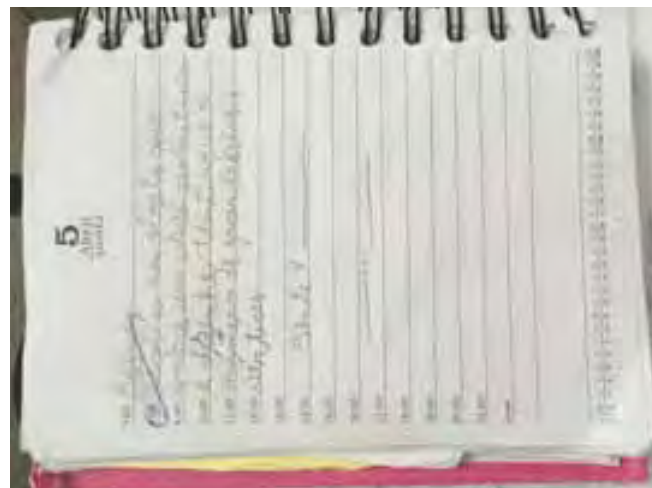
RCM0504 - GERMANA



RCM0504 - ERIKA



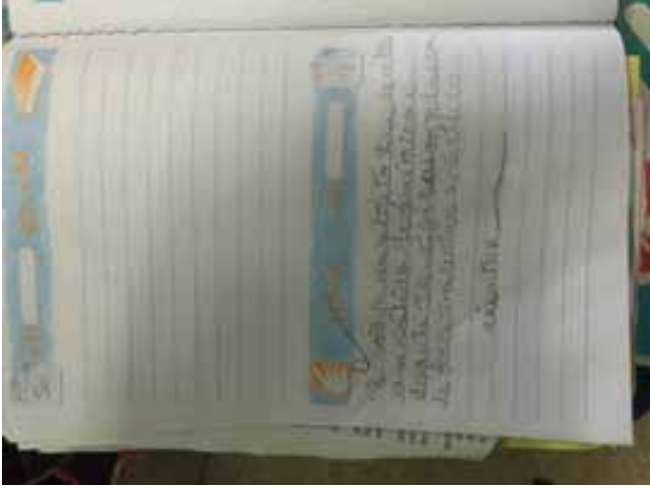
RCM0504 - TALES



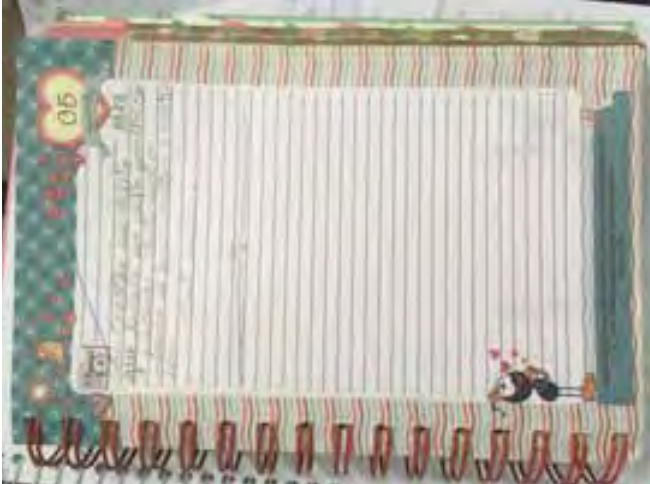
RCM0504 - TALES



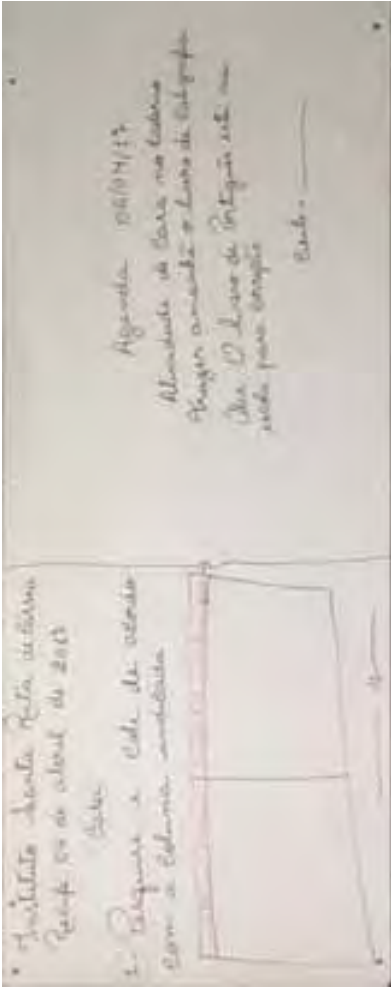
RCM0504 - MARINA



RCM0504 - ROSA



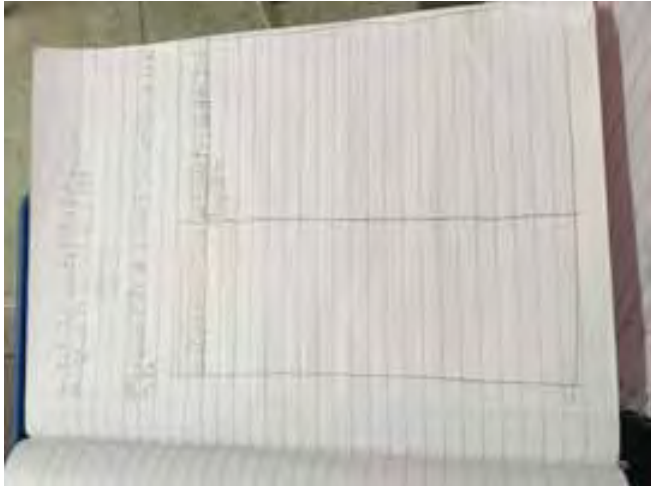
RCM0504 - MELISSA



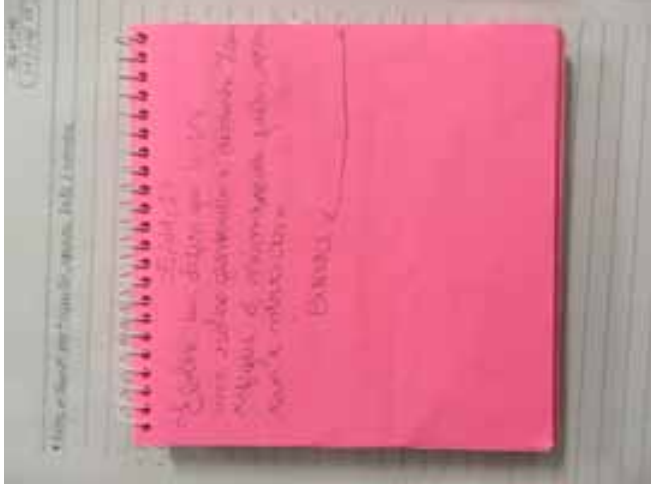
RCM0604 E RCM0605 - PAULA



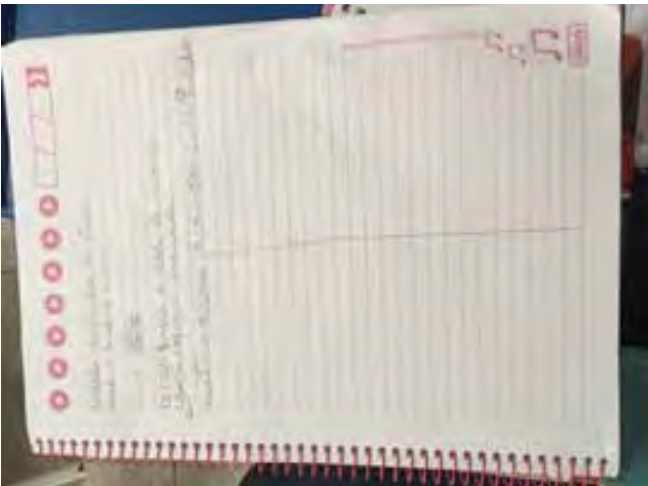
RCM0604 - MARINA



RCM0604 - IGOR



RCM0504 - YARA



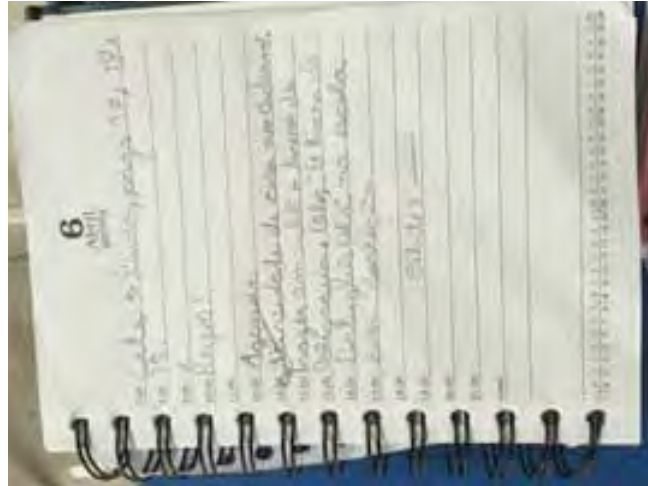
RCM0604 - ROSA



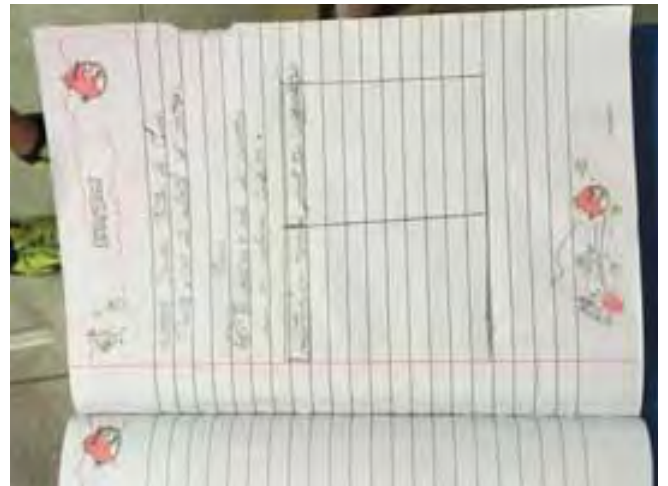
RCM0604 - ERIKA



RCM0605 - ERIKA



RCM0605 - TAI'S



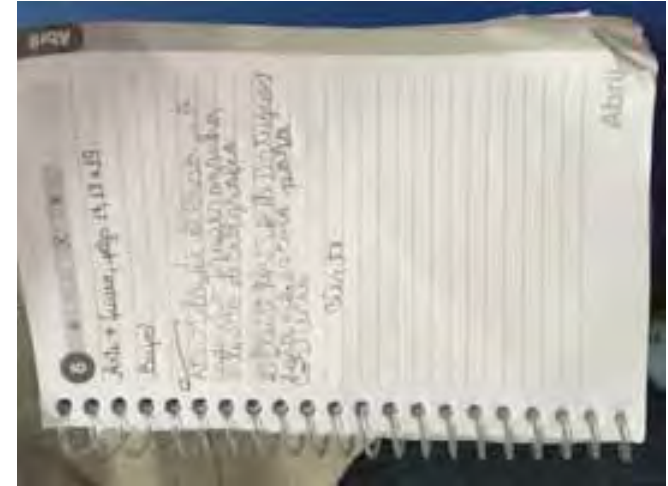
RCM0604 - TAI'S



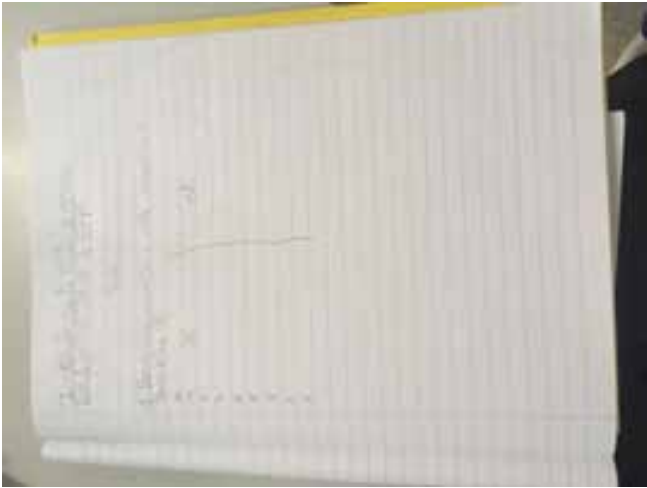
RCM0604 - TAI'S



RCM0605 - MARINA



RCM0605 - ISAAC



RCM0703 - MELISSA



RCM0703 - TALE



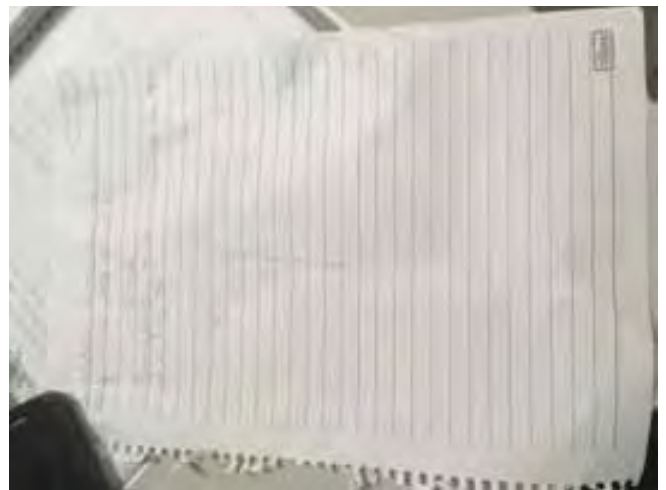
RCM0703 - ROSA



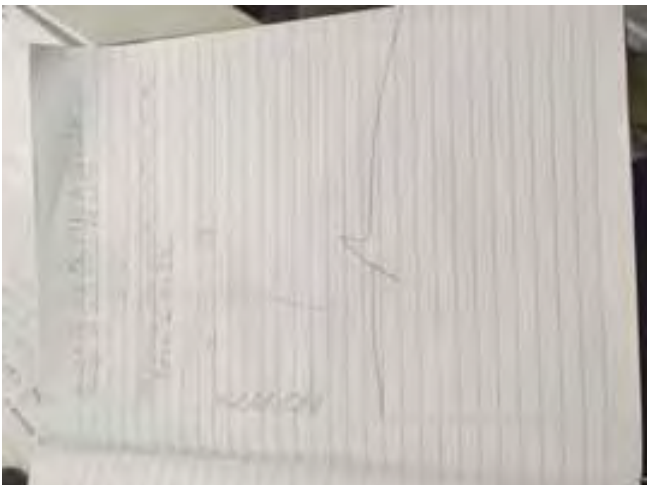
RCM0703 - GERMANA



RCM0703 - MARIANA



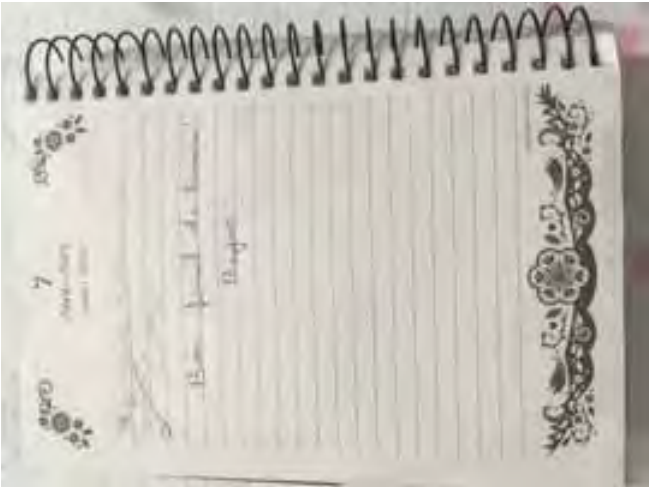
RCM0703 - YARA



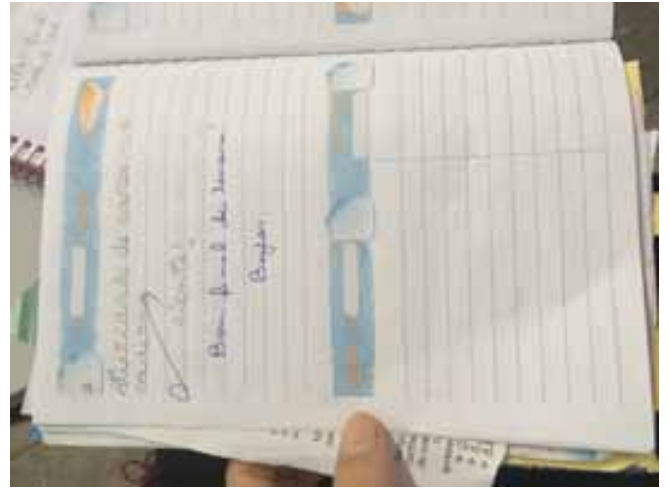
RCM0703 - ISAAC



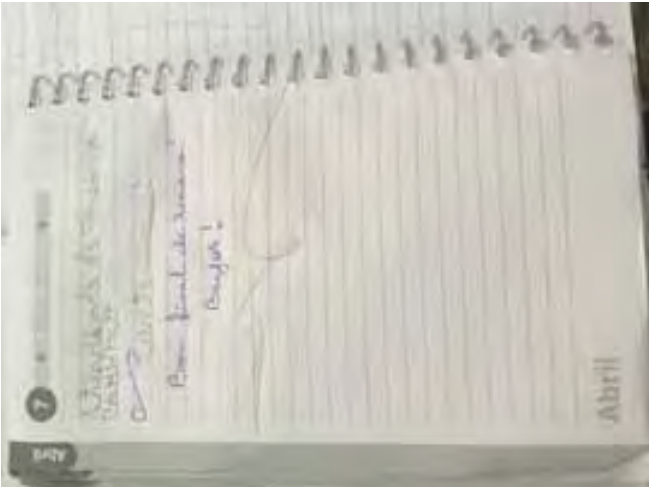
RCM0703 - ERIKA



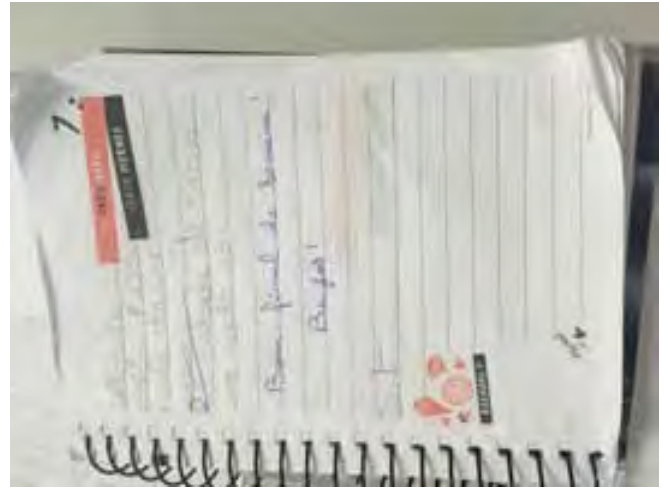
RCM0704 - MARINA



RCM0704 - ROSA



RCM0704 - ISAAC



RCM0704 - ERIKA



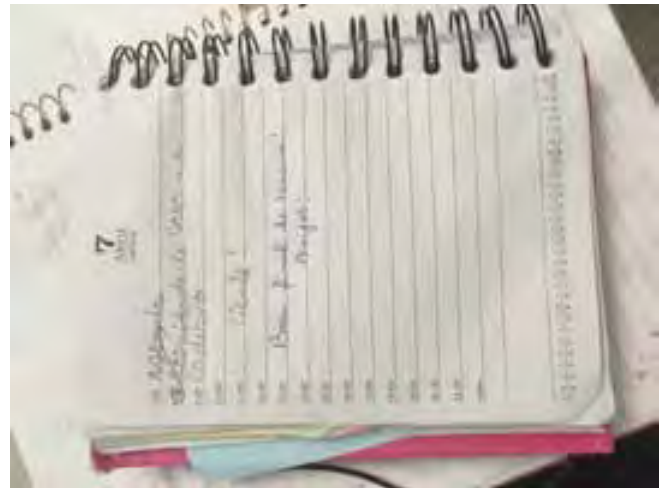
RCM0704 - TAIKS

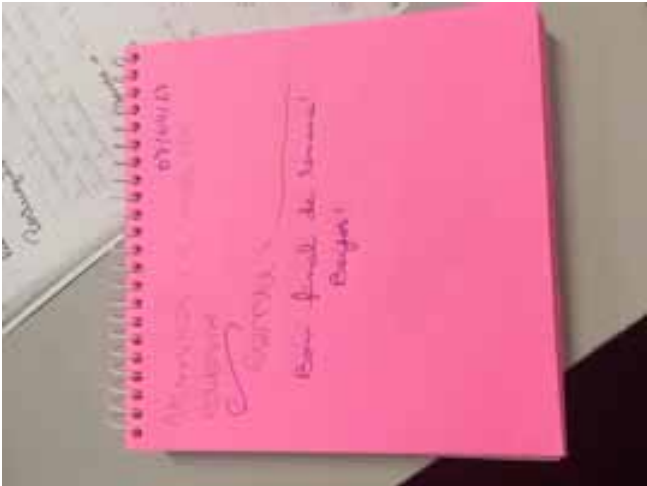


RCM0704 - TAIKS



RCM0703 - TAIKS

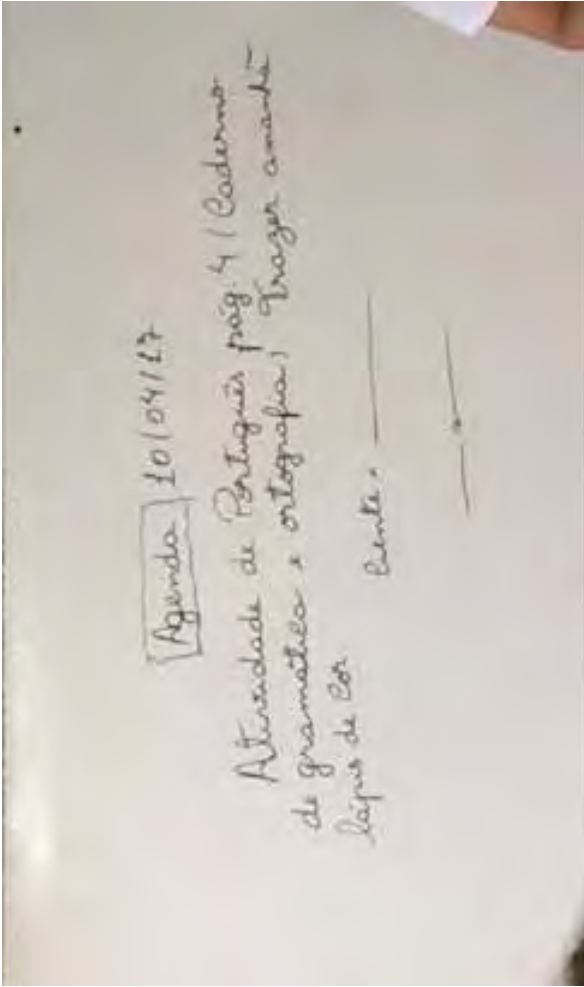




RCM0704 - YARA



RCM0704 - GERMANA



RCM0805 - PAULA



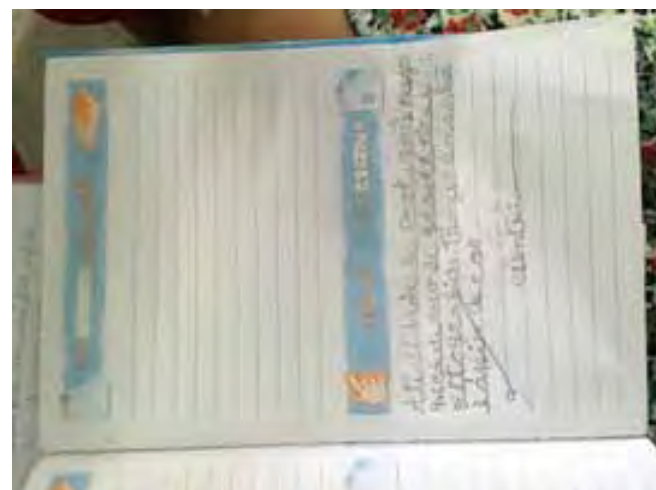
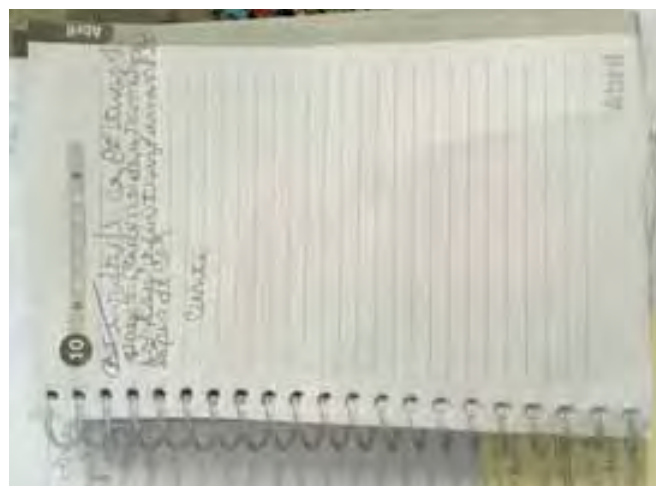
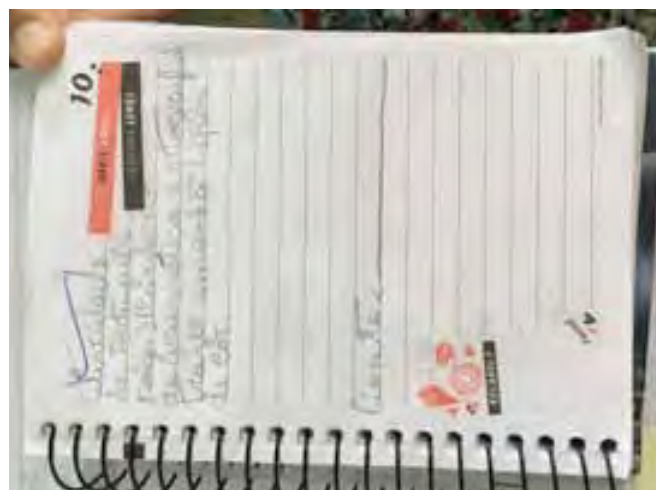
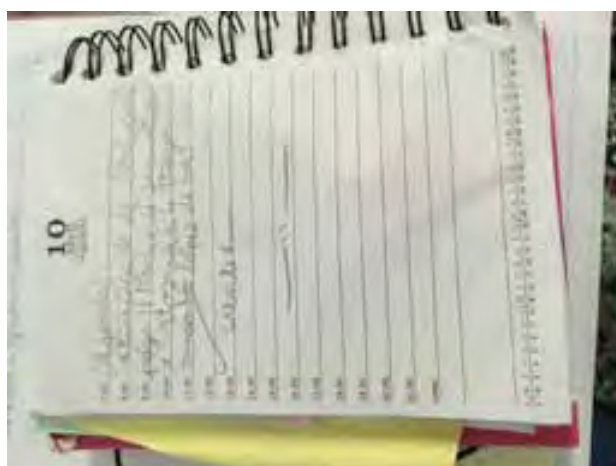
RCM0704 - MELISSA



RCM0805 - TALES



RCM0805 - YARA

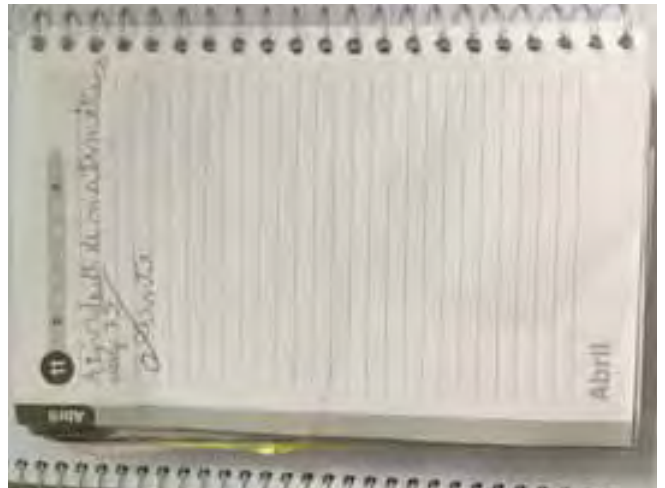




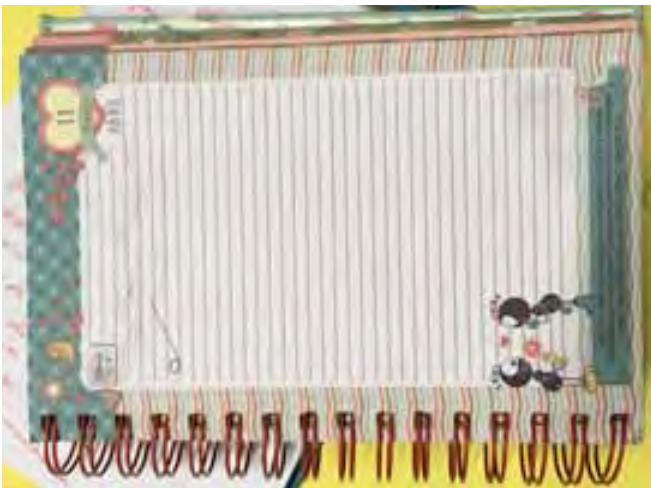
RCM0904 - YARA



RCM0904 - TAI'S



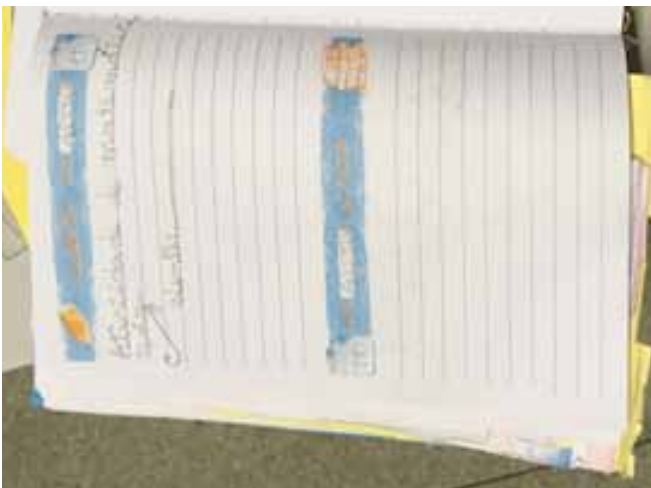
RCM0904 - ISAAC



RCM0904 - MELISSA



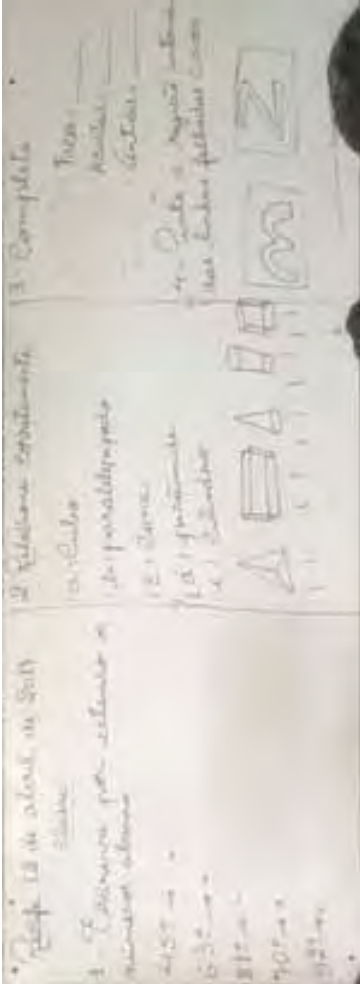
RCM0904 - ERIKA



RCM0904 - ROSA



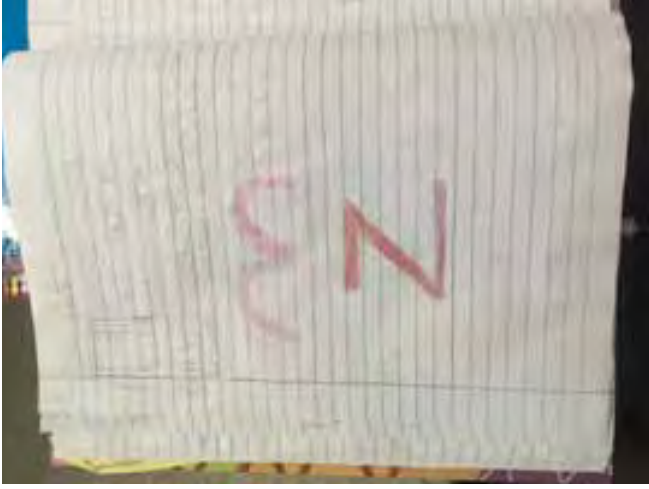
RCM0904 - TALE'S



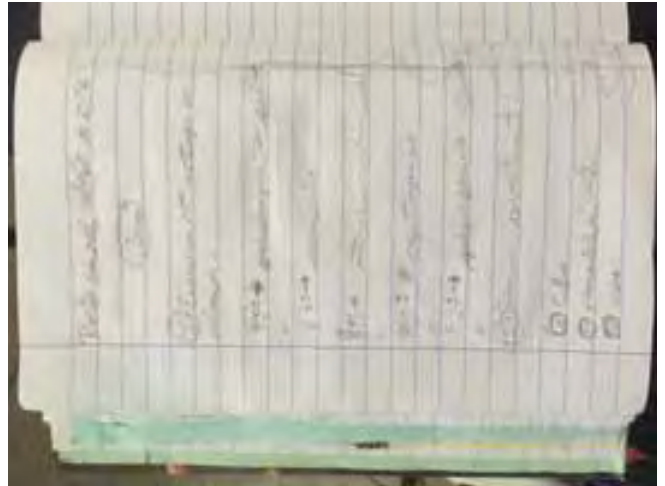
RCM1001 - PAULA



RCM1001 - ERIKA-1



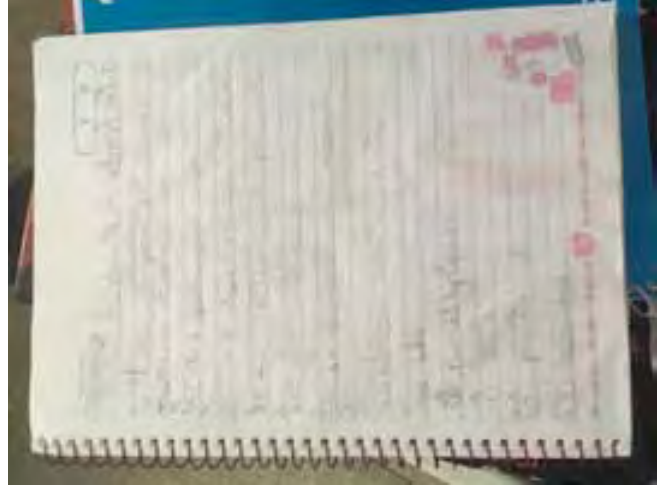
RCM1001 - ERIKA-2



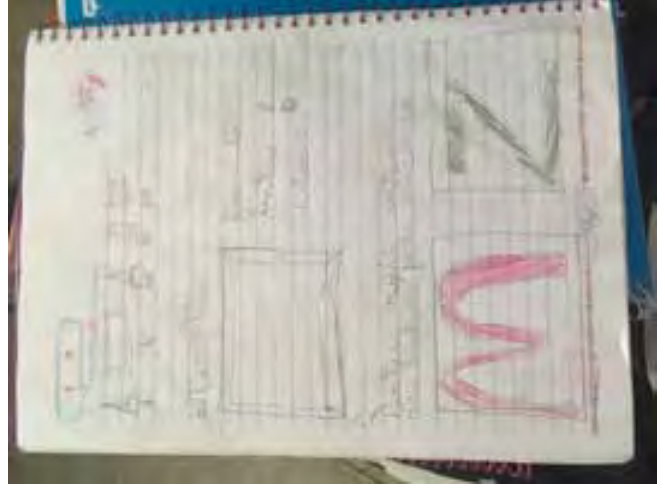
RCM1001 - TALE5-1



RCM1001 - TALE5-2



RCM1001 - MARINA-1



RCM1001 - MARINA-2



RCM1001 - ROSA-2



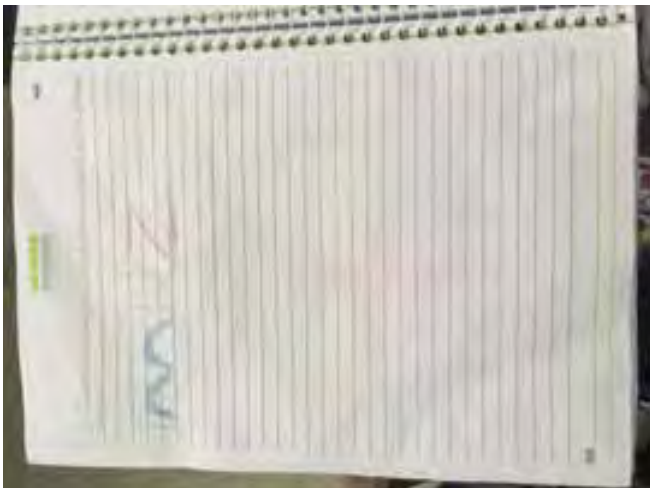
RCM1002 - ERIKA



RCM1001 - ROSA-1



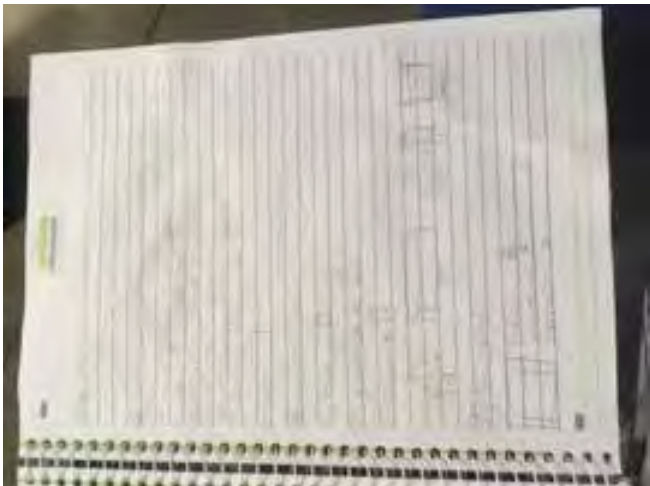
RCM1002 - ROSA



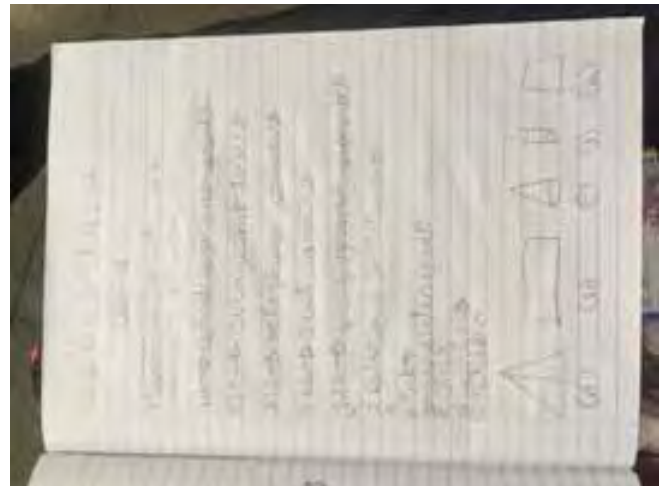
RCM1001 - YARA-2



RCM1001 - ISAAC-2

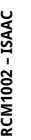
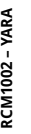
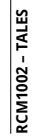
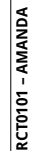


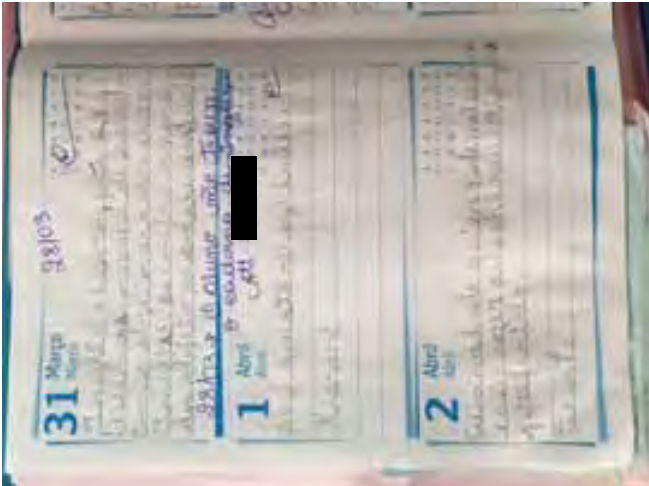
RCM1001 - YARA-1



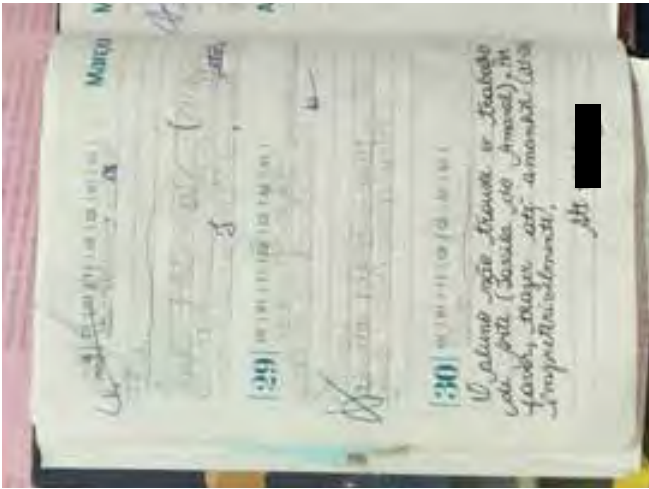
RCM1001 - ISAAC-1

Class 5
Santa Rita de Cássia
Institute – Afternoon
[RCT]

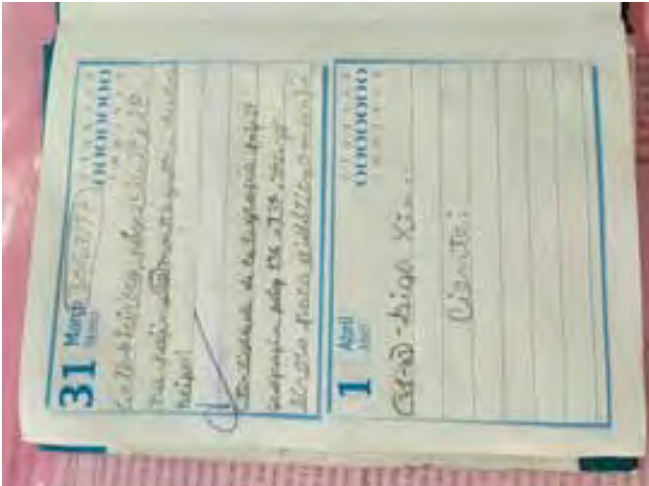




RCT0101 - TÉO



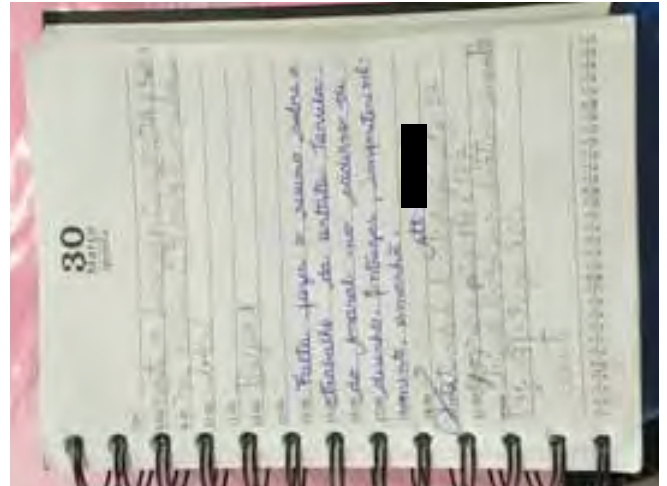
RCT0101 - EDSON



RCT0101 - YVONE



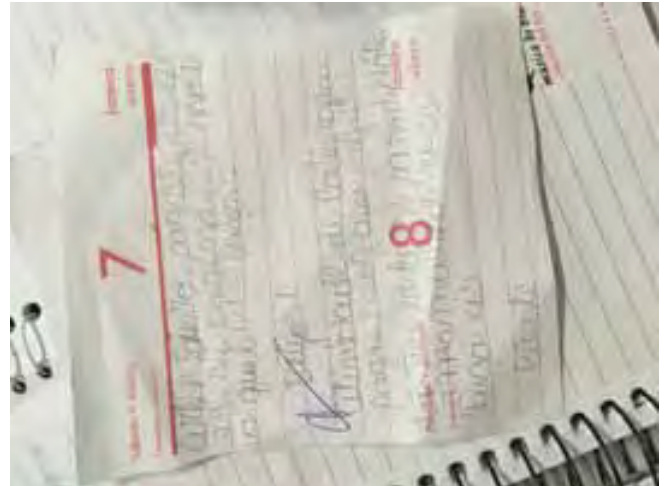
RCT0101 - LETÍCIA



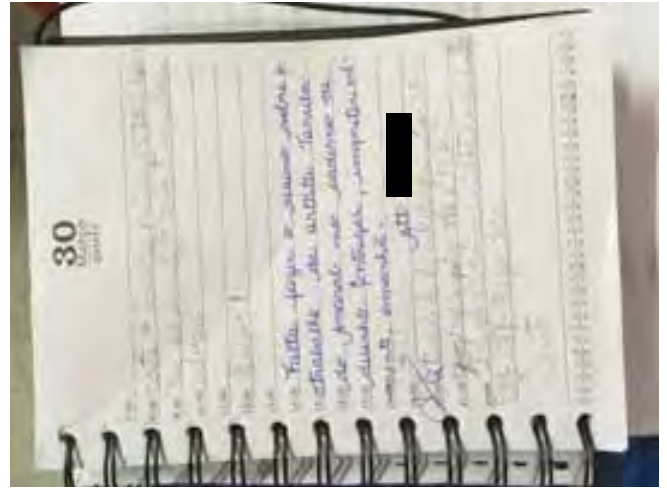
RCT0101 - ALINE



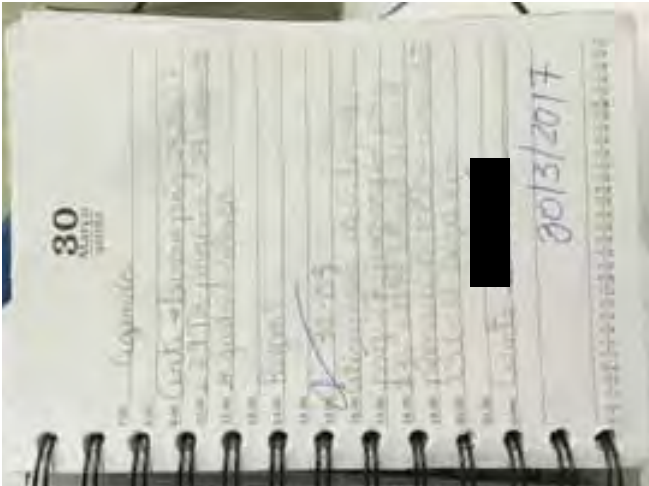
RCT0101 - MANUELA



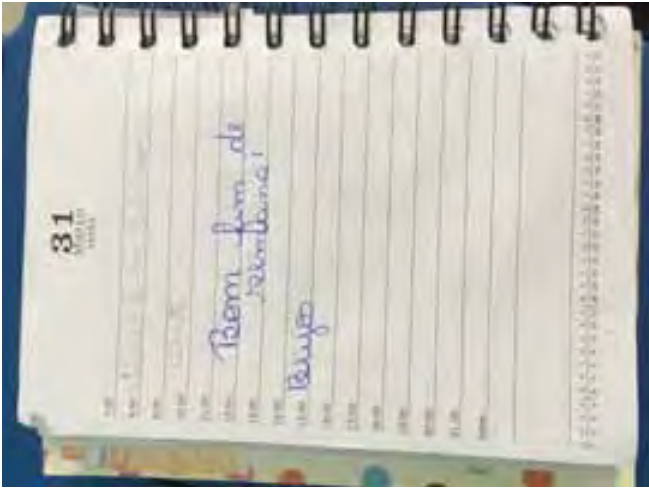
RCT0101 - ALESSANDRA



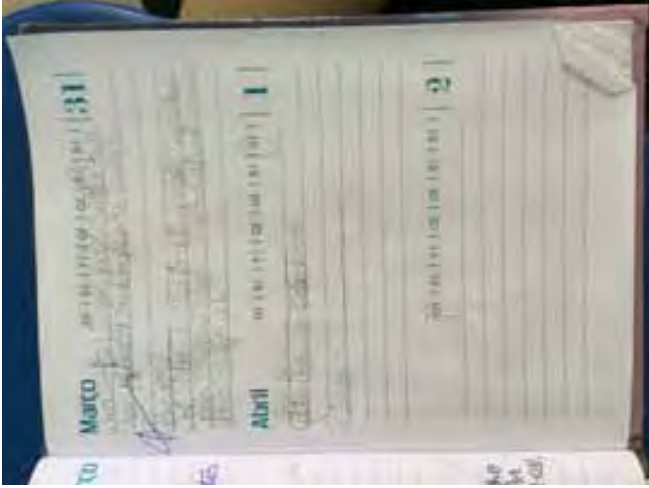
RCT0101 - ALINE



RCT0101 - LIA



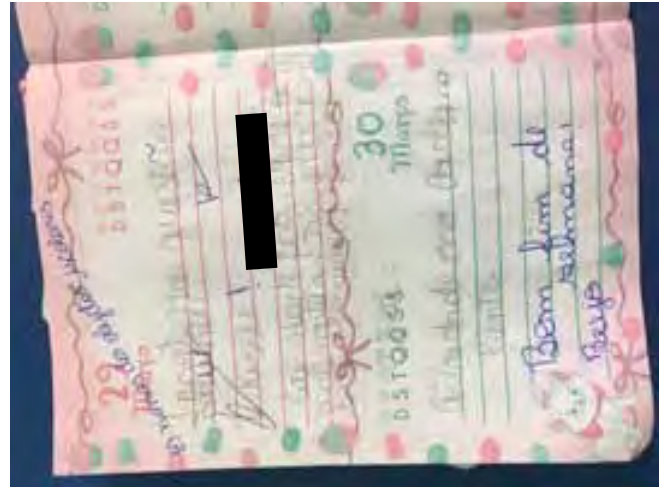
RCT0201 - ALINE



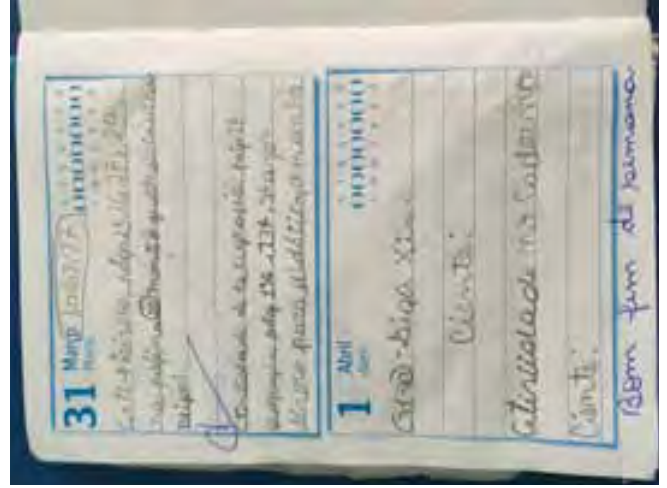
RCT0201 - EDSON



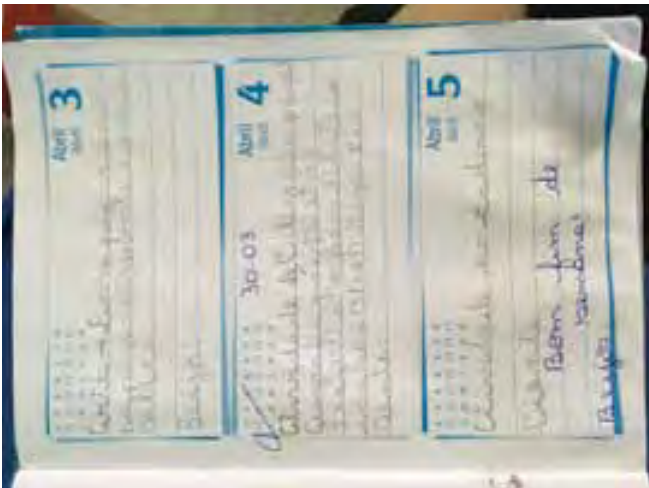
RCT0201 - AMANDA



RCT0201 - ALESSANDRA



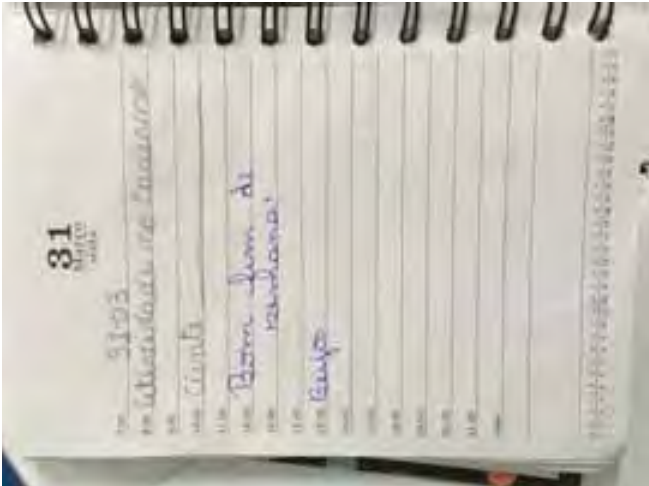
RCT0201 - YVONE



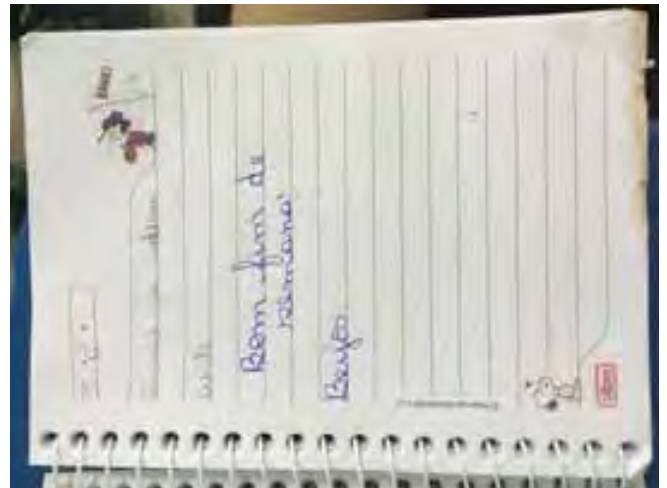
RCT0201 - TÉO



RCT0201 - LETÍCIA



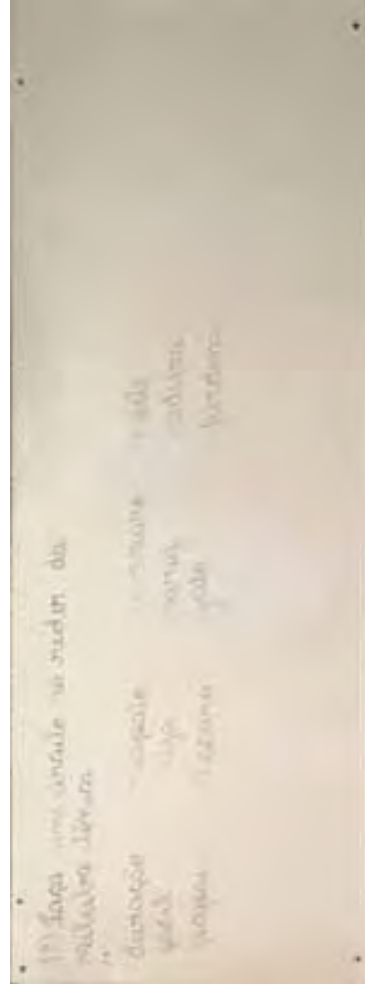
RCT0201 - LIA



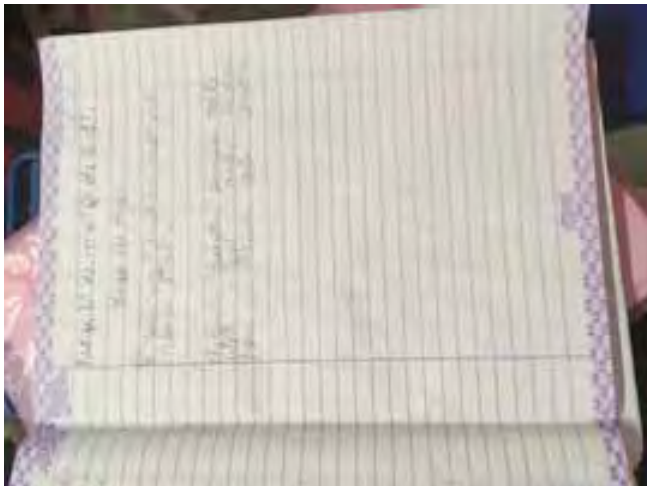
RCT0201 - SAULO



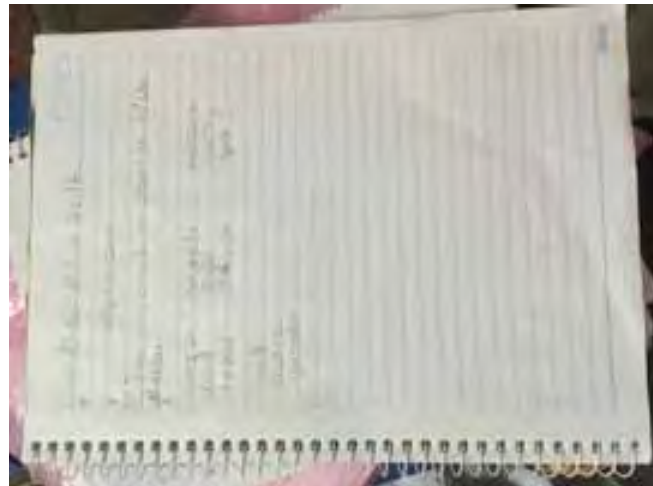
RCT0201 - MANUELA



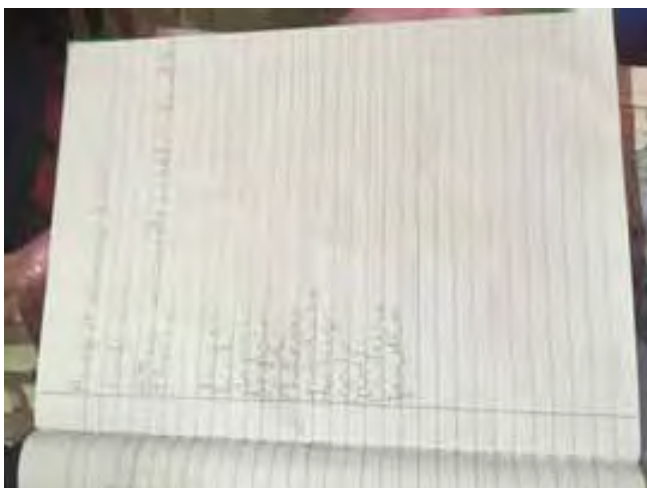
RCT0203 - AMANDA



RCT0203 - YVONE



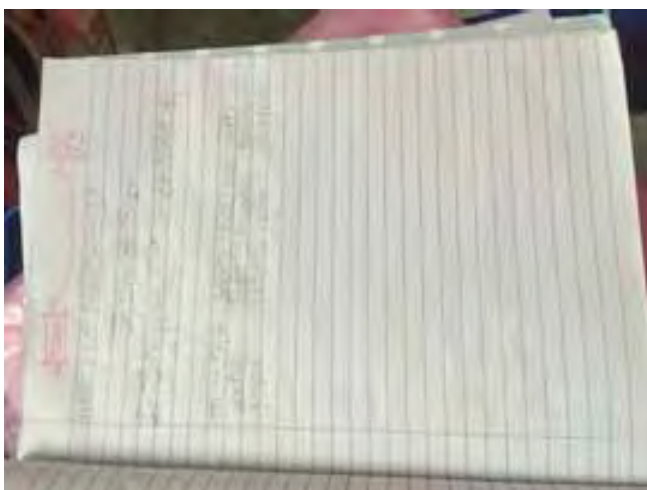
RCT0203 - MANUELA



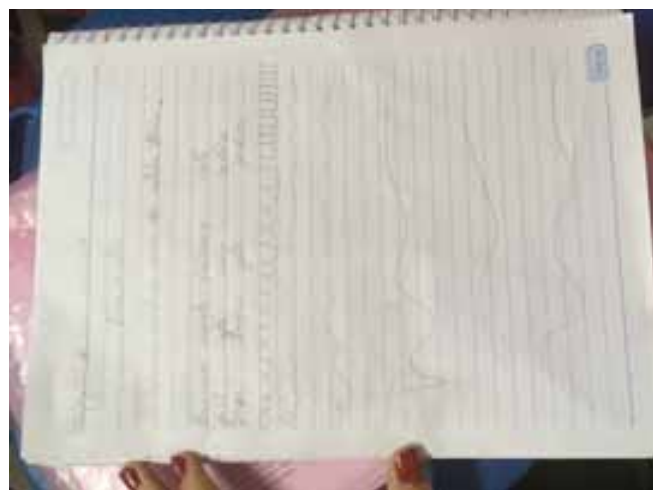
RCT0203 - TÉO



RCT0203 - SAULO



RCT0203 - ALESSANDRA



RCT0203 - LETÍCIA



RCT0203 - ALINE



RCT0203 - EDSON

03.04.17

Atividade de casa no caderno
 Pensar em olibros, registrar as
 atividades das páginas 56 e 57
 do livro de matemática lista de
 exercícios (03/04), quando for
 pronto.

RCT0301 - AMANDA

3

Atividade de casa no caderno
 Pensar em olibros, registrar as
 atividades das páginas 56 e 57
 do livro de matemática lista de
 exercícios (03/04), quando for
 pronto.

RCT0301 - LETÍCIA

2

Atividade de casa no caderno
 Pensar em olibros, registrar as
 atividades das páginas 56 e 57
 do livro de matemática lista de
 exercícios (03/04), quando for
 pronto.

RCT0301 - YVONE

02
Abril

Atividade de casa no caderno
 Pensar em olibros, registrar as
 atividades das páginas 56 e 57
 do livro de matemática lista de
 exercícios (03/04), quando for
 pronto.

RCT0301 - ALESSANDRA

04
Abril

Atividade de casa no caderno
 Pensar em olibros, registrar as
 atividades das páginas 56 e 57
 do livro de matemática lista de
 exercícios (03/04), quando for
 pronto.

RCT0301 - ALESSANDRA-2

6
Abril

Atividade de casa no caderno
 Pensar em olibros, registrar as
 atividades das páginas 56 e 57
 do livro de matemática lista de
 exercícios (03/04), quando for
 pronto.

RCT0301 - TEO

5
Abril

Atividade de casa no caderno
 Pensar em olibros, registrar as
 atividades das páginas 56 e 57
 do livro de matemática lista de
 exercícios (03/04), quando for
 pronto.

RCT0301 - EDSON

RECT0301 - LIA

RECT0301 - ALINE

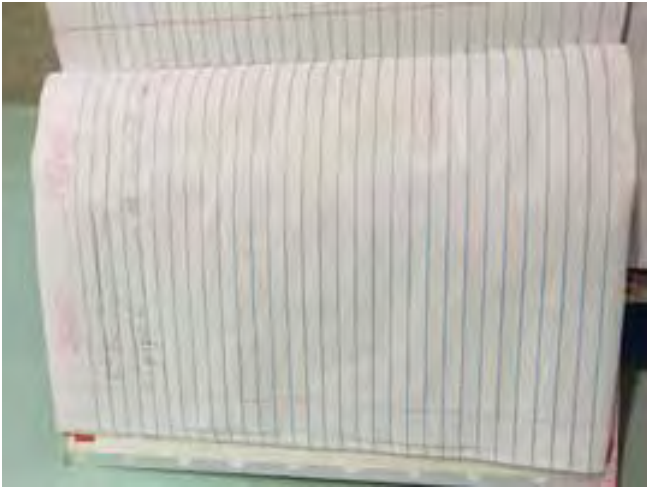
RCT0301 - MANUELA

PROJECT0301 - SAULO

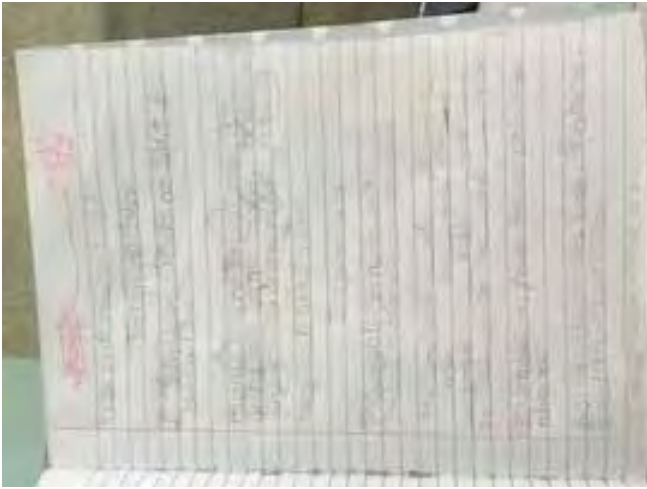
RCT0302 - AMANDA

RCT0302 - TÉO

RCT0302 - YVONE



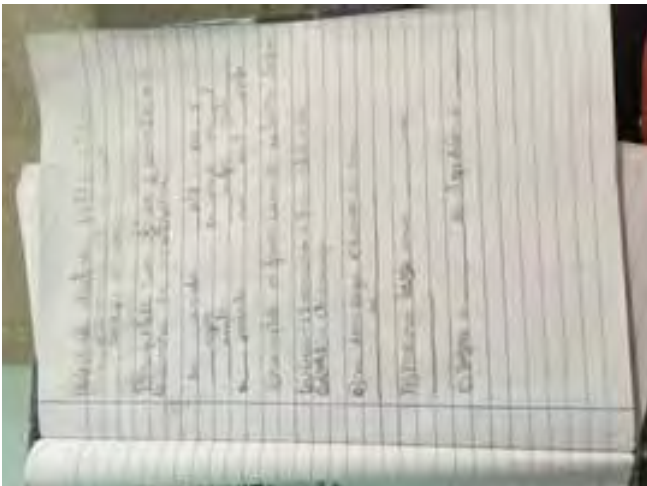
RCT0302 - ALESSANDRA-2



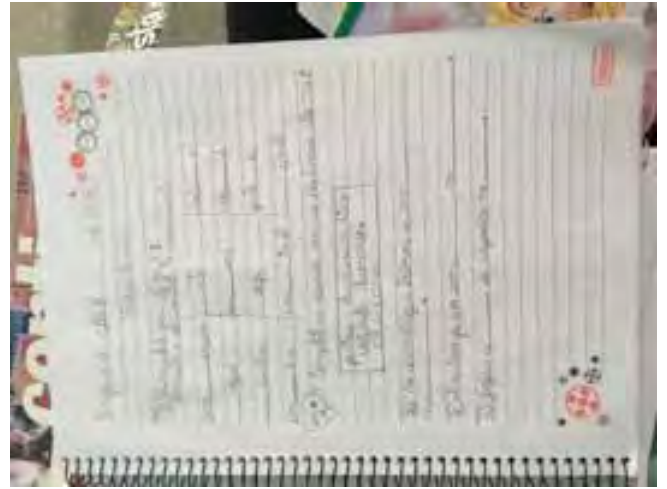
RCT0302 - ALESSANDRA-1



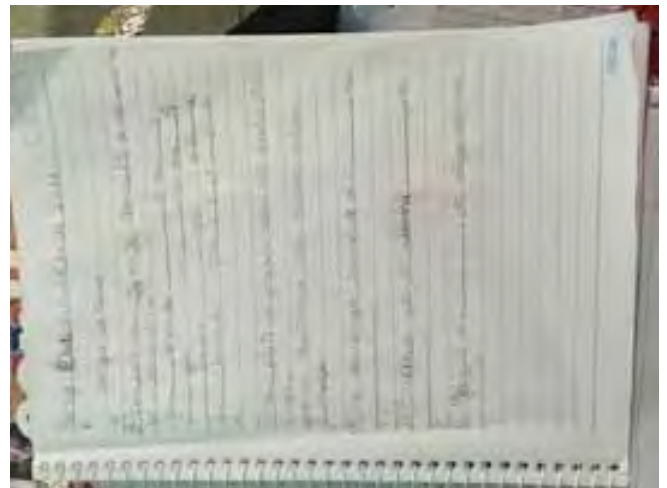
RCT0302 - EDSON



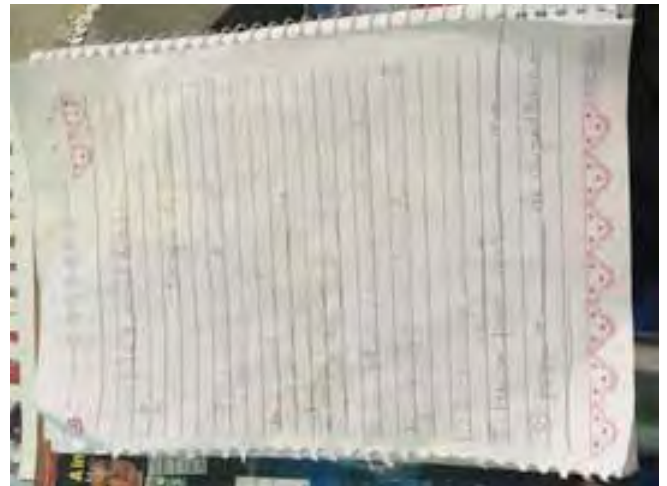
RCT0302 - SAULO



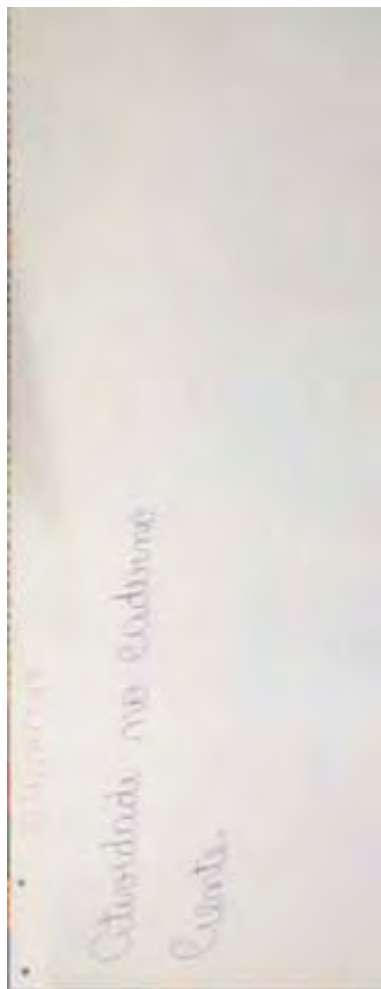
RCT0302 - LETÍCIA



RCT0302 - MANUELA



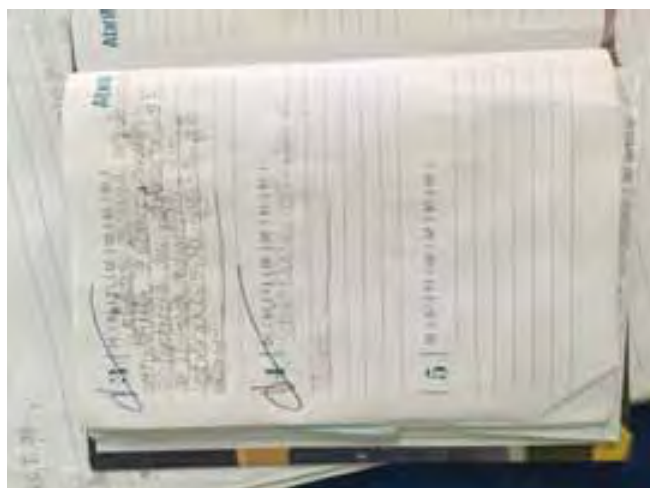
RCT0302 - ALESSANDRA



RCT0401 - AMANDA



RCT0401 - ALINE



RCT0401 - EDSON



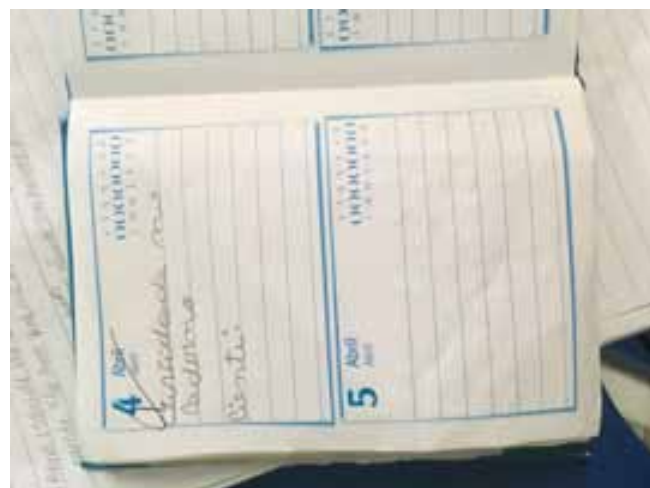
RCT0401 - TEO



RCT0401 - SAULO



RCT0401 - ALESSANDRA



RCT0401 - YVONE

4

1800-1850

1850-1900

1900-1950

1950-2000

2000-2020

2020-2050

2050-2100

2100-2150

2150-2200

2200-2250

2250-2300

2300-2350

2350-2400

2400-2450

2450-2500

2500-2550

2550-2600

2600-2650

2650-2700

2700-2750

2750-2800

2800-2850

2850-2900

2900-2950

2950-3000

3000-3050

3050-3100

3100-3150

3150-3200

3200-3250

3250-3300

3300-3350

3350-3400

3400-3450

3450-3500

3500-3550

3550-3600

3600-3650

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3800-3850

3850-3900

3900-3950

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4050-4100

4100-4150

4150-4200

4200-4250

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5050-5100

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5150-5200

5200-5250

5250-5300

5300-5350

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5900-5950

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6000-6050

6050-6100

6100-6150

6150-6200

6200-6250

6250-6300

6300-6350

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6850-6900

6900-6950

6950-7000

7000-7050

7050-7100

7100-7150

7150-7200

7200-7250

7250-7300

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8150-8200

8200-8250

8250-8300

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13550-13600

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13800-13850

13850-13900

13900-13950

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14050-14100

14100-14150

14150-14200

14200-14250

14250-14300

14300-14350

14350-14400

14400-14450

14450-14500

14500-14550

14550-14600

14600-14650

14650-14700

14700-14750

14750-14800

14800-14850

14850-14900

14900-14950

14950-15000

15000-15050

15050-15100

15100-15150

15150-15200

15200-15250

15250-15300

15300-15350

15350-15400

15400-15450

15450-15500

15500-15550

1

RCT0401 - MANUELA

[illegible]

RCT0401 - LETÍCIA

[illegible]

RCT0401 - LIA

14) *Paracelsus* um alquimista que lembra um alquímico quântico e durante a revolução e renascimento da química, focou a química.

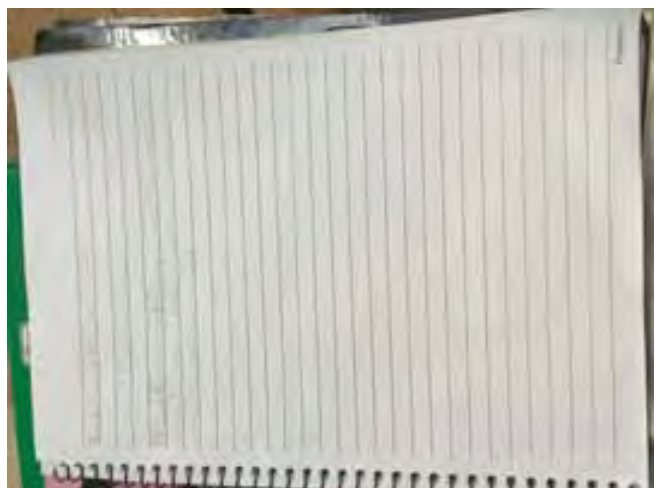
RCT0402 - AMANDA

A photograph of a blank, lined notebook page. The page is white with light blue horizontal ruling. It has a decorative border on the left and right sides, featuring a repeating pattern of small purple and white flowers. The page is slightly aged, with some minor discoloration and wear visible along the edges. The notebook is bound on the left side, and the page is shown at a slight angle.

RCT0402 - YWONE

1. The first part of the paper is a review of the literature on the topic of the effect of the environment on the development of the child. This part is divided into two sections: the first section deals with the physical environment and the second section deals with the social environment.

RCT0402 - SAULO



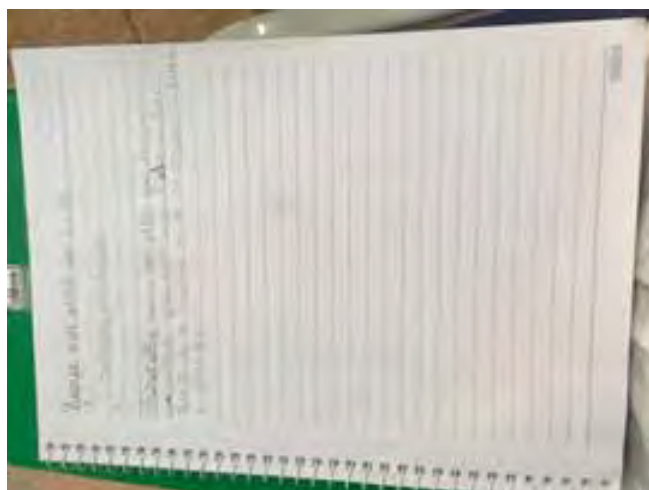
RCT0402 - ALINE



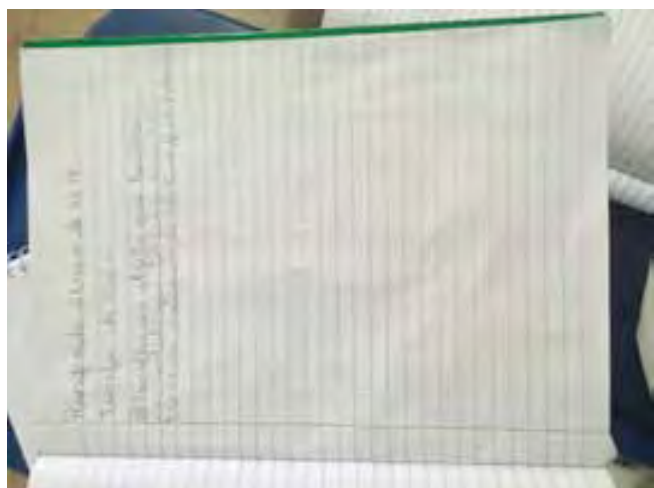
RCT0501 - AMANDA



RCT0402 - ALESSANDRA



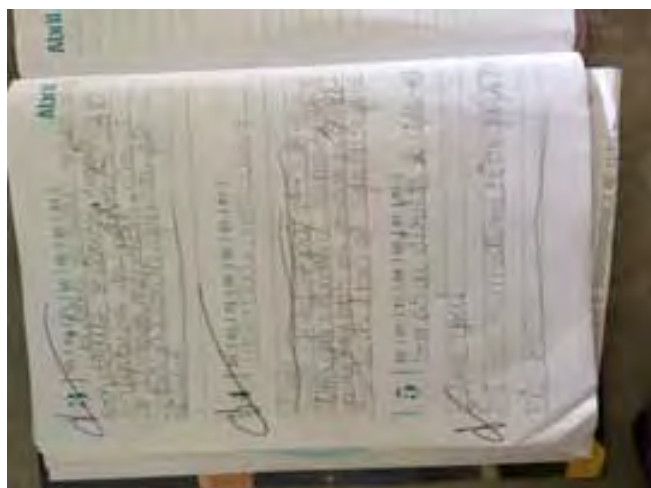
RCT0402 - MANUELA



RCT0402 - TEO



RCT0402 - LETÍCIA



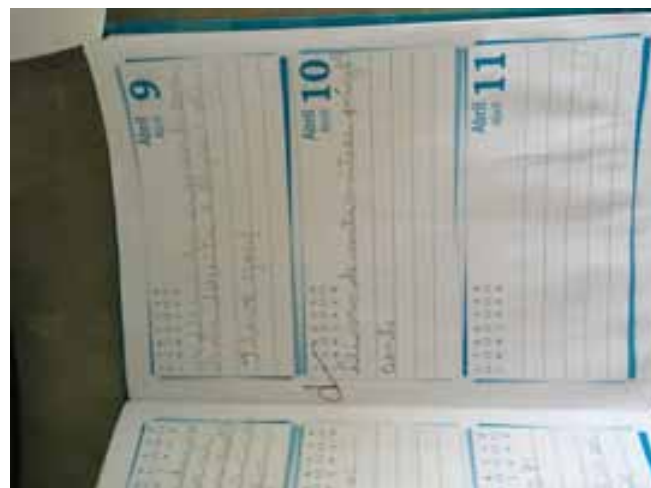
RCT0501 - EDSON



RCT0501 - ALESSANDRA



RCT0501 - YVONE



RCT0501 - TEO



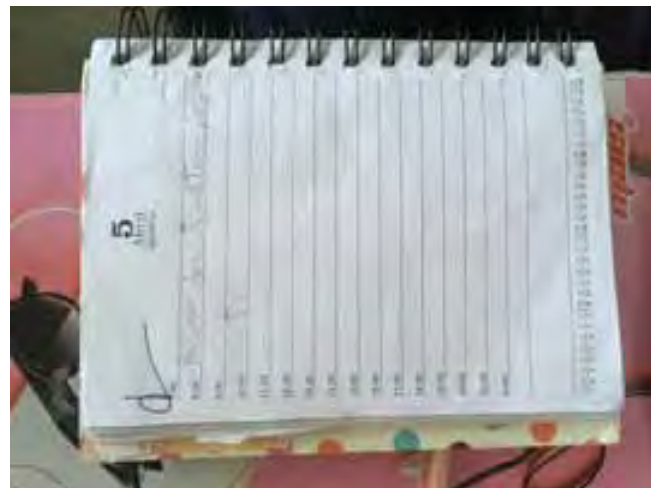
RCT0501 - SAULO



RCT0501 - LETICIA



RCT0501 - MANUELA



RCT0501 - ALINE



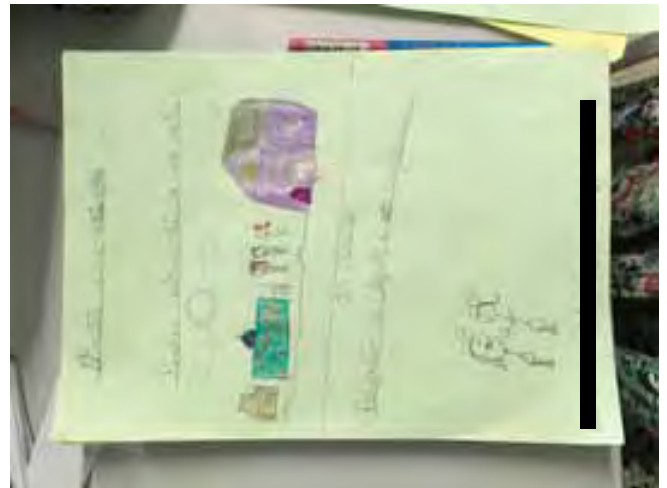
RCT0501 - LIA



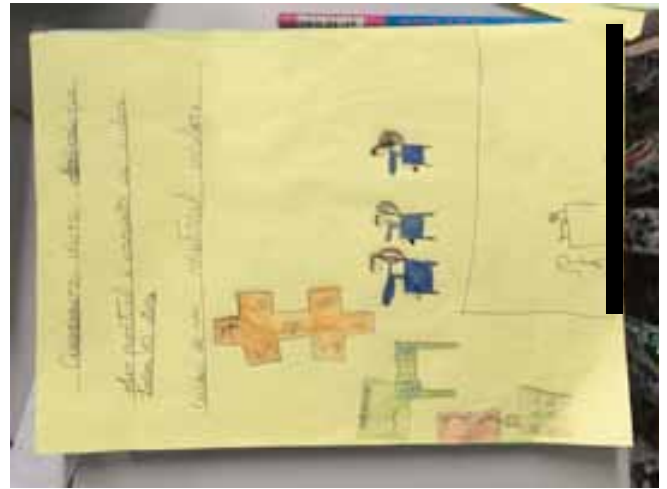
RCT0504 - EDSON, ALESSANDRA-1



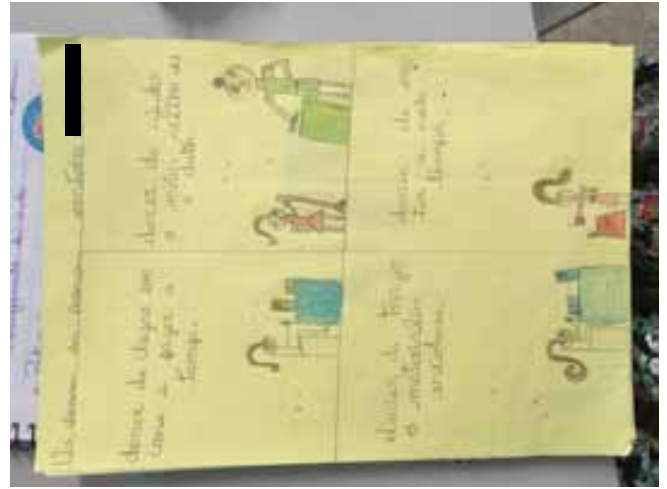
RCT0504 - EDSON, ALESSANDRA-2



RCT0504 - LETÍCIA-1



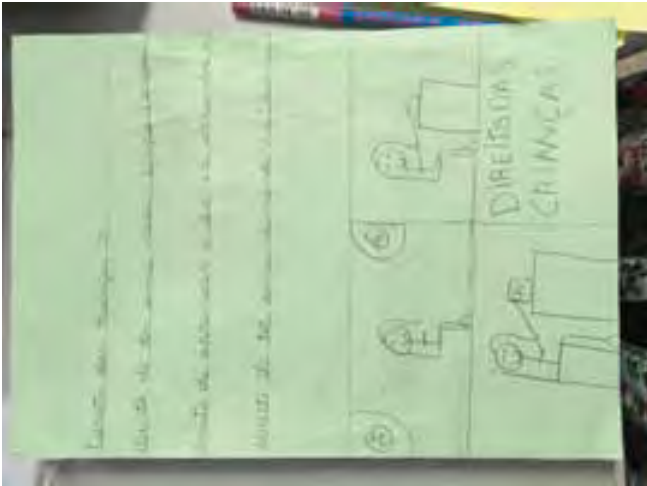
RCT0504 - LETÍCIA-2



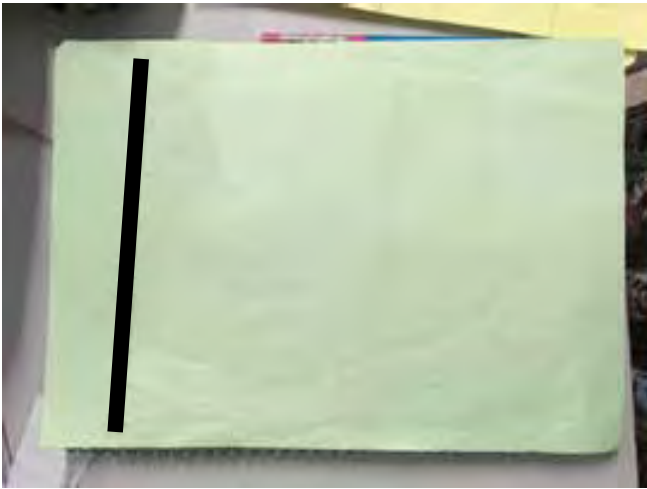
RCT0504 - ALINE-1



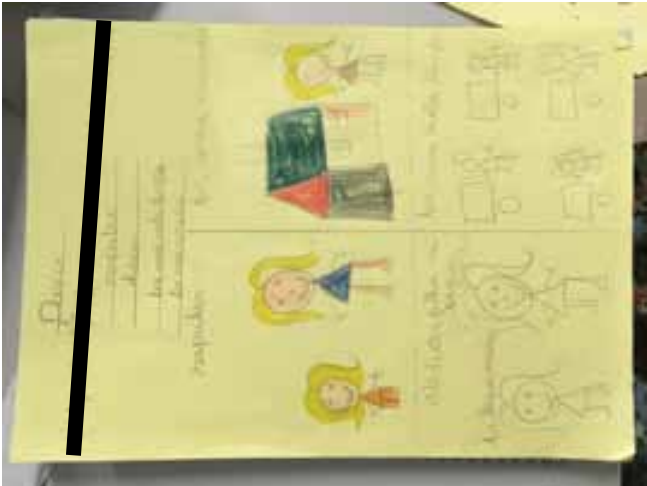
RCT0504 - ALINE-2



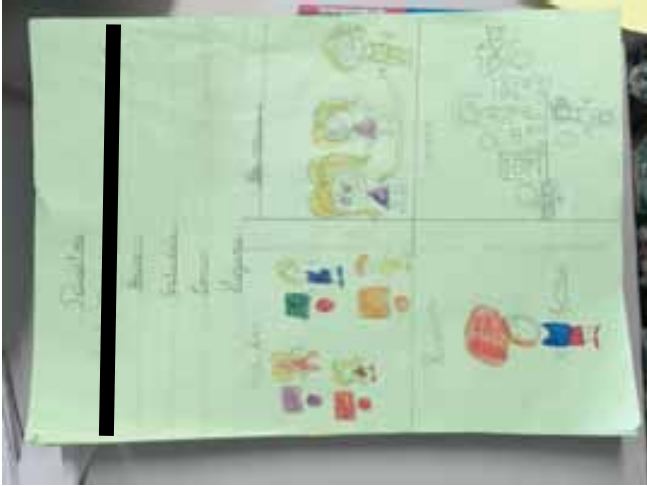
RCT0504 - YVONE-1



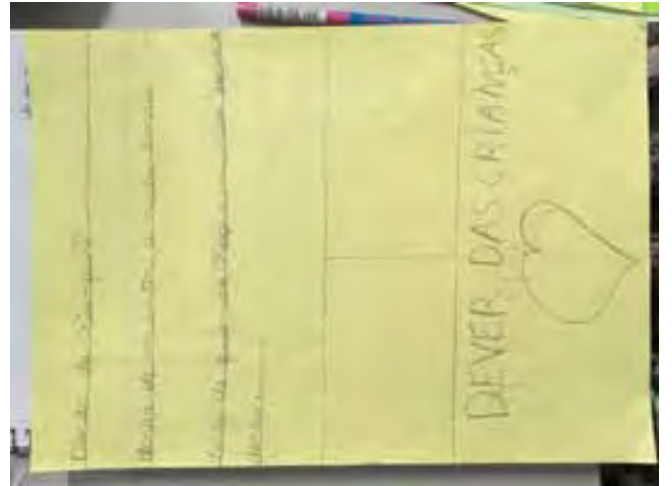
RCT0504 - YVONE-2



RCT0504 - LIA, TEO, MANUELA-1



RCT0504 - LIA, TEO, MANUELA-2



RCT0504 - YVONE-3



RCT0504 - YVONE-4



RCT0601 - AMANDA



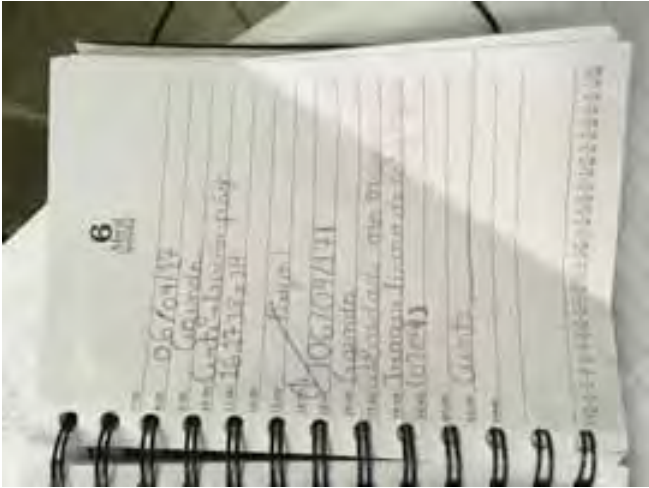
RCT0601 - TÉO



RCT0601 - LETÍCIA



RCT0601 - ALINE



RCT0601 - LIA



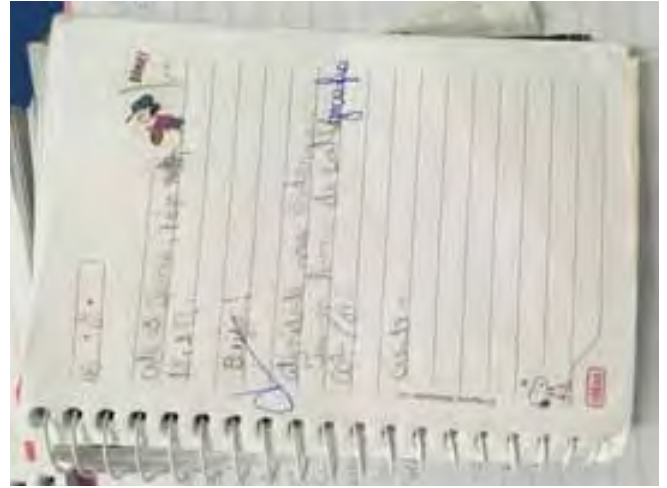
RCT0601 - EDSON



RCT0601 - MANUELA



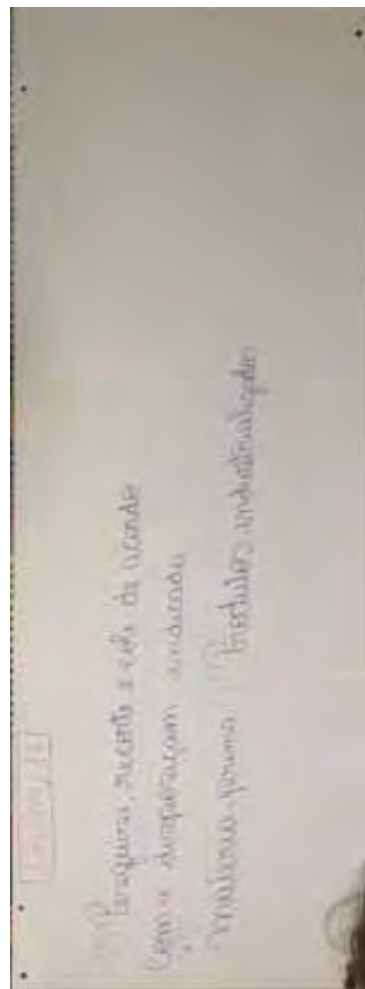
RCT0601 - YVONE



RCT0601 - SAULO



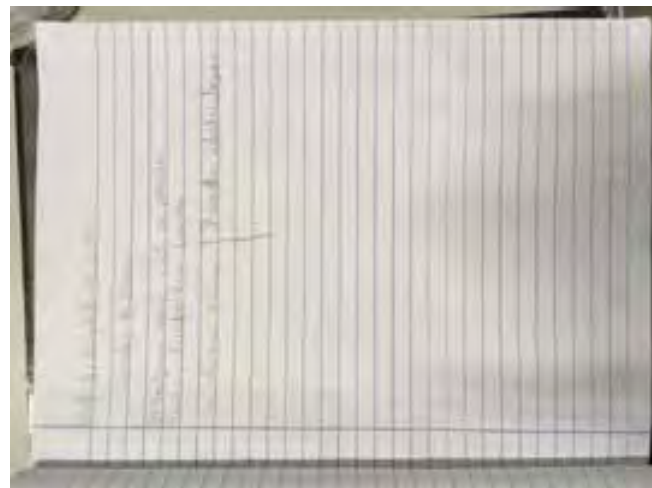
RCT0601 - ALESSANDRA



RCT0602 - AMANDA



RCT0602 - ALINE



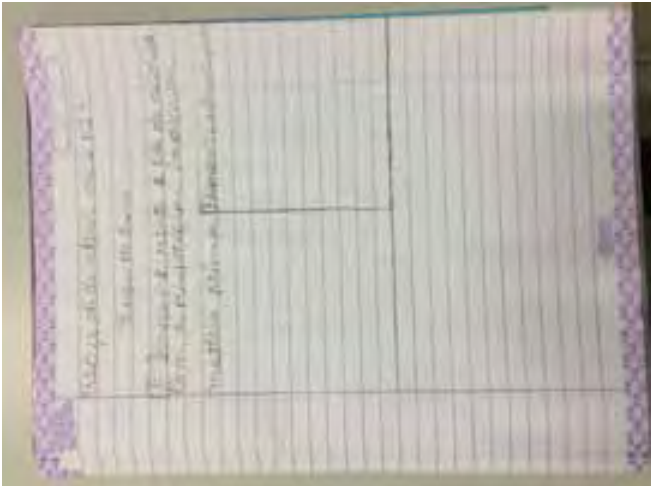
RCT0602 - SAULO



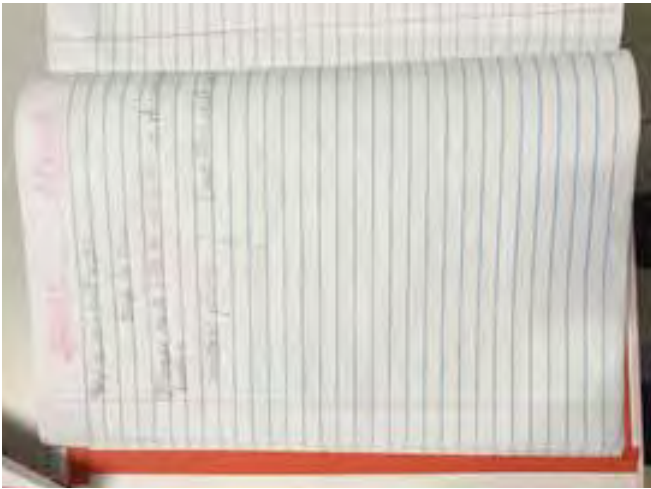
RCT0602 - EDSON



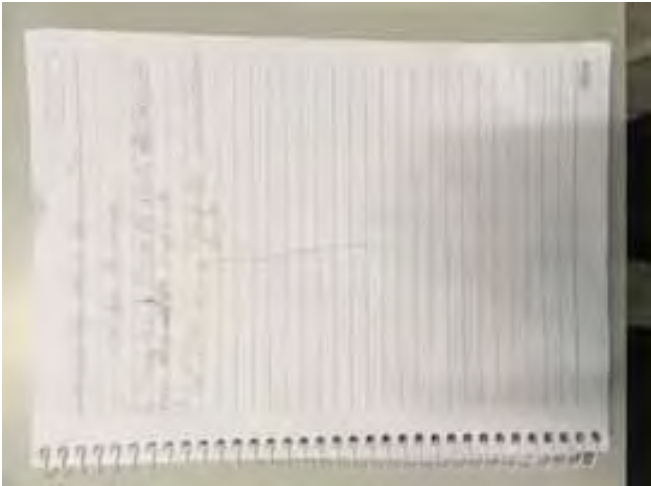
RCT0602 - TEO



RCT0602 - YVONE



RCT0602 - ALESSANDRA



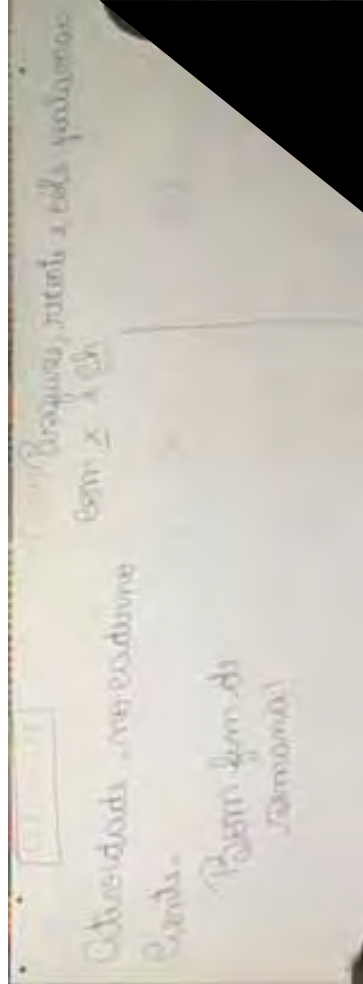
RCT0602 - MANUELA



RCT0602 - LETÍCIA



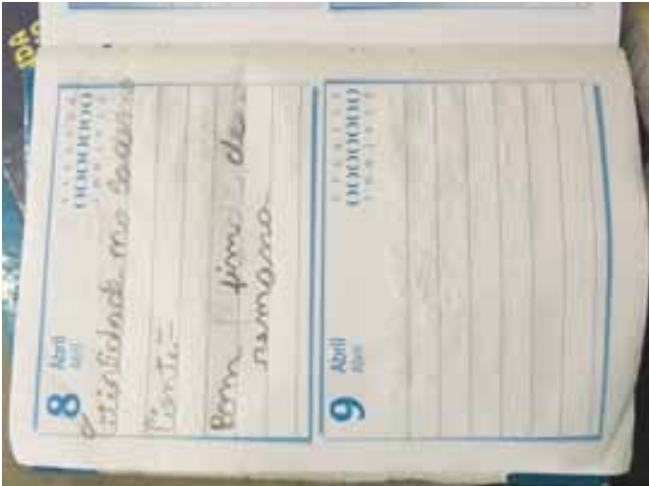
RCT0602 - LIA



RCT0701 E RCT0702 - AMANDA



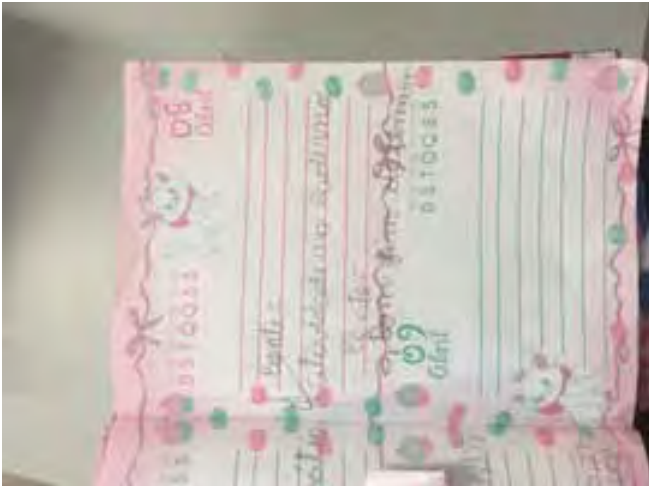
RCT0701 - MANUELA



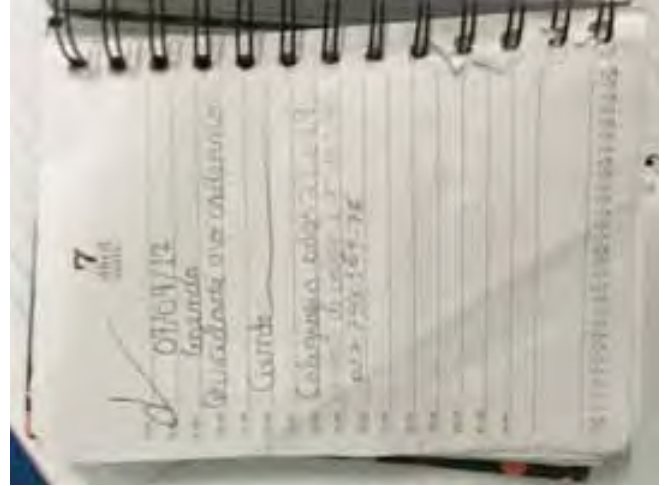
RCT0701 - YVONE



RCT0701 - EDSON



RCT0701 - ALESSANDRA



RCT0701 - LIA



RCT0701 - TEO



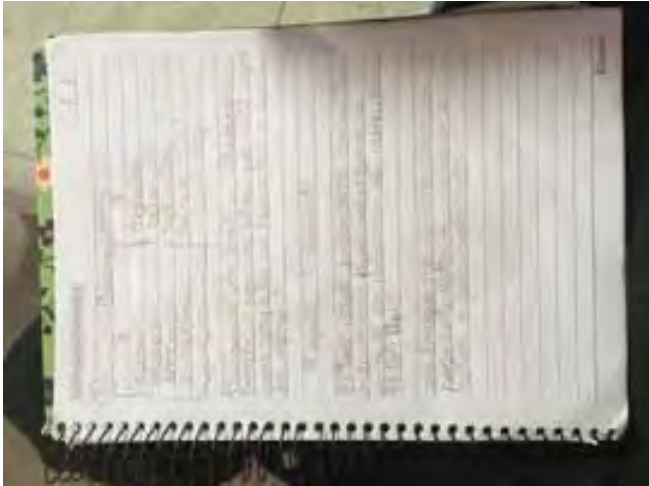
RCT0701 - ALINE



RCT0701 - LETÍCIA



RCT0702 - EDSON



RCT0702 - LIA



RCT0702 - ALESSANDRA



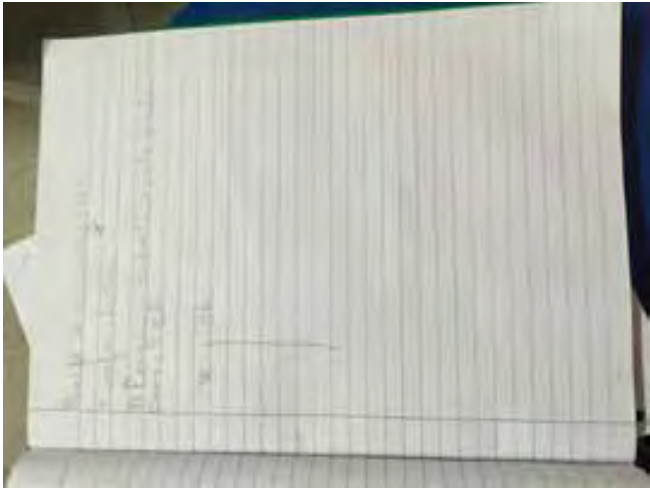
RCT0702 - YVONE



RCT0702 - LIA



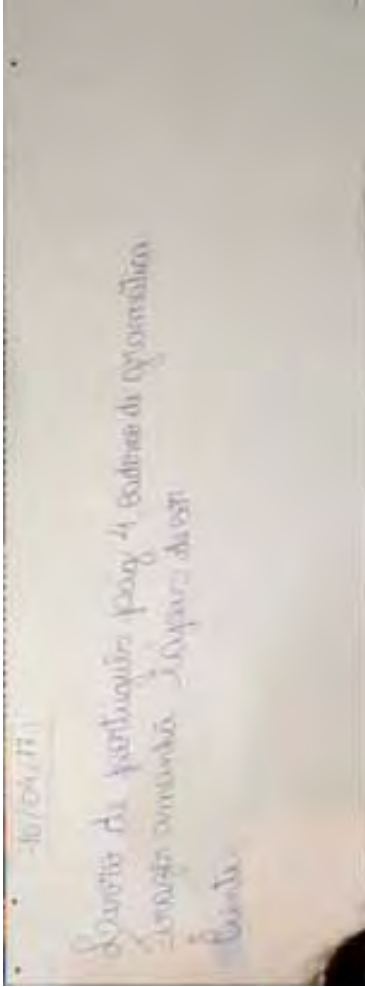
RCT0702 - ALINE



RCT0702 - TÍEO



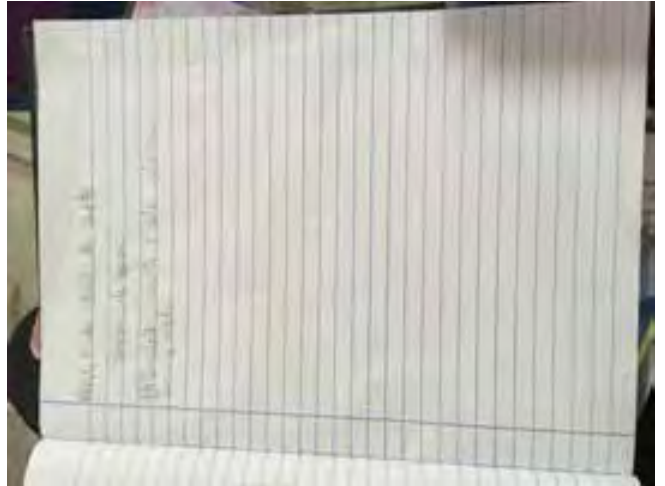
RCT0702 - MANUELA



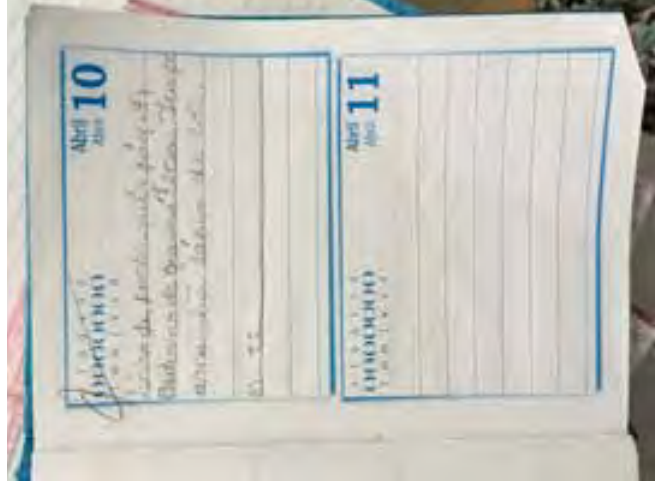
RCT0801 - AMANDA



RCT0702 - LETÍCIA



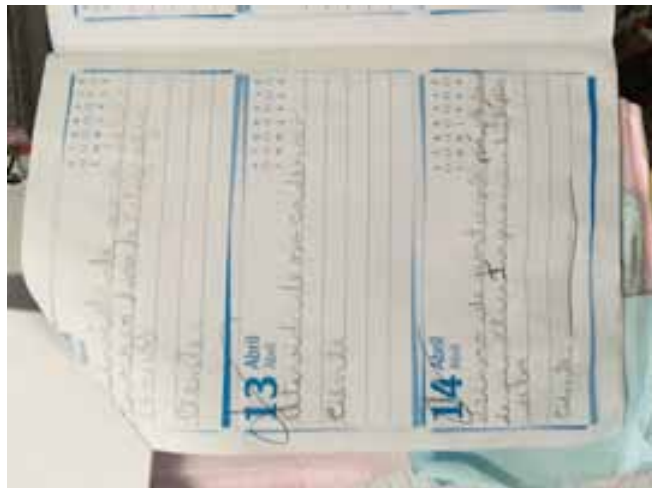
RCT0702 - SAULIO



RCT0801 - YVONE



RCT0801 - EDSON



RCT0801 - TEO



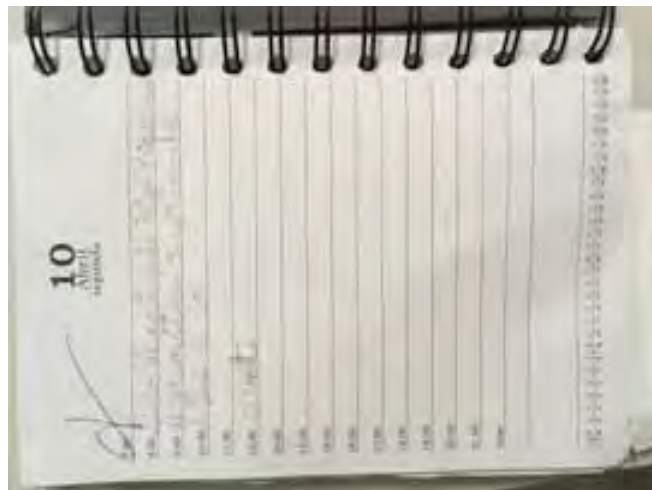
RCT0801 - SAULO



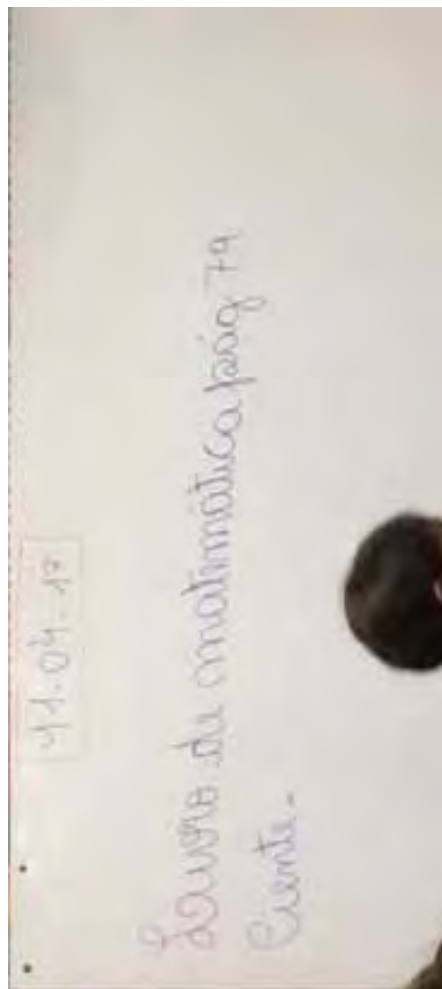
RCT0801 - ALESSANDRA



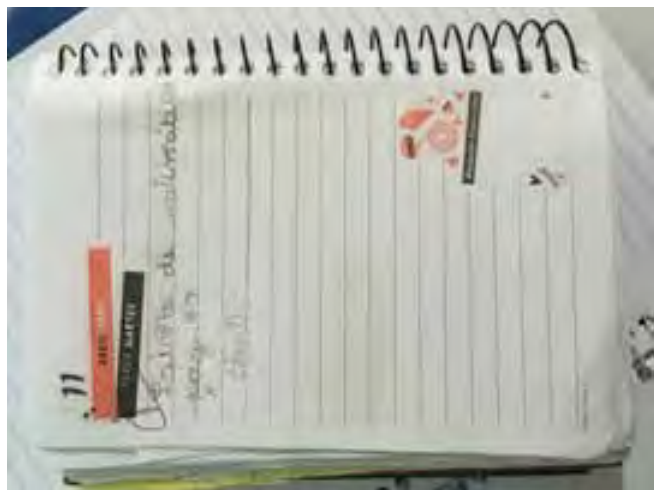
RCT0801 - LETÍCIA



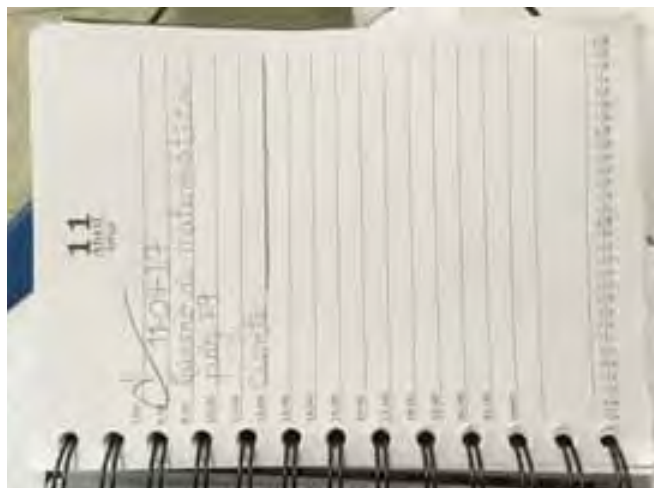
RCT0801 - ALINE



RCT0901 - AMANDA



RCT0901 - MANUELA



RCT0901 - LIA



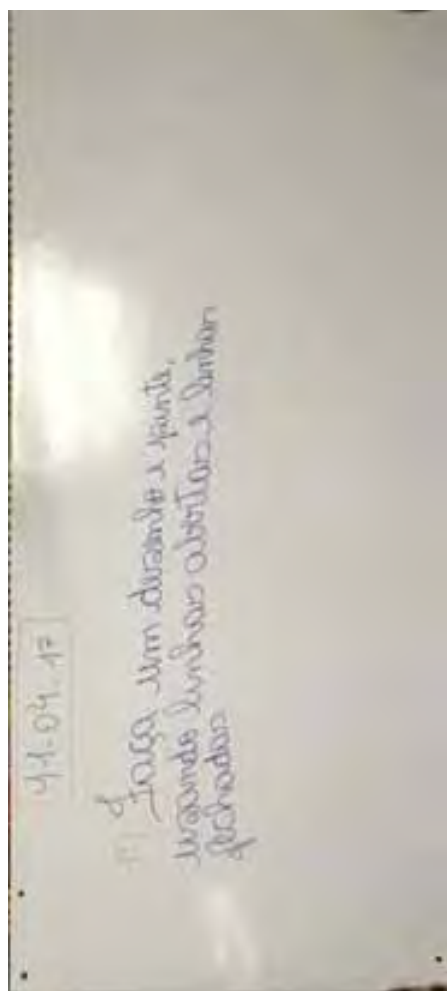
RCT0901 - TEO



RCT0901 - SAULO



RCT0901 - ALESSANDRA



RCT0904 - AMANDA



RCT0904 - LIA



RCT0904 - MANUELA



RCT0904 - EDSON



RCT0904 - SAULO



RCT0904 - ALESSANDRA

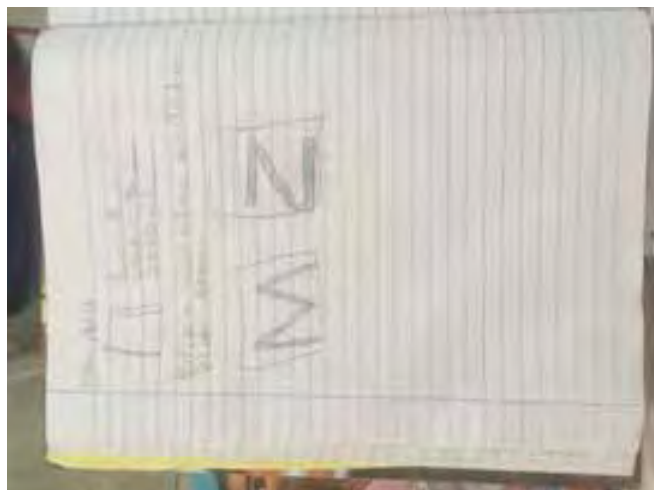


RCT0904 - TEO



RCT1002 - AMANDA





RCT1002 - SAULO-2



RCT1002 - LETÍCIA-2



RCT1002 - ALINE-1



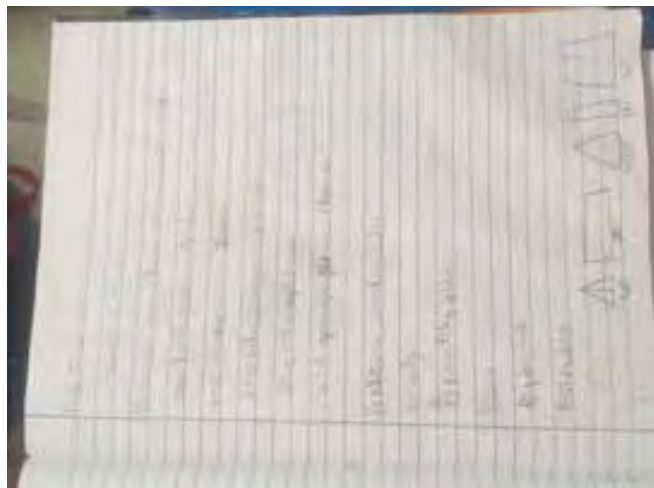
RCT1002 - EDSON-1



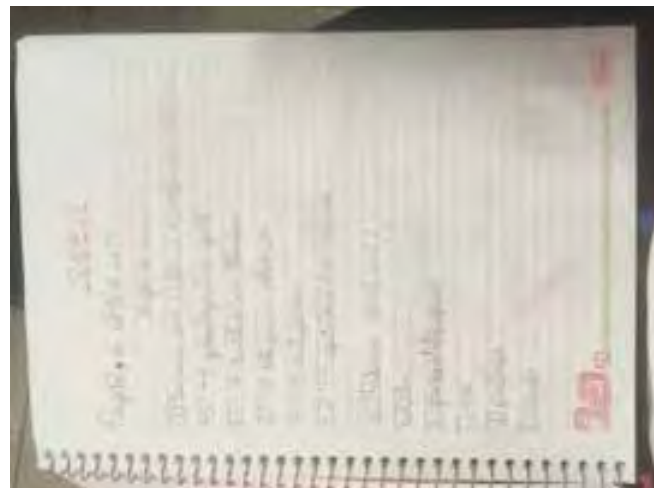
RCT1002 - ALINE-2



RCT1002 - EDSON-2



RCT1002 - SAULO-1



RCT1002 - LETÍCIA-1



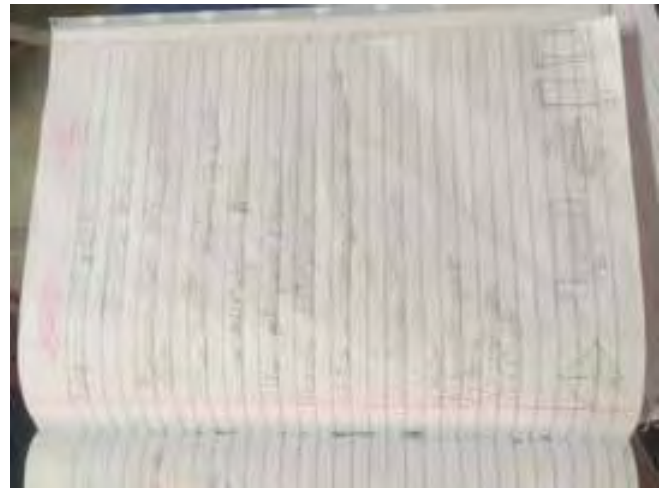
RCT1002 - LIA-2



RCT1002 - ALESSANDRA-2



RCT1002 - LIA-1



RCT1002 - ALESSANDRA-1



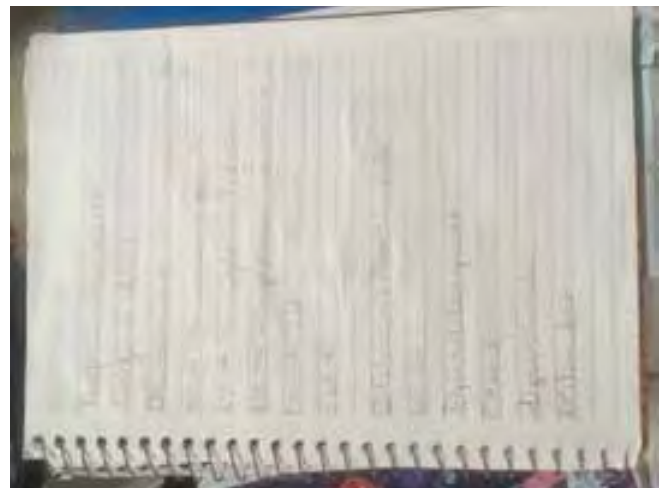
RCT1002 - MANUELA-2



RCT1002 - TEO-2



RCT1002 - MANUELA-1



RCT1002 - TEO-1



RCT1003 - LIA



RCT1003 - SAULO



RCT1003 - ALESSANDRA



RCT1003 - LETÍCIA



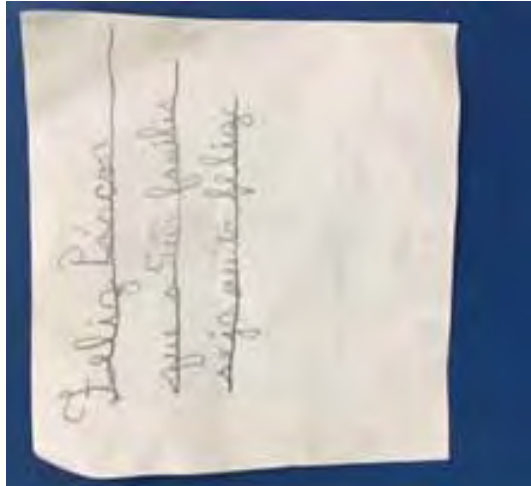
RCT1003 - ALINE



RCT1003 - EDSON



RCT1003 - TÉO-1



RCT1003 - TÉO-2

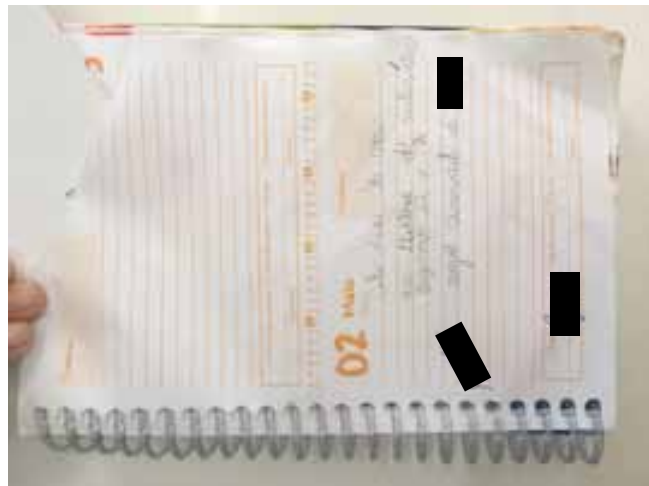


Class 6
Lubienska Educational
Centre [LB]





LB0107- VINÍCIUS



LB0107 - MILENA



LB0107- IAGO



LB0107- DÁRIO



LB0107- LEVI



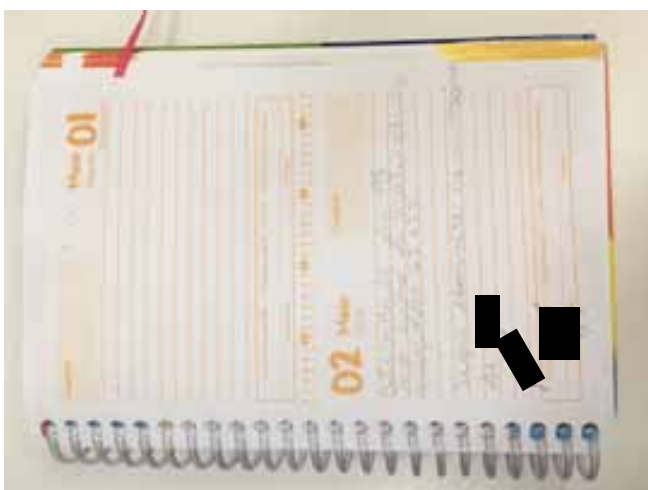
LB0107- RENAN



LB0107- JOANA



LB0107- CELSO



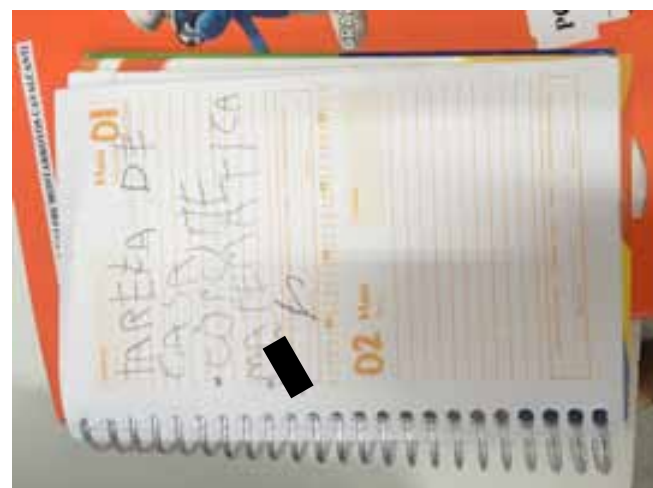
LB0107- JULIANE



LB0107- MATEUS



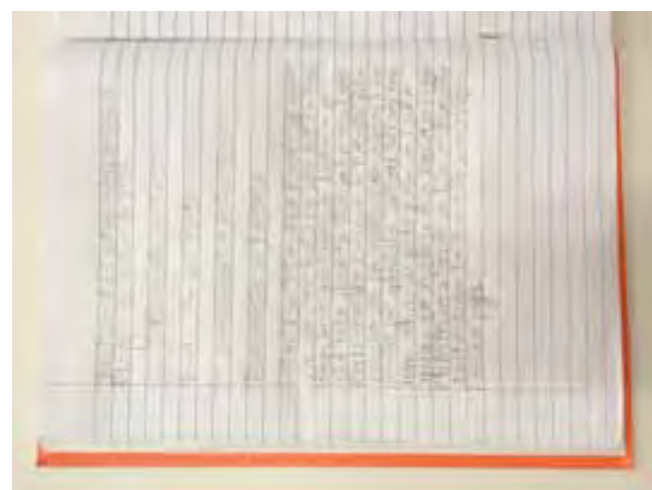
LB0107- LÍDIA



LB0107- PAULO



LB0203 - CECÍLIA



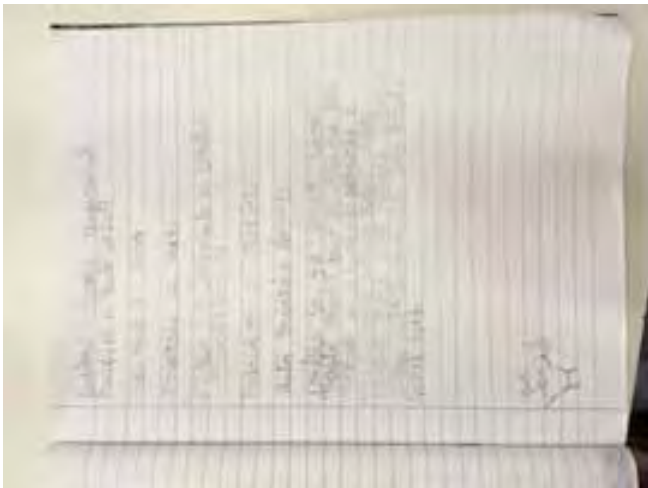
LB0203 - LEVI



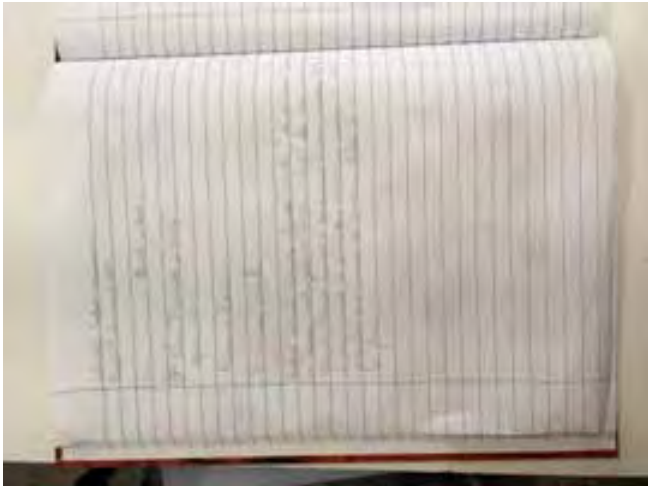
LB0203 - RENAN



LB0203 - LEVI-2



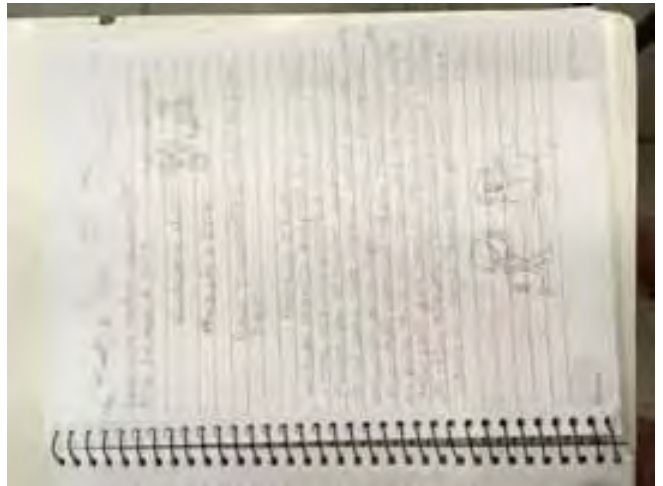
LB0203 - JONAS



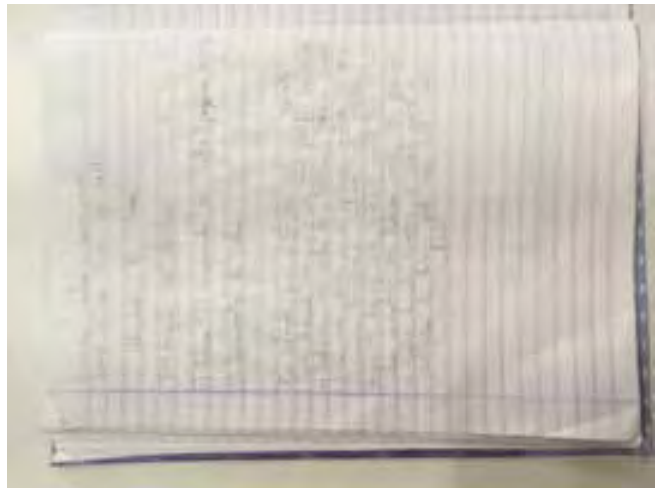
LB0203 - CELSO-1



LB0203 - CELSO-2



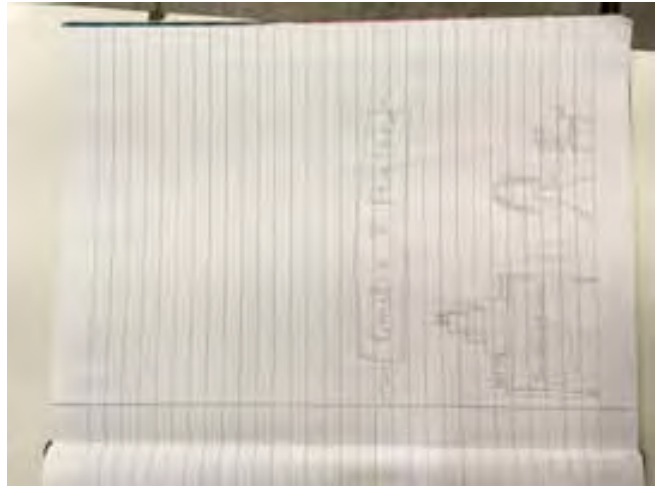
LB0203 - DÁRIO



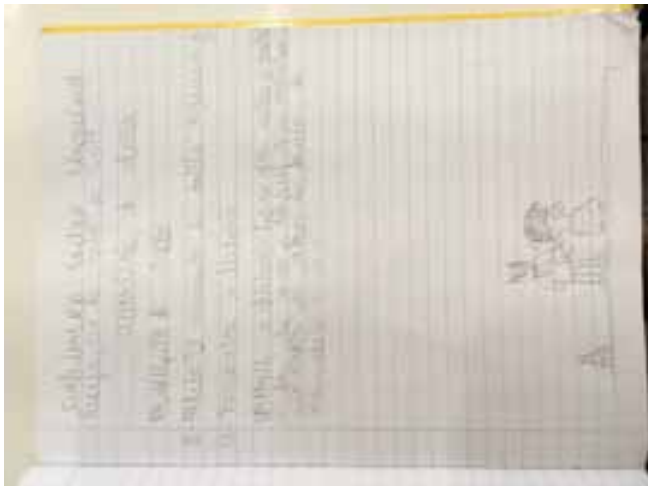
LB0203 - GISELE



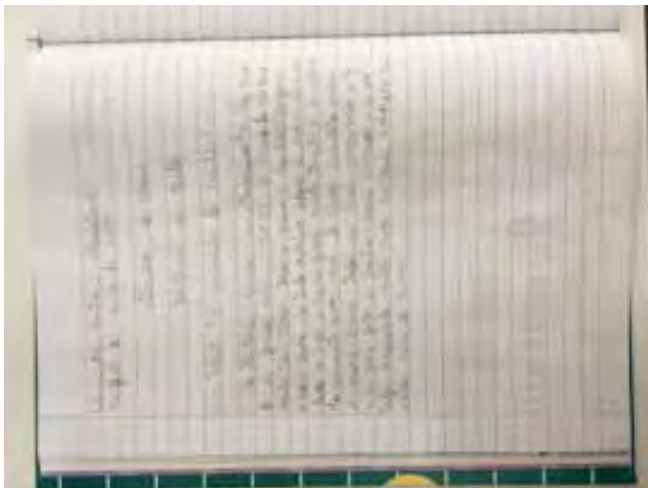
LB0203 - JOANA-1



LB0203 - JOANA-2



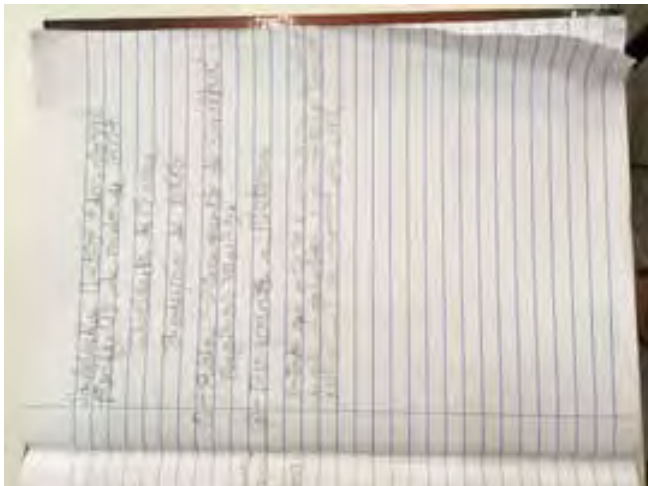
LB0203 - VINÍCIUS



LB0203 - MATTE-1



LB0203 - IAGO-2



LB0203 - JOSÉ



LB0203 - MATTE-2



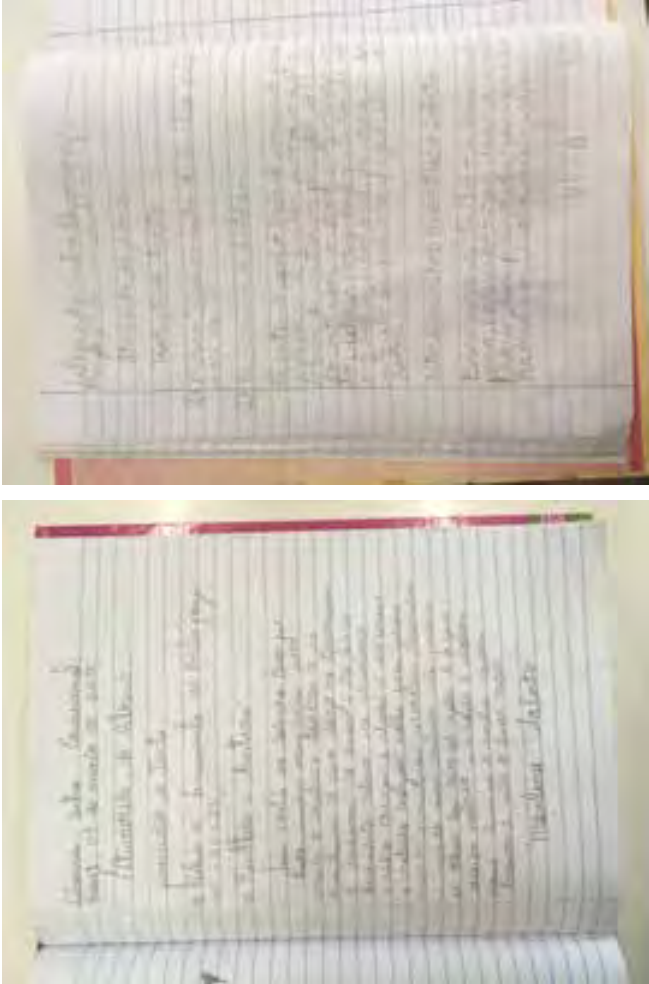
LB0203 - IAGO-1



LB0203 - MILENA-1



LB0203 - MILENA-2



LB0203 - ALICE



LB0203 - LÍDIA



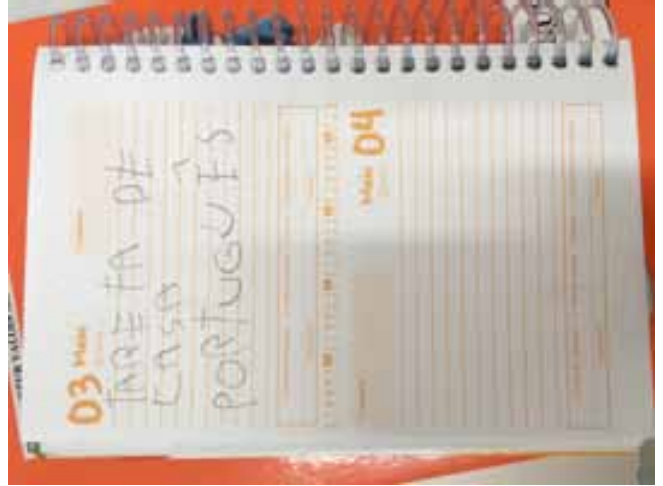
LB0207 - CECÍLIA



LB0203 - JULIANE



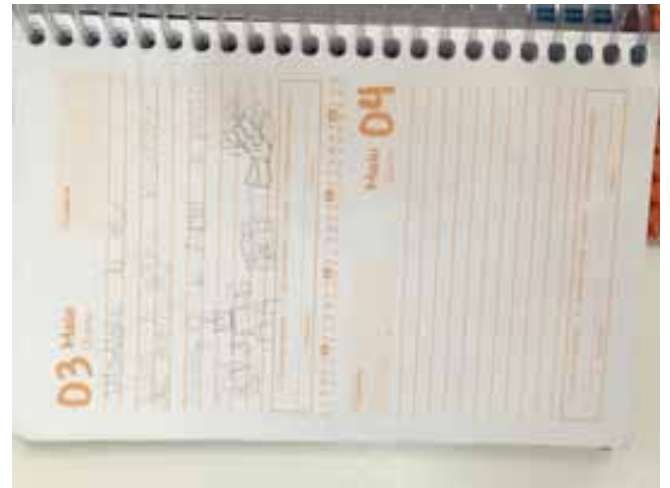
LB0207 - JULIANE



LB0207 - PAULO



LB0207 - RENAN



LB0207 - VINÍCIUS



LB0207 - JONAS



LB0207 - IAGO



LB0207 - JOANA



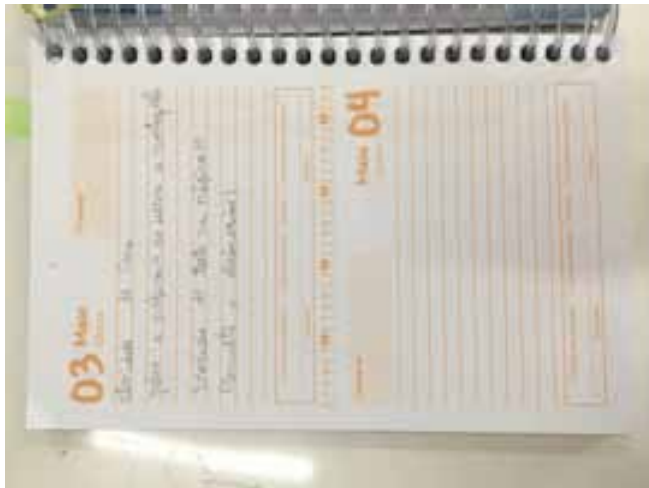
LB0207 - CELSO



LB0207 - GISELE



LB0207 - LEVI



LB0207 - MAITÉ



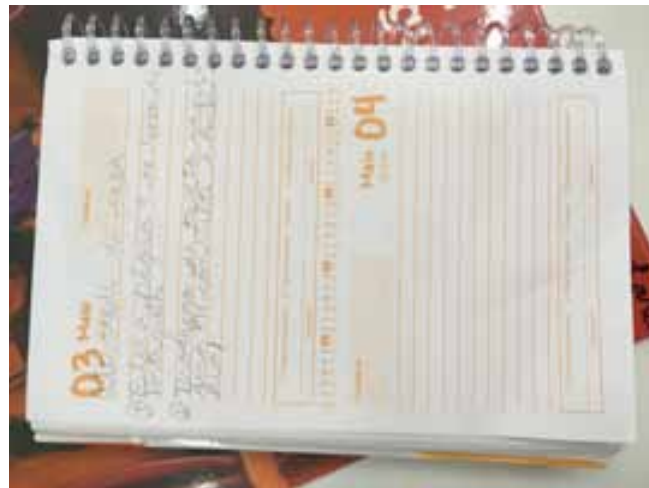
LB0207 - DÁRIO



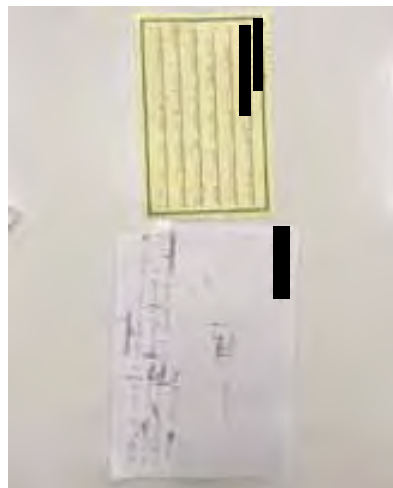
RCT1003 - ALICE



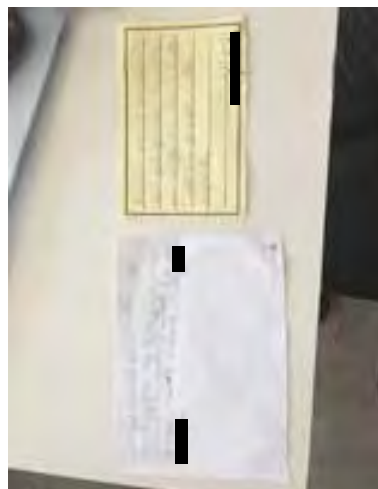
LB0207 - MILENA



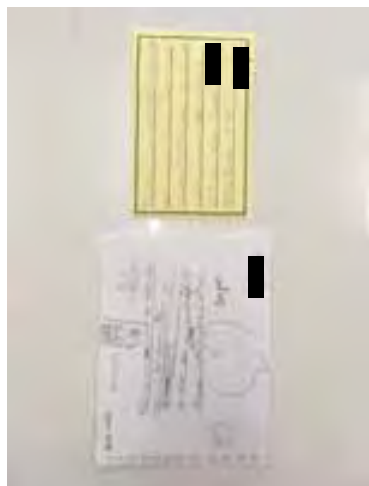
LB0207 - LÍDIA



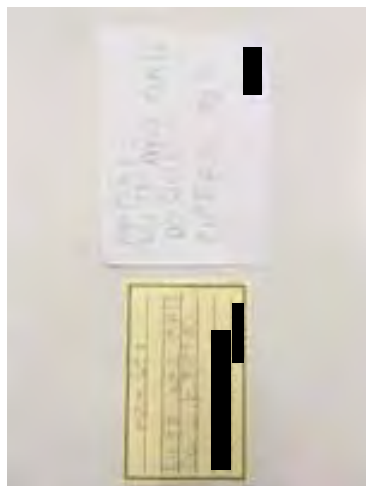
LB0305 - JOANA



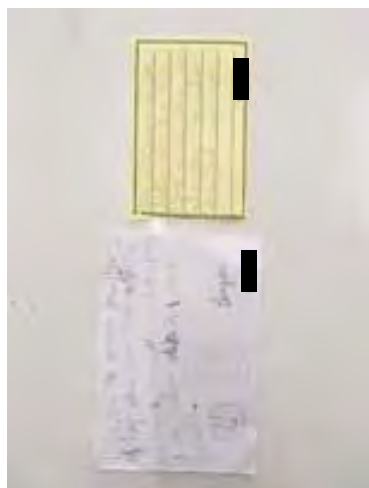
LB0305 - JOSÉ



LB0305 - DÁRIO



LB0305 - PAULO



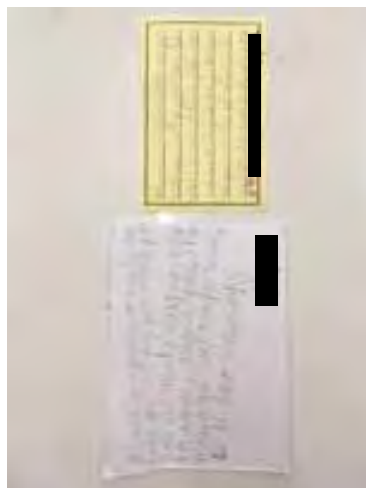
LB0305 - MATEUS



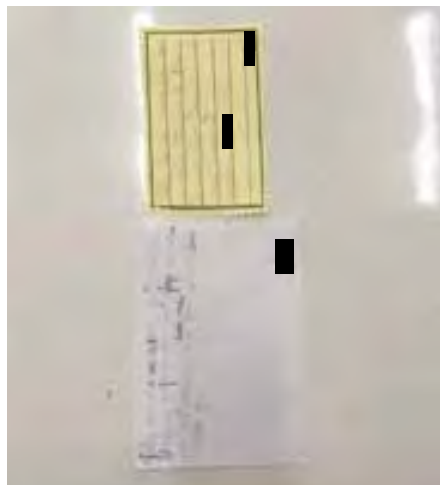
LB0305 - GISELE



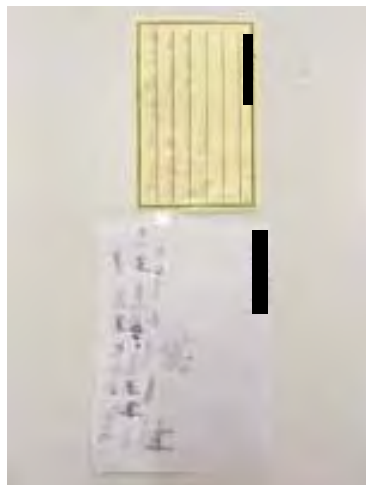
LB0305 - CELSO



LB0305 - LEVI



LB0305 - IAGO



LB0305 - MILENA



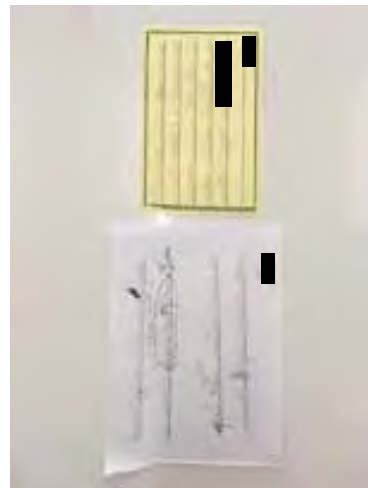
LB0305 - JULIANE



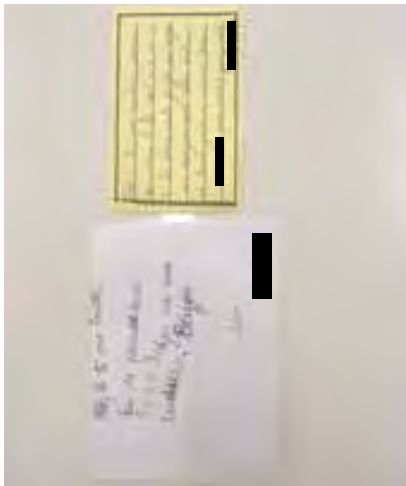
LB0306 - CECÍLIA



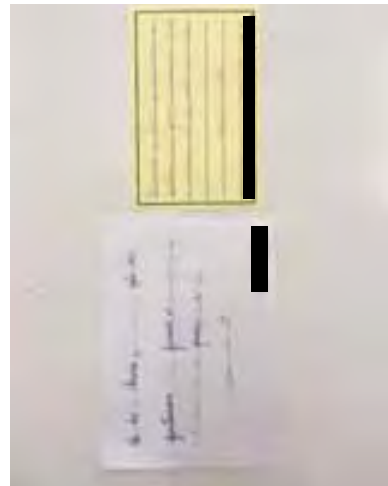
LB0305 - JONAS



LB0305 - LÍDIA



LB0305 - ALICE



LB0305 - MAITÉ



LB0306 - MILENA



LB0306 - IAGO



LB0306 - MATÉ



LB0306 - ALICE



LB0306 - MATEUS



LB0306 - JOSÉ



LB0306 - JOANA-1



LB0306 - LÍDIA



LB0306 - JOANA-2



LB0306 - GISELE-1,2





LB0306 - GISELE-3



LB0306 - JULIANE



LB0306 - DÁRIO-1



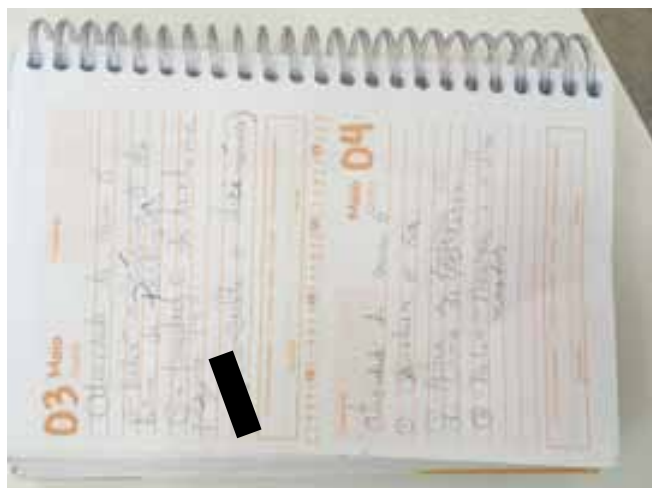
LB0306 - DÁRIO-2



LB0307 - JOSÉ



LB0307 - JONAS



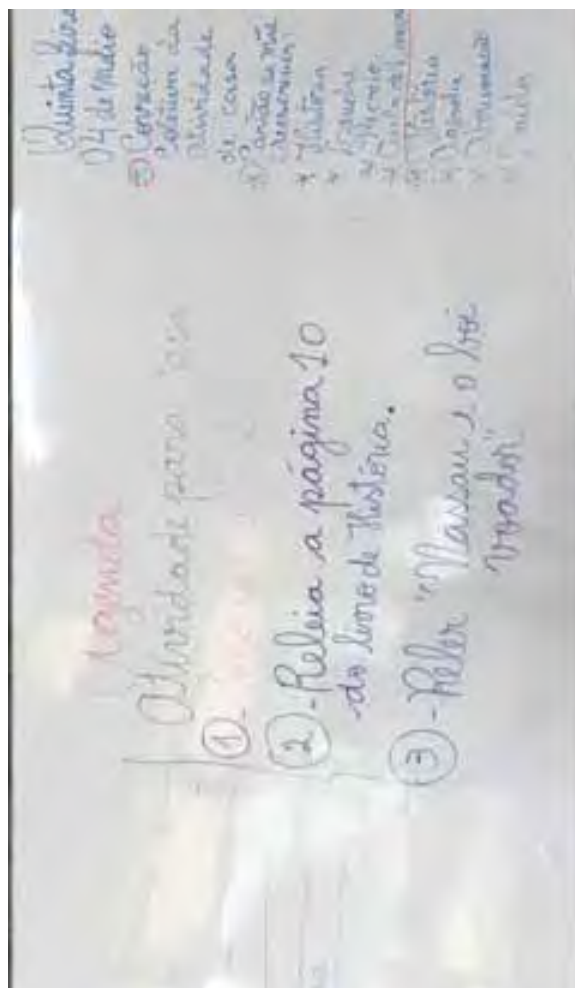
LB0307 - GISELE



LB0307 - IAGO



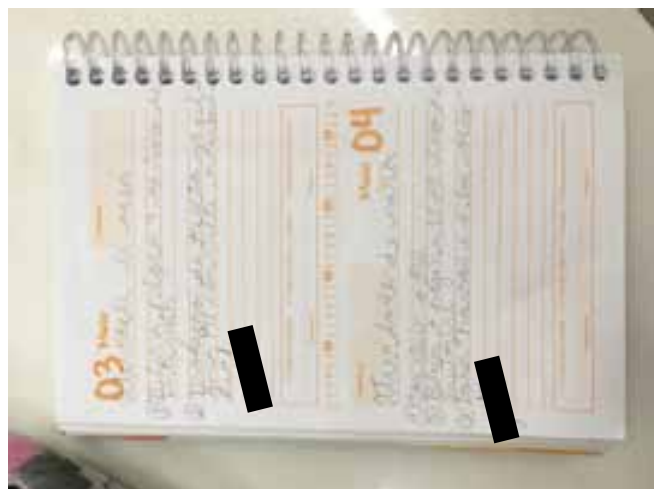
LB0306 - MATEUS



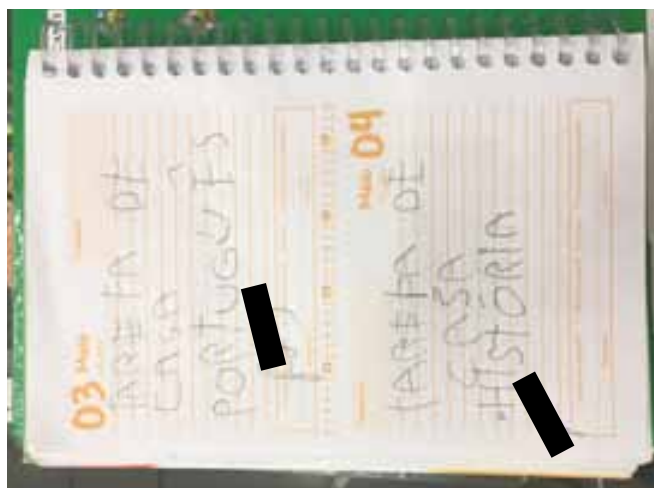
LB0307 - CECÍLIA



LB0307 - DÁRIO



LB0307 - LÍDIA



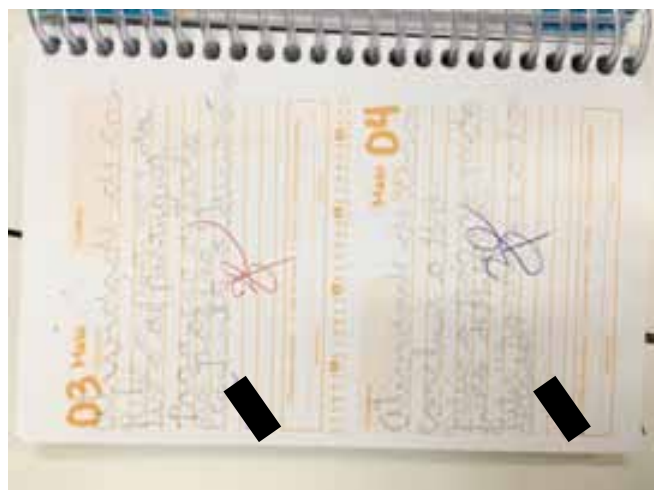
LB0307 - PAULO



LB0307 - JULIANE



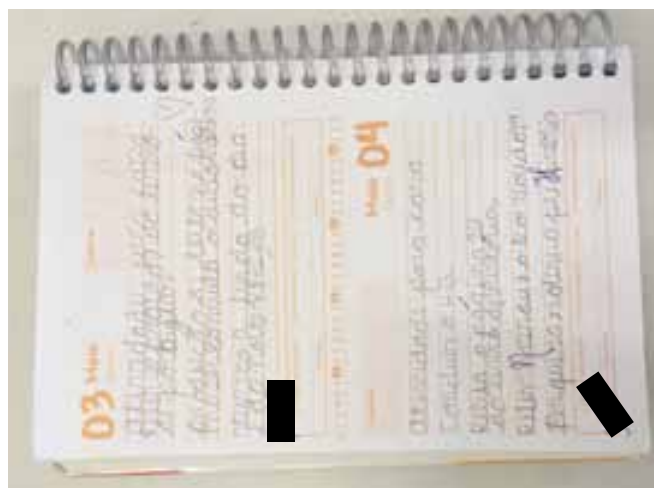
LB0307 - LEVI



LB0307 - MATEUS



LB0307 - RENAN



LB0307 - CELSO



LB0307 - MAITÉ

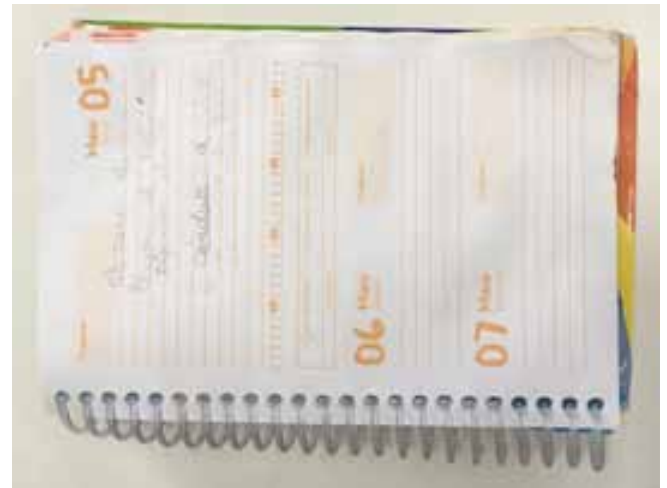
LB0307 - JOANA



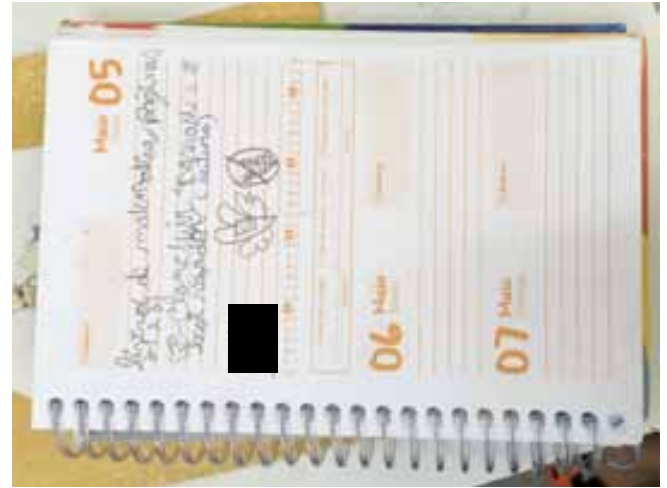
LB0307 - MILENA



LB0405 - CECÍLIA



LB0405 - MILENA



LB0405 - JOSÉ



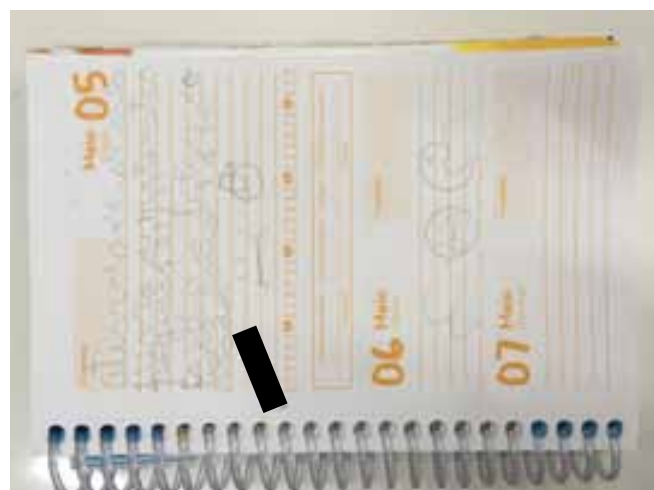
LB0405 - DÁRIO



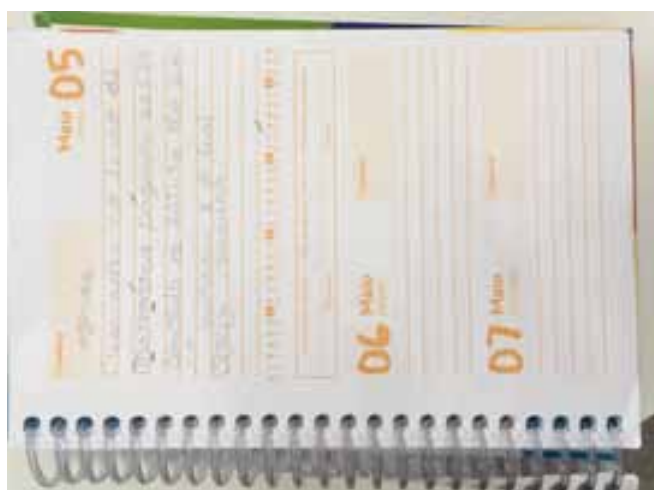
LB0405 - CELSO



LB0405 - LÍDIA



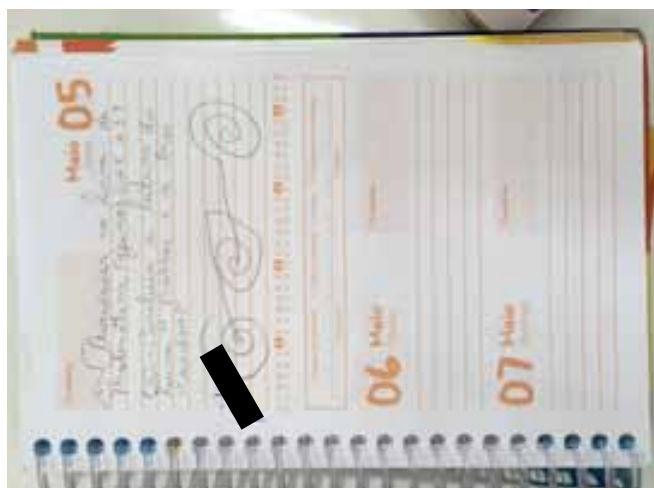
LB0405 - MATEUS



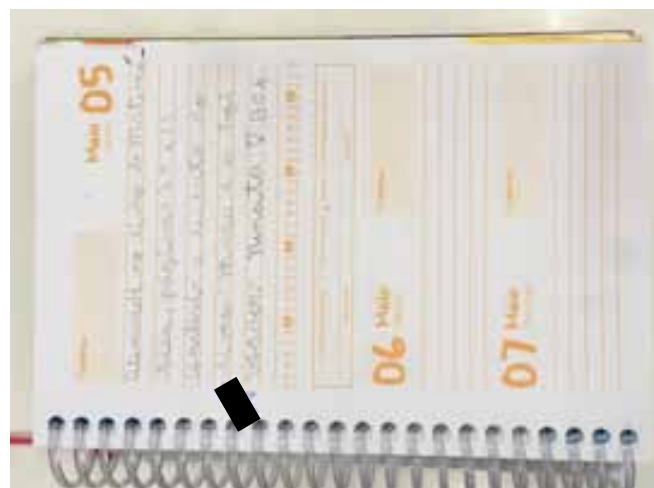
LB0405 - JOANA



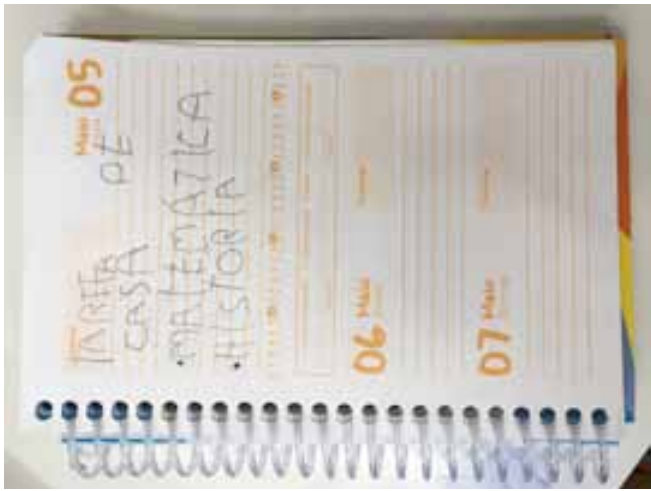
LB0405 - MATÉ



LB0405 - GISELE



LB0405 - JULIANE



LB0405 - PAULO



LB0405 - IAGO



LB0405 - ALICE



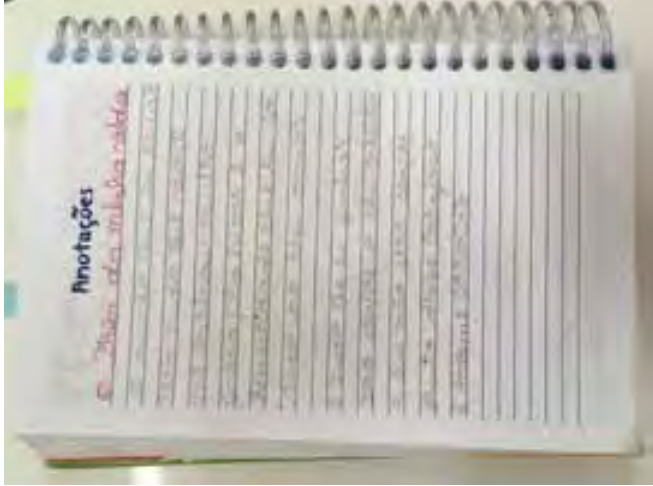
LB0503 - IAGO



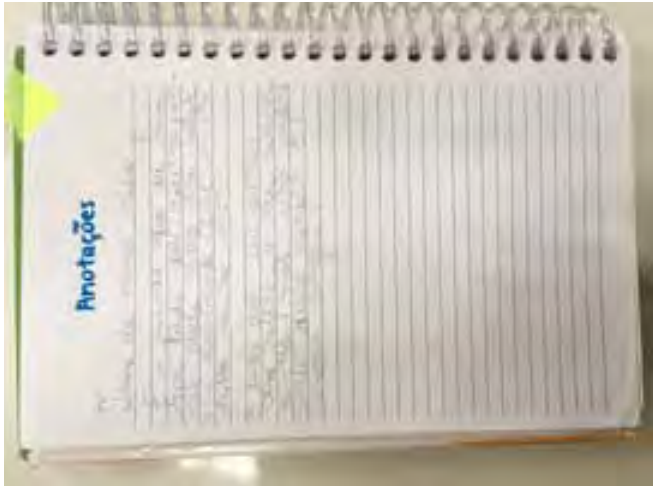
LB0503 - RENAN



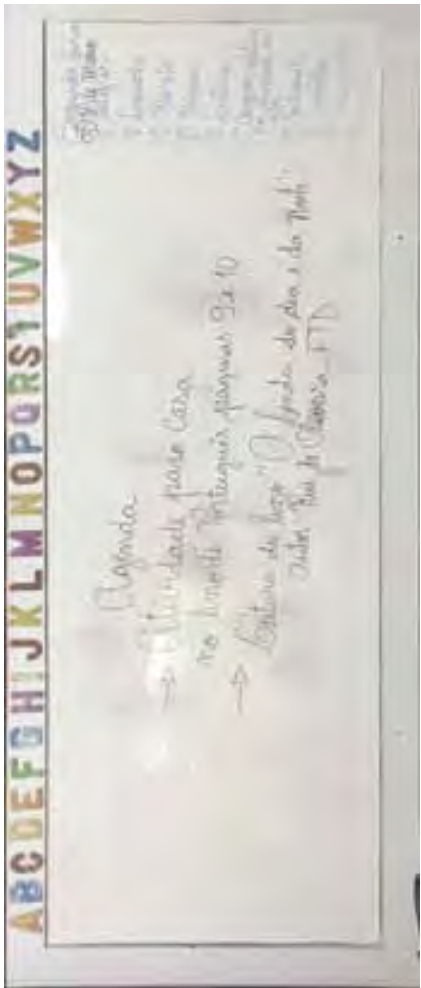
LB0503 - CECÍLIA



LB0503 - JOANA



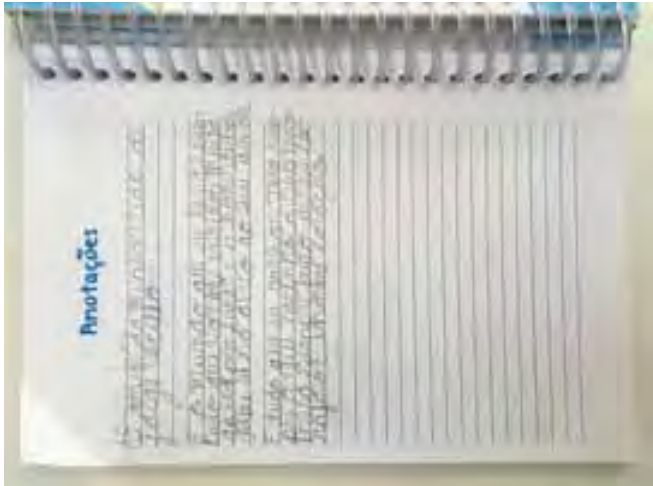
LB0503 - GISELE



LB0506 - CECÍLIA



LB0503 - VINÍCIUS



LB0503 - LEVI



LB0506 - RENAN



LB0506 - LEVI



LB0506 - DÁRIO



LB0506 - ALICE



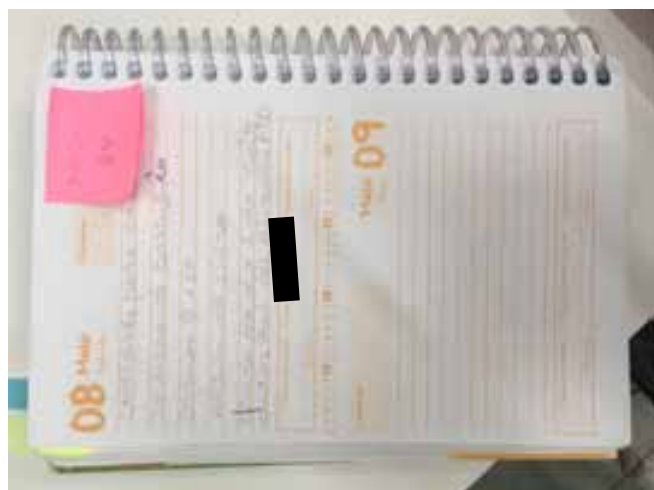
LB0506 - MATEUS



LB0506 - JOSÉ



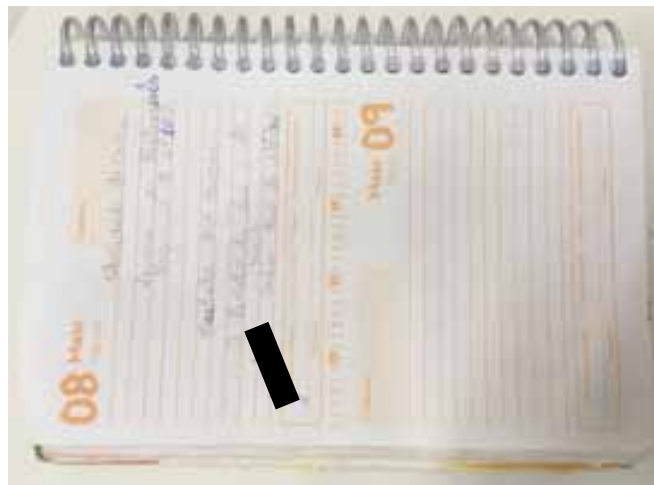
LB0506 - LÍDIA



LB0506 - JOANA



LB0506 - VINÍCIUS



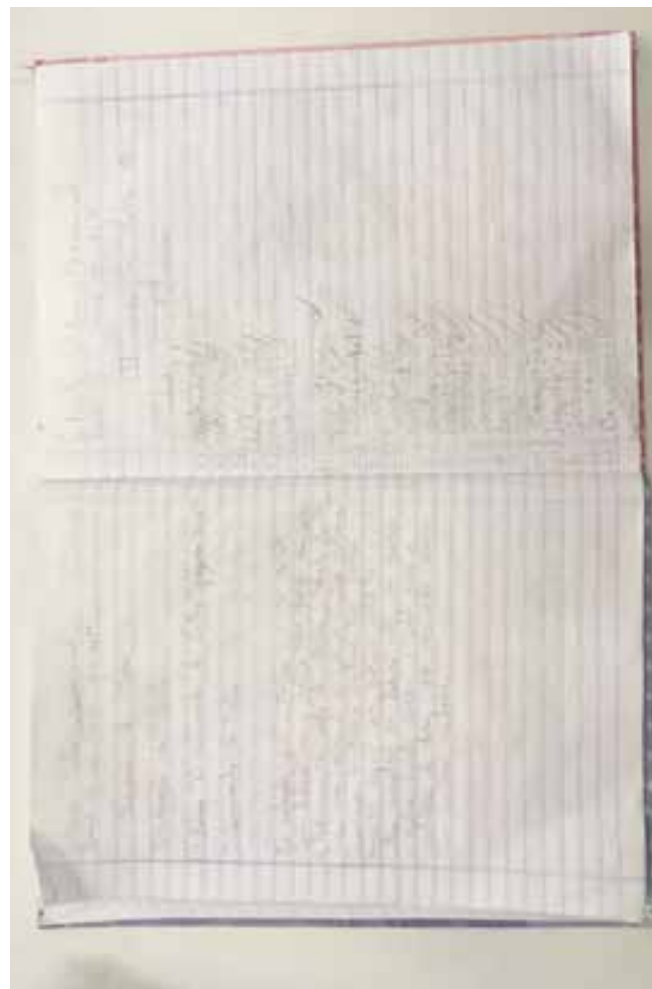
LB0506 - MILENA



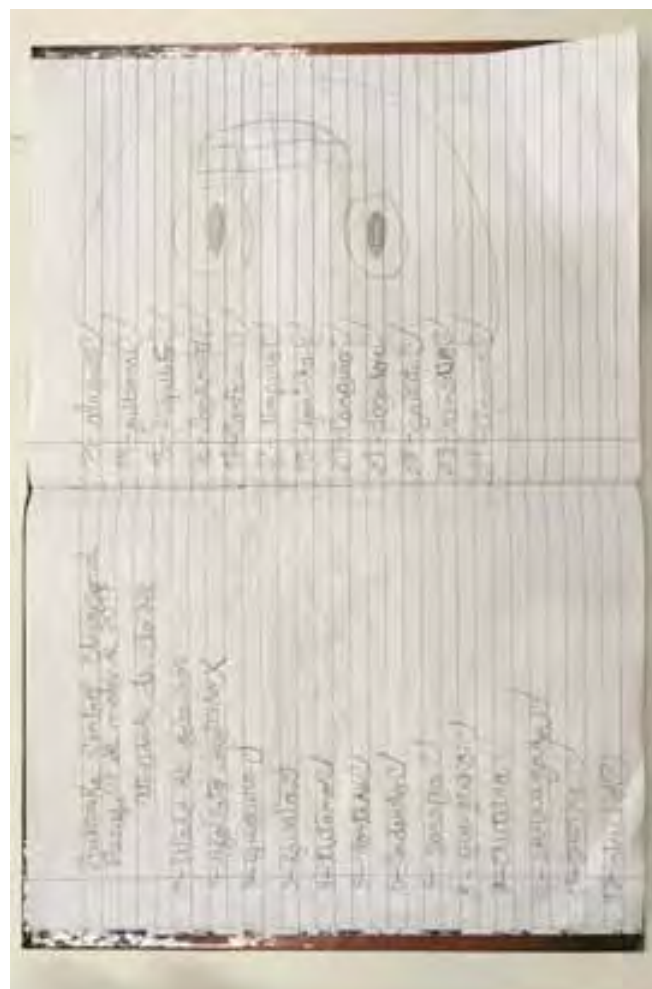
LB0603 - DÁRIO



LB0603 - IAGO



LB0603 - GISELE



LB0603 - JOSÉ



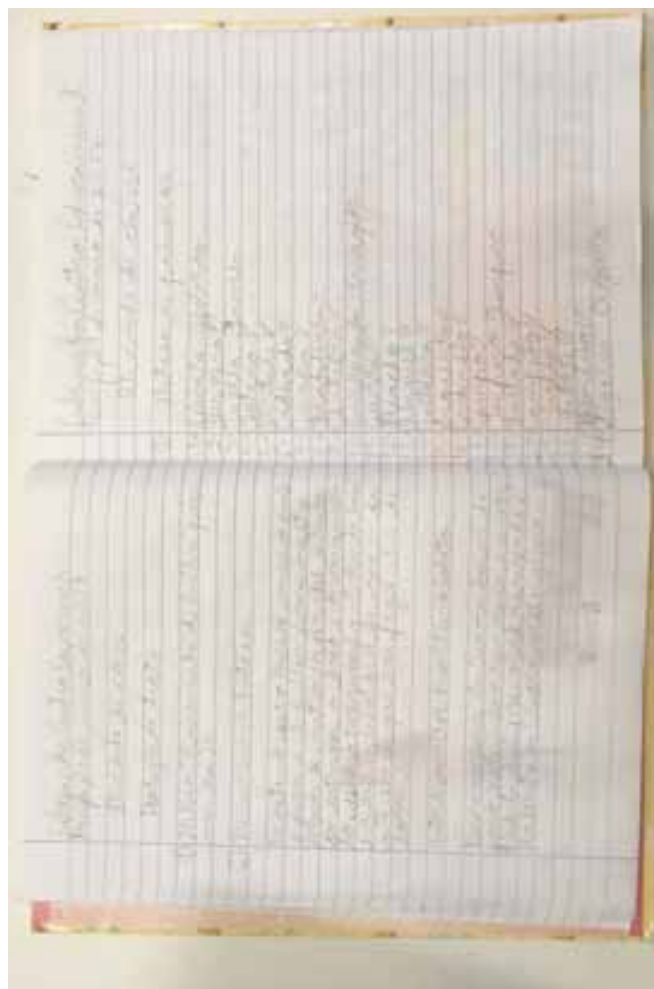
LB0603 - JONAS



LB0603 - JOANA



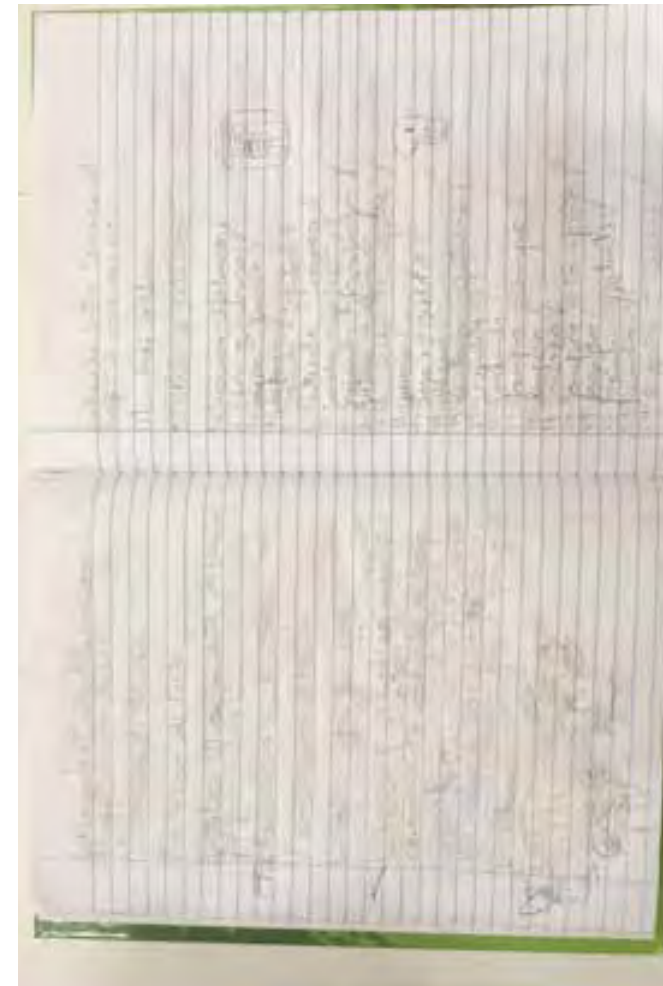
LB0603 - JULIANE



LB0603 - LÍDIA



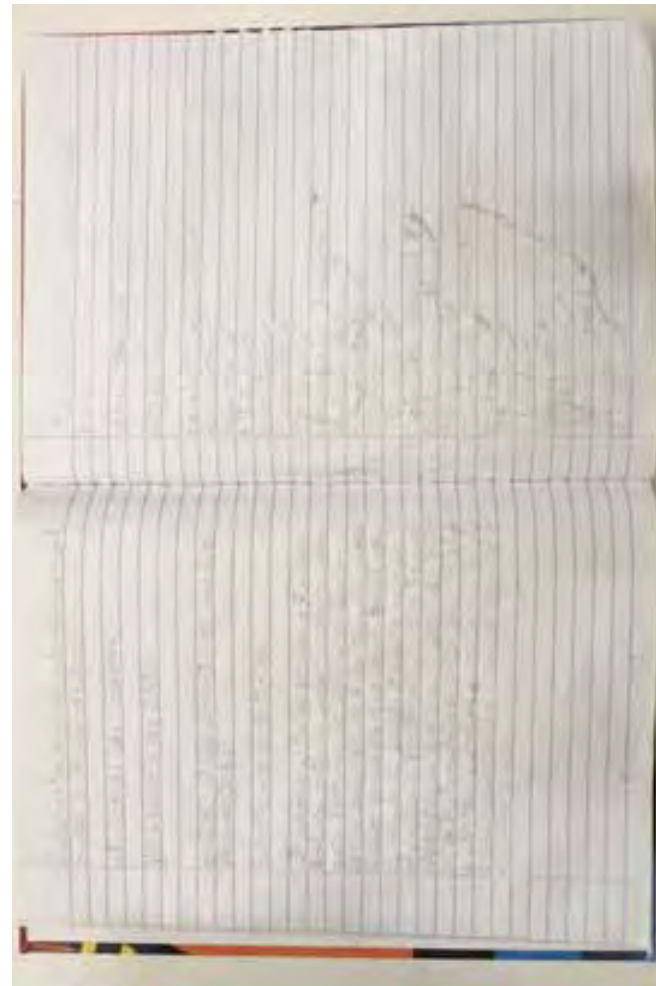
LB0603 - MAITÉ



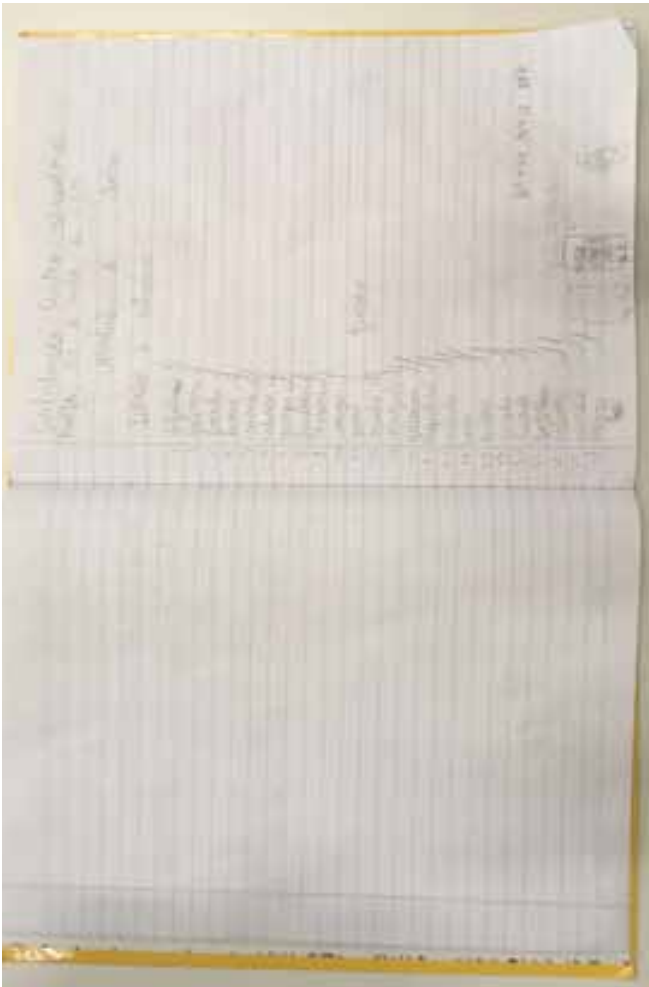
LB0603 - MATEUS



LB0603 - MILENA



LB0603 - RENAN



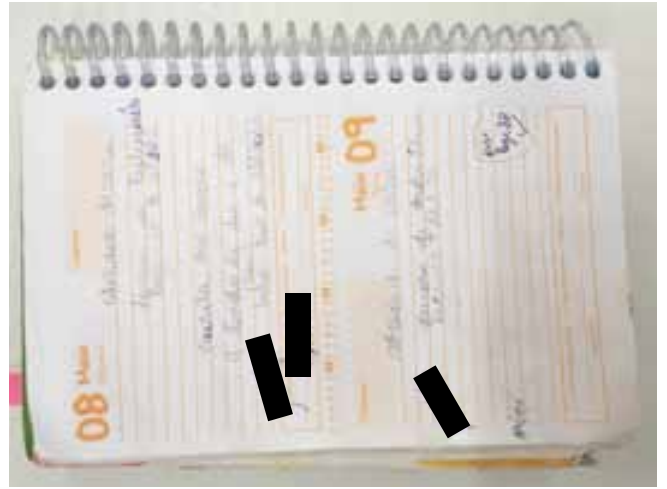
LB0603 - VINÍCIUS



LB0603 - ALICE



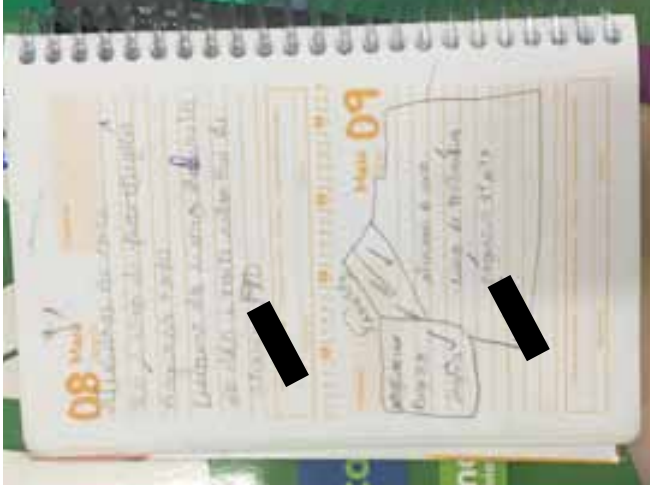
LB0607 - CECÍLIA



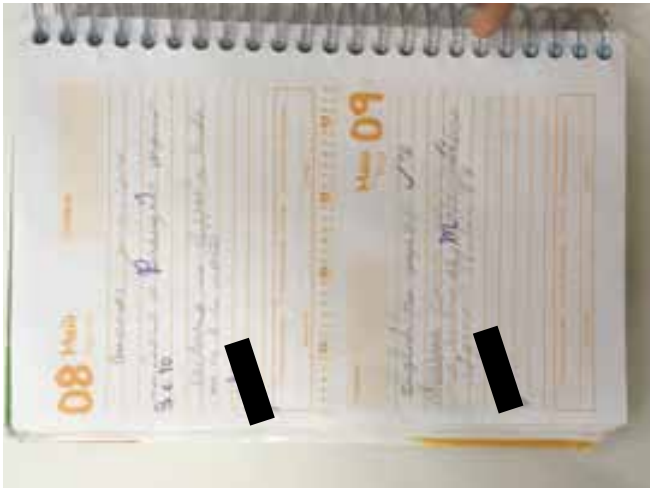
LB0607 - MILENA



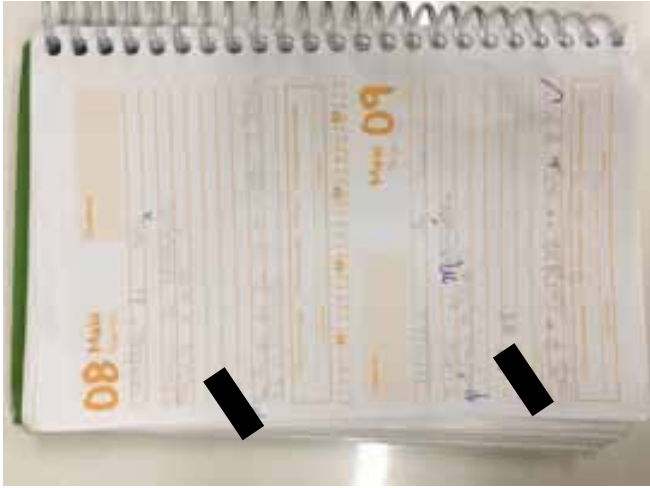
LB0607 - JULIANE



LB0607 - DARIO



LB0607 - CELSO



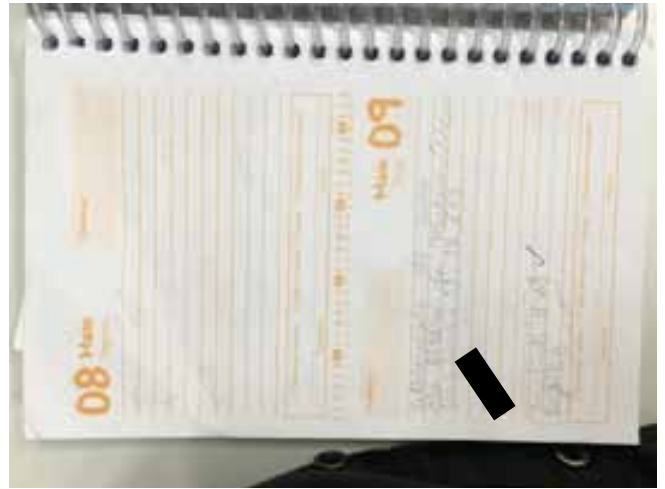
LB0607 - VINÍCIUS



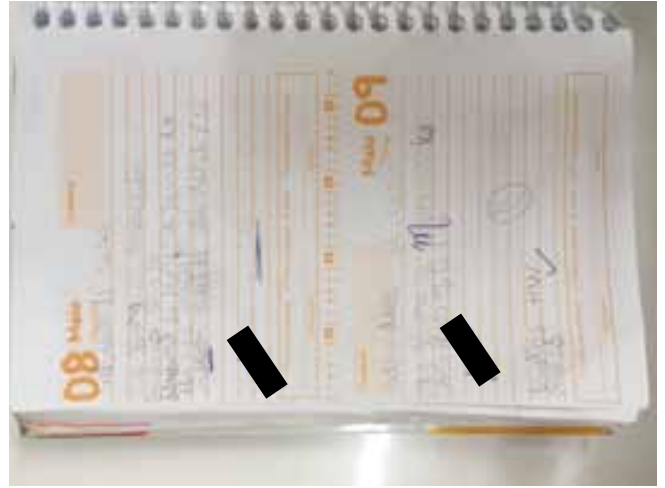
LB0607 - MATIÉ



LB0607 - RENAN



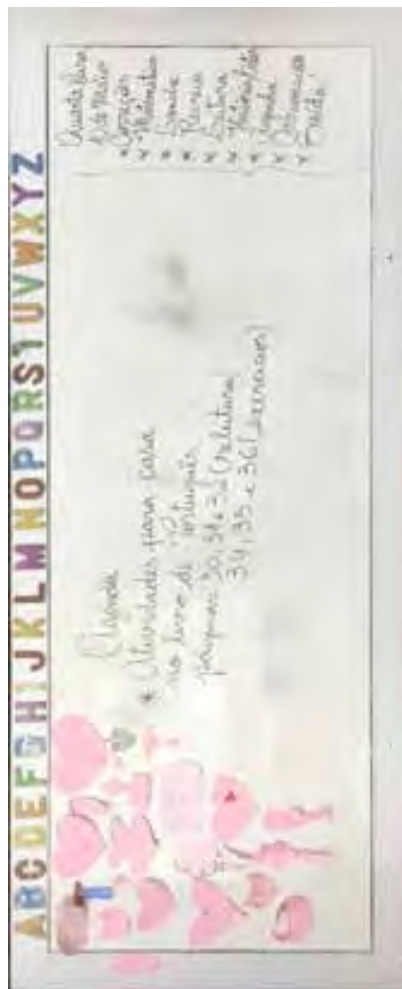
LB0607 - JAGO



LB0607 - JONAS



LB0607 - JOANA



LB0708 - CECÍLIA



LB0807 - CECÍLIA



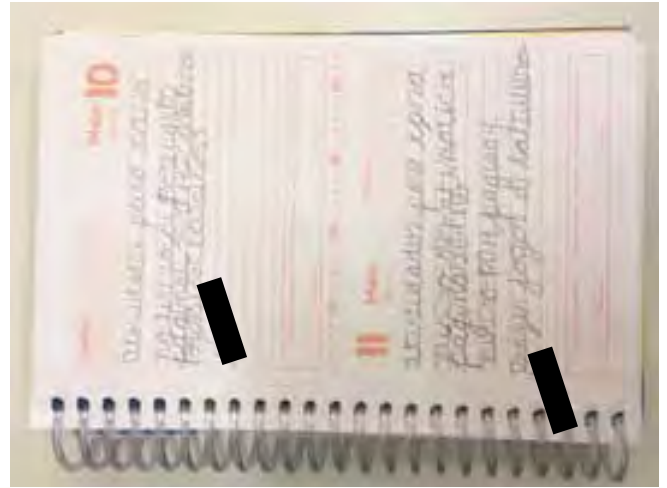
LB0708 E LB0807 - MATÉ



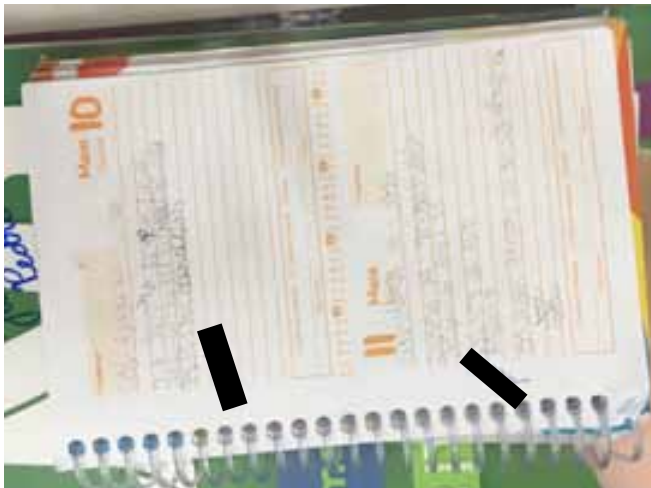
LB0708 E LB0807 - GISELE



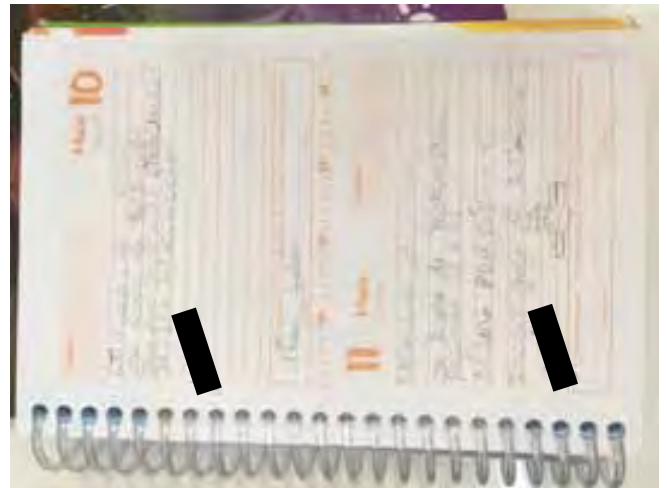
LB0708 E LB0807 - VINÍCIUS



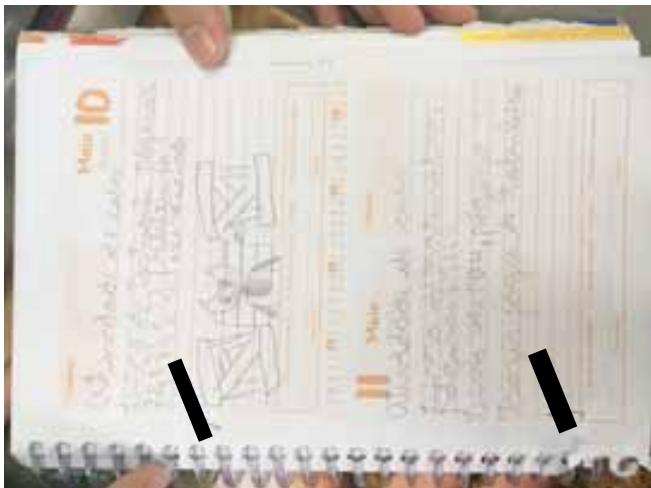
LB0708 E LB0807 - LEVI



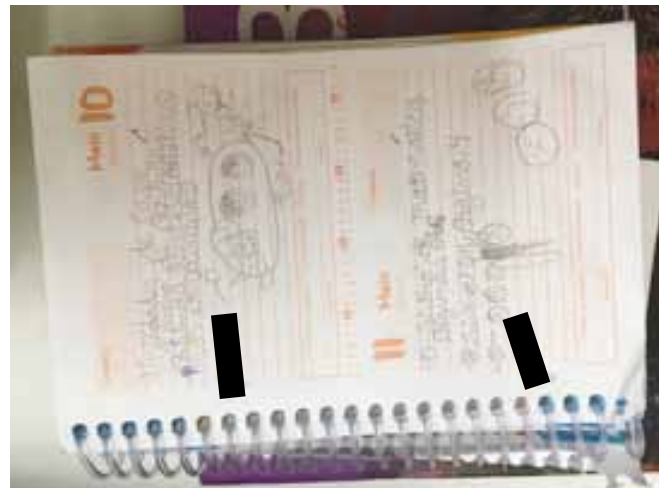
LB0708 E LB0807 - JONAS



LB0708 E LB0807 - JAGO



LB0708 E LB0807 - MATEUS



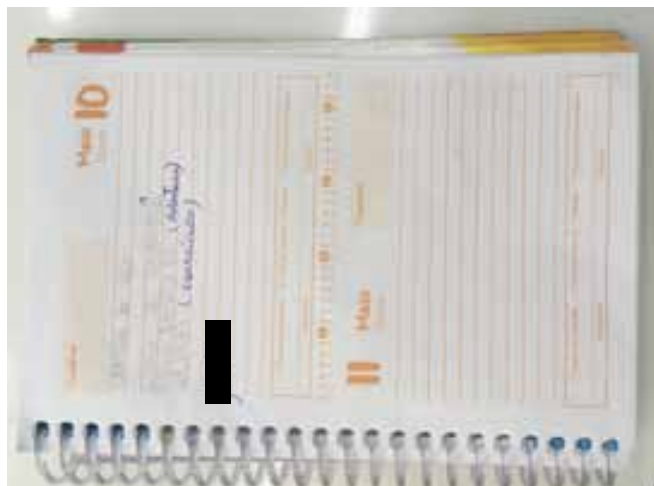
LB0708 E LB0807 - JOSÉ



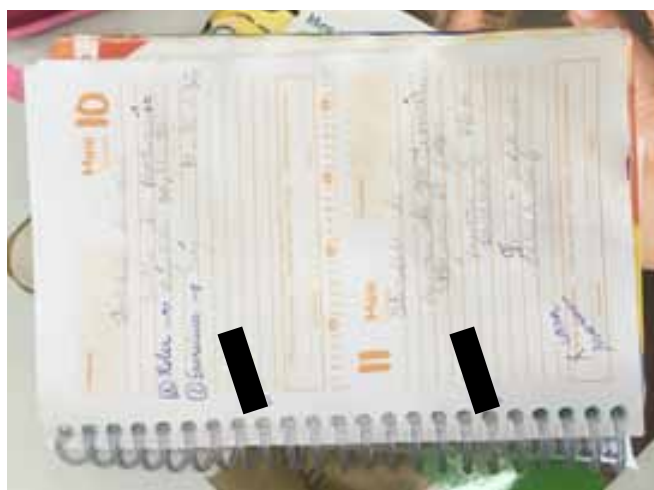
LB0708 E LB0807 - RENAN



LB0708 E LB0807 - DÁRIO



LB0708 E LB0807 - VINÍCIUS



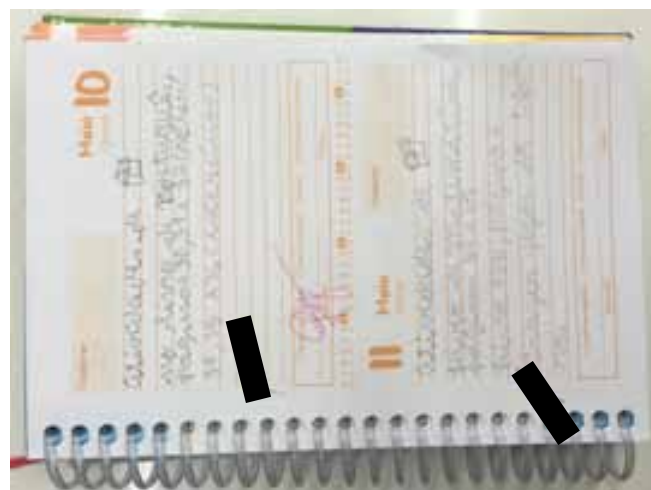
LB0708 E LB0807 - MILENA



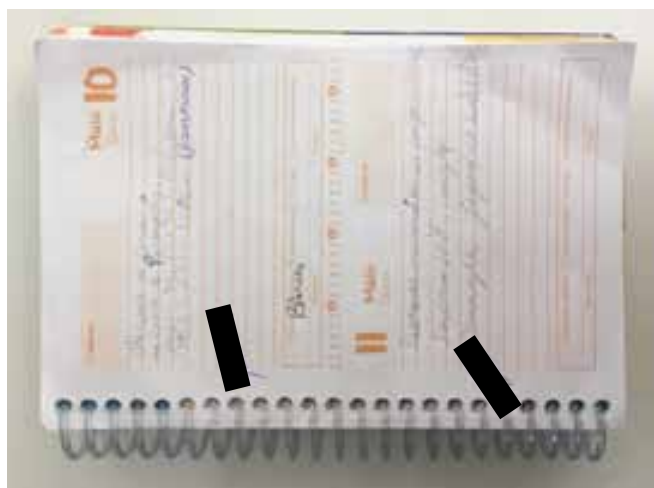
LB0907 - CECÍLIA



LB0708 E LB0807 - LÍDIA



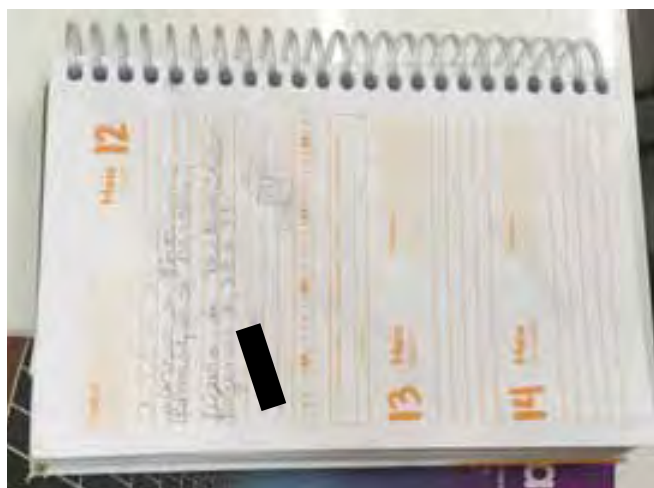
LB0708 E LB0807 - JULIANE



LB0708 E LB0807 - CELSO



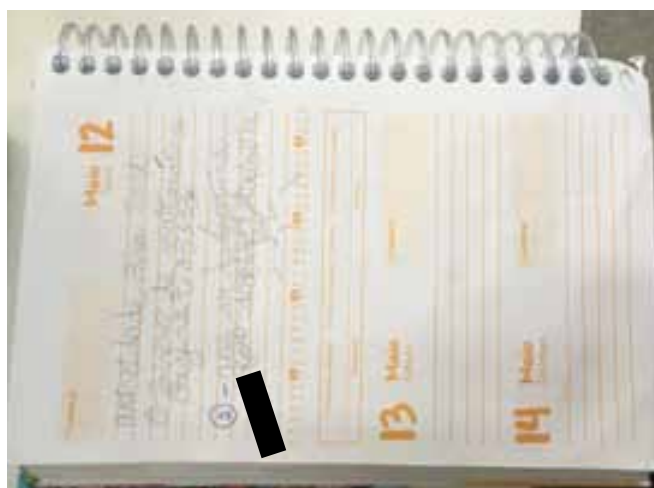
LB0708 E LB0807 - JOANA



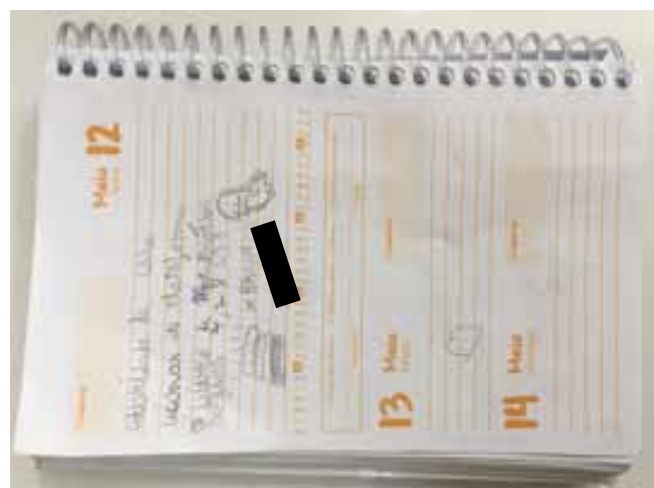
LB0907 - IAGO



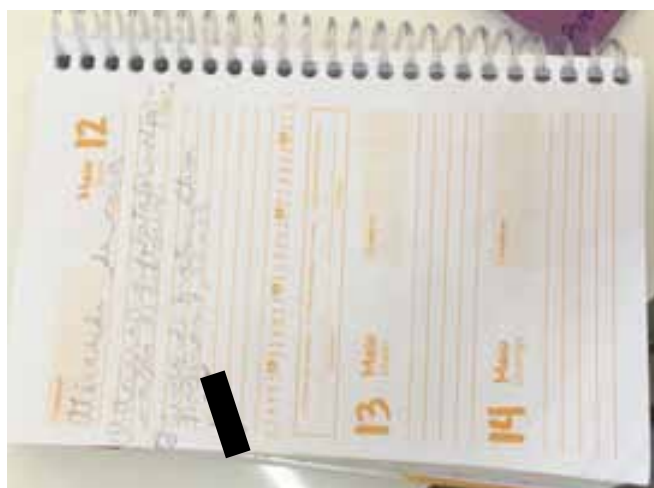
LB0907 - RENAN



LB0907 - JOSÉ



LB0907 - VINÍCIUS



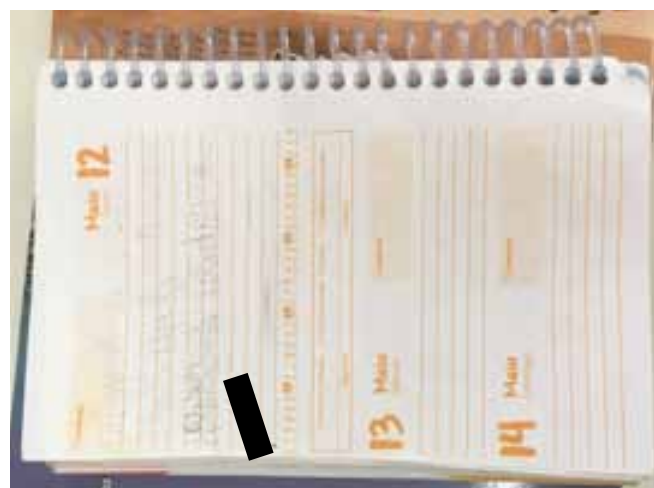
LB0907 - LÍDIA



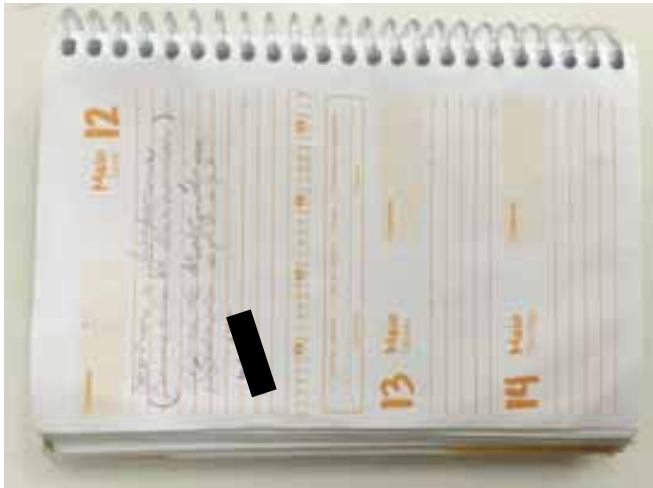
LB0907 - LEVI



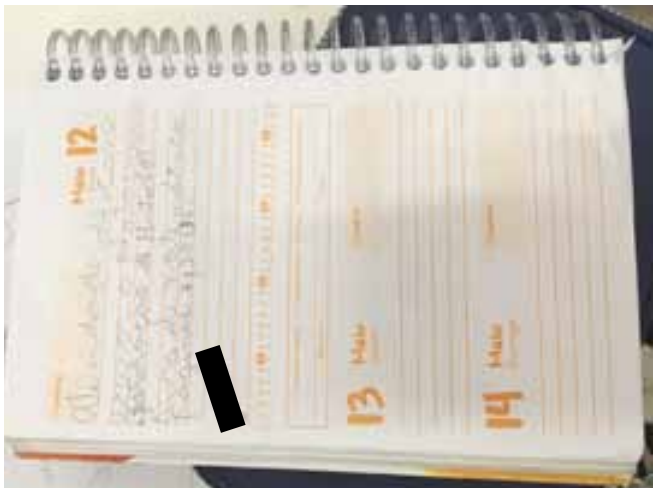
LB0907 - MAITÊ



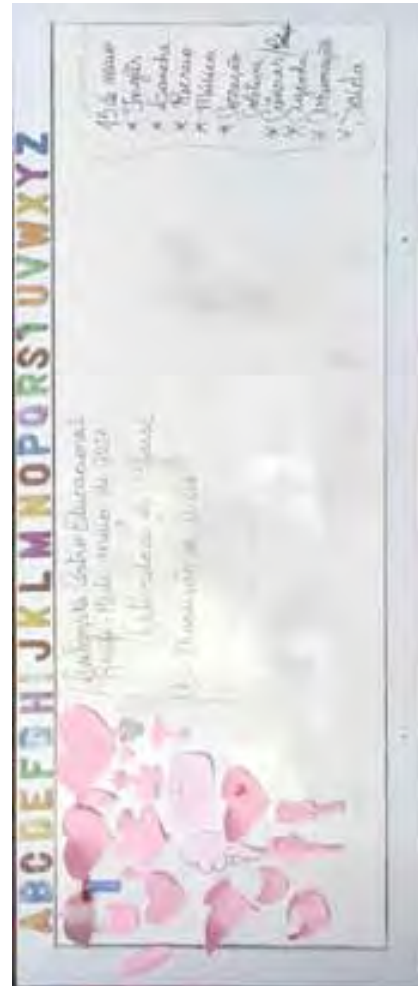
LB0907 - JONAS



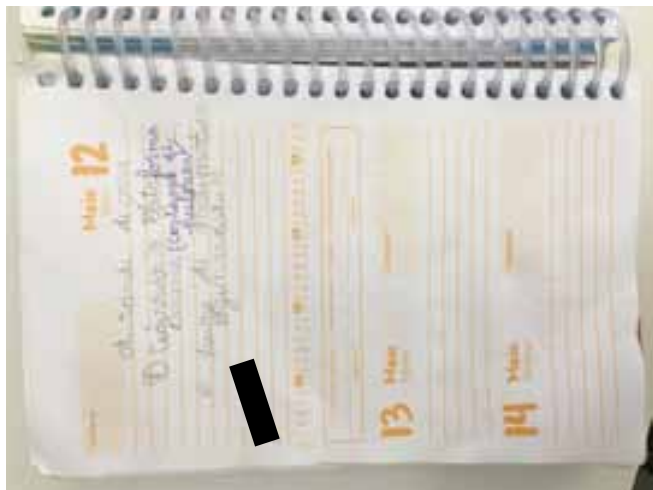
LB0907 - CELSO



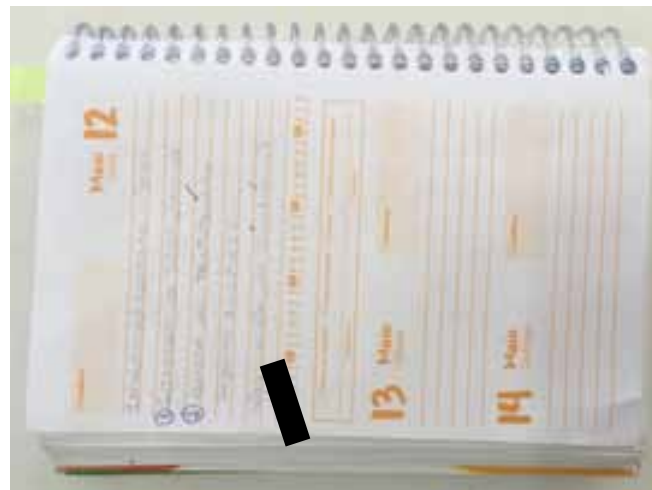
LB0907 - MATEUS



LB1009 - CECÍLIA



LB0907 - MILENA



LB0907 - JOANA



LB0907 - PAULO



LB0907 - GISELE



LB1009 - GISELE



LB1009 - JOANA



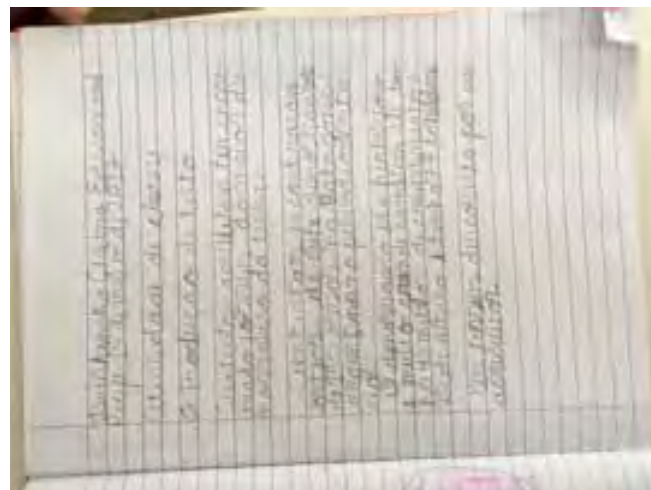
LB1009 - JAGO



LB1009 - VINÍCIUS



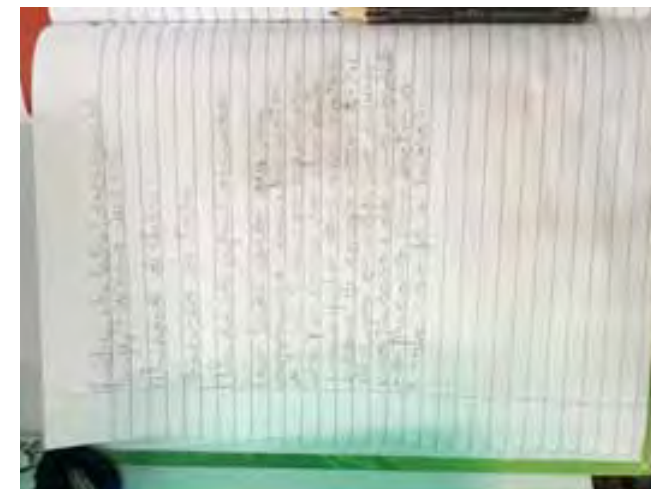
LB1009 - LÍDIA



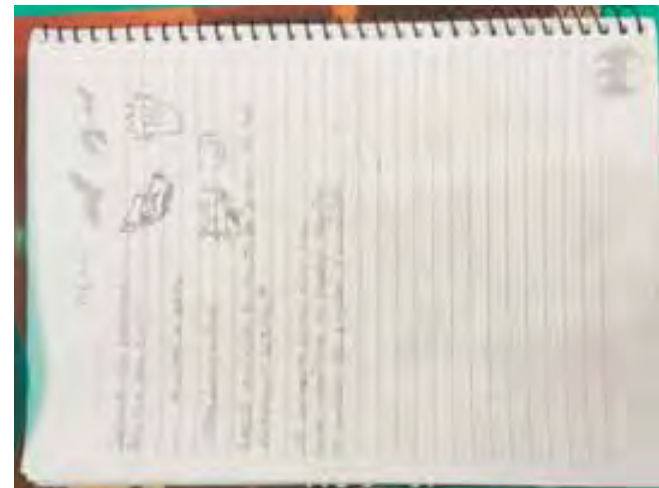
LB1009 - LEVI



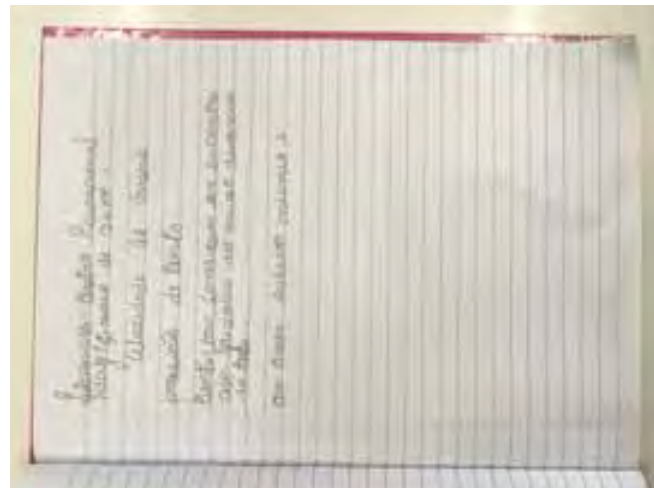
LB1009 - JONAS



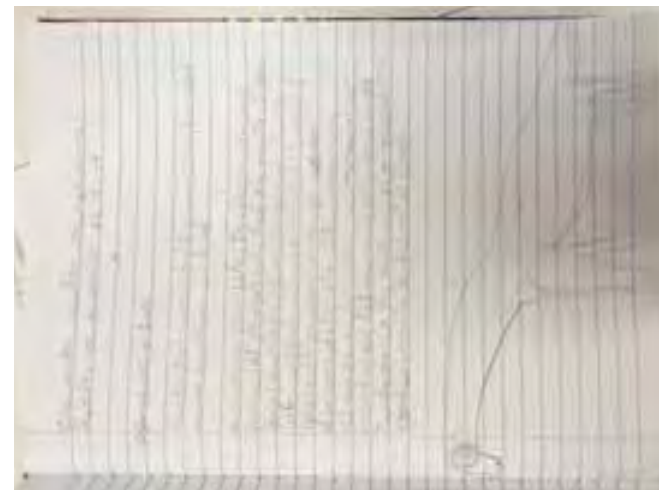
LB1009 - MATEUS



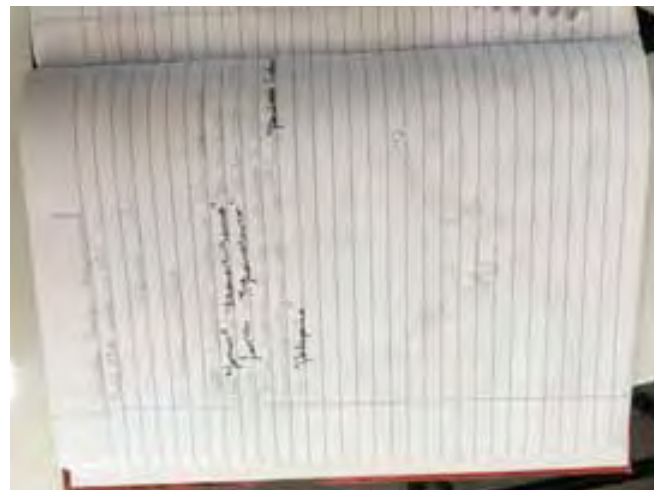
LB1009 - DÁRIO



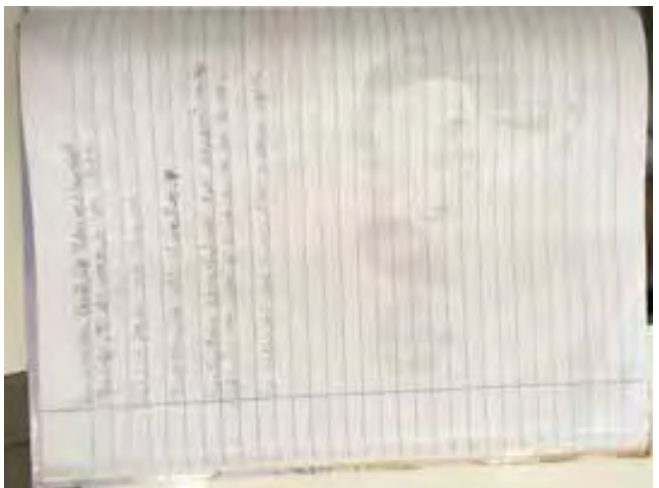
LB1009 - ALICE



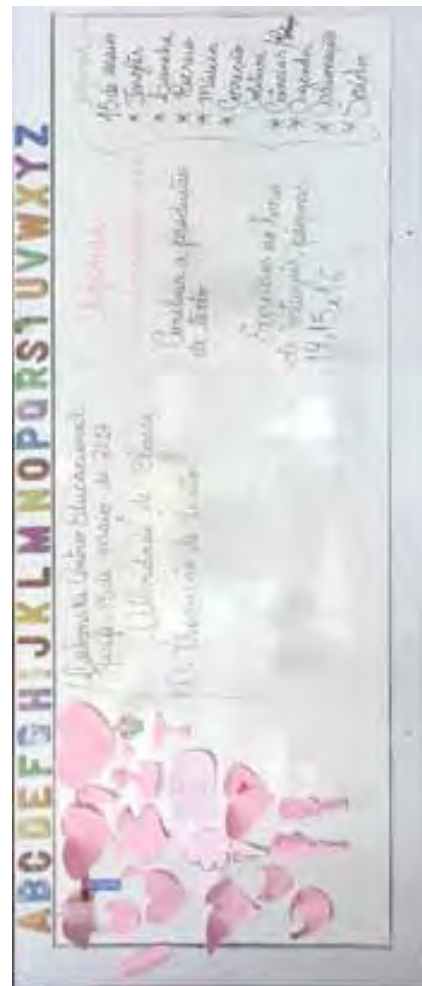
LB1009 - RENAN



LB1009 - CELSO



LB1009 - JULIANE



LB1010 - CECÍLIA



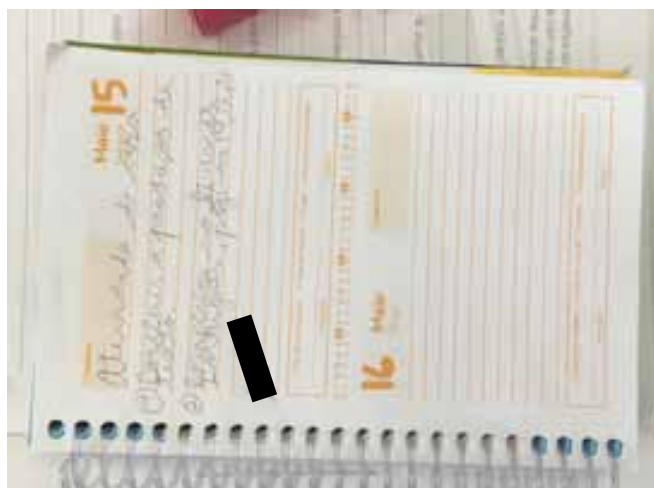
LB1009 - MILENA



LB1010 - LEVI



LB1010 - VINÍCIUS



LB1010 - LÍDIA



LB1010 - IAGO



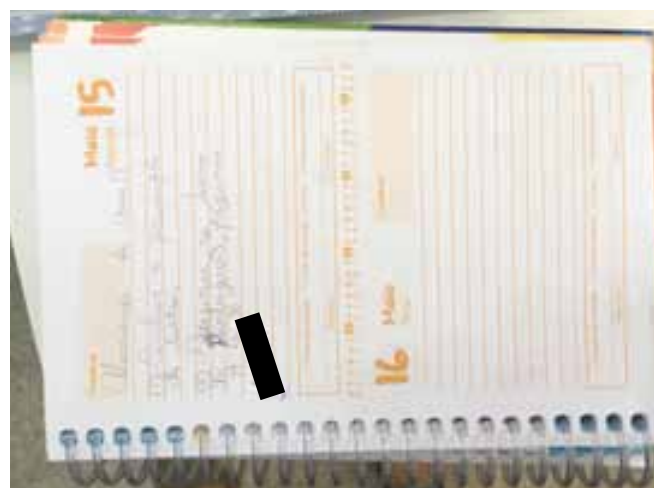
LB1010 - CELSO



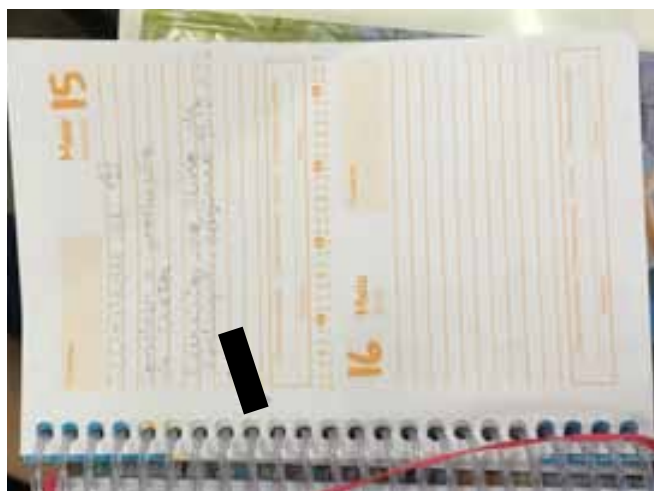
LB1010 - JOANA



LB1010 - MILENA



LB1010 - GISELE



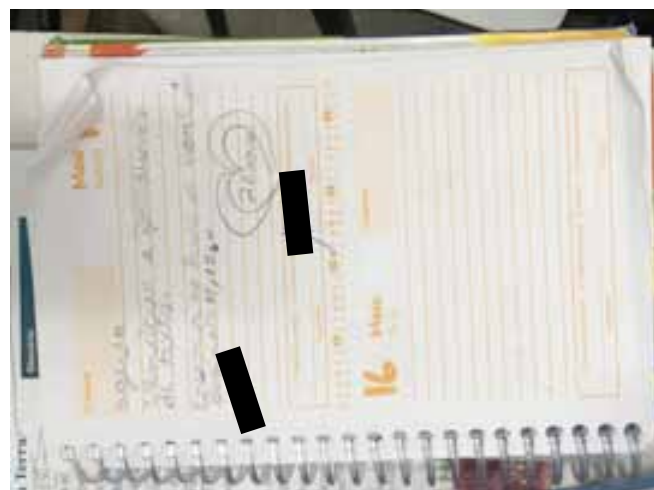
LB1010 - JULIANE



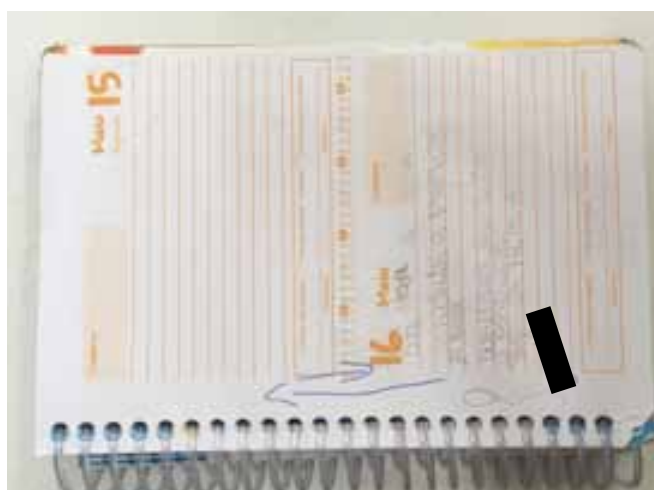
LB1010 - ALICE



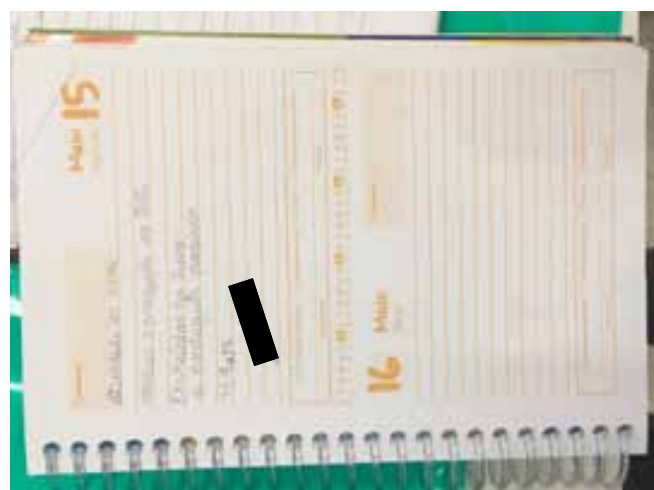
LB1010 - MATEUS



LB1010 - RENAN

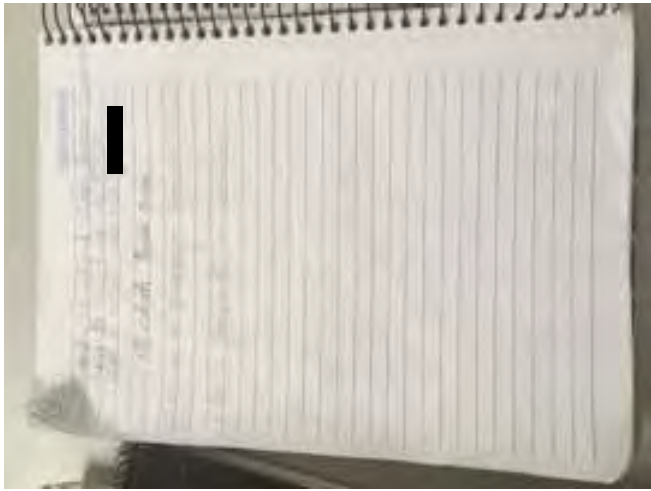


LB1010 - JONAS

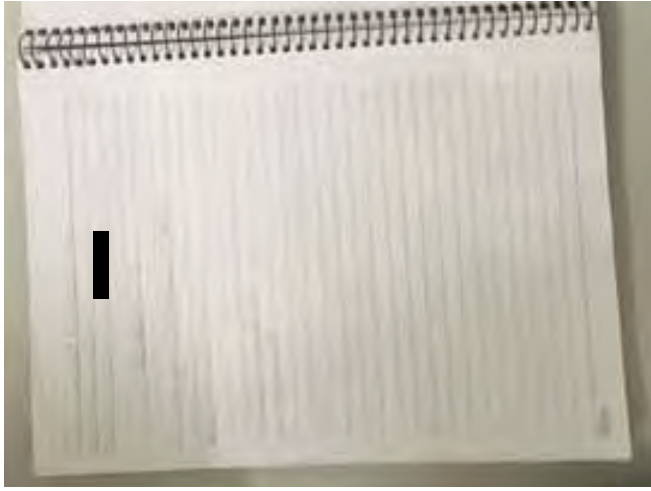


LB1010 - DÁRIO

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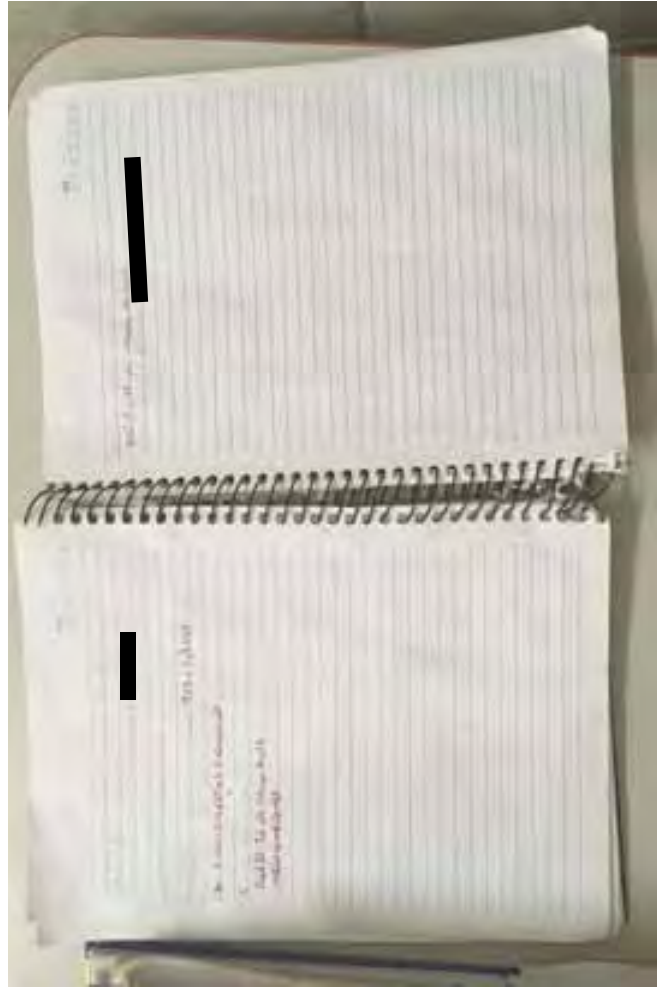
DHT0103 - PATRICK



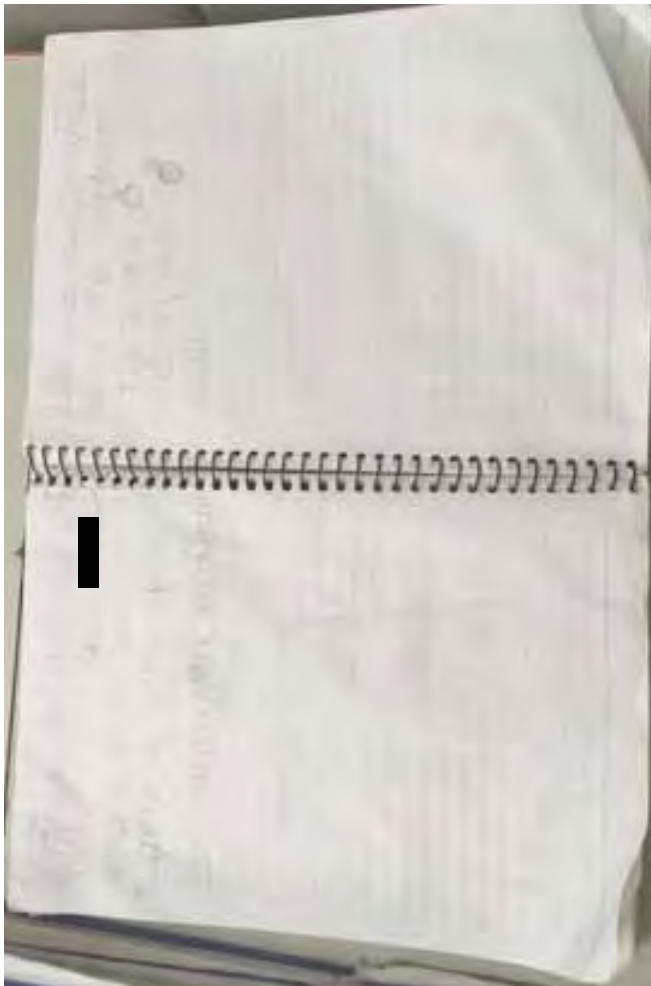
DHT0103 - FERNANDO



DHT0103 - JAQUELINE



DHT0103 - RAVI



DHT0103 - ELIAS



DHT0103 - ELOÁ



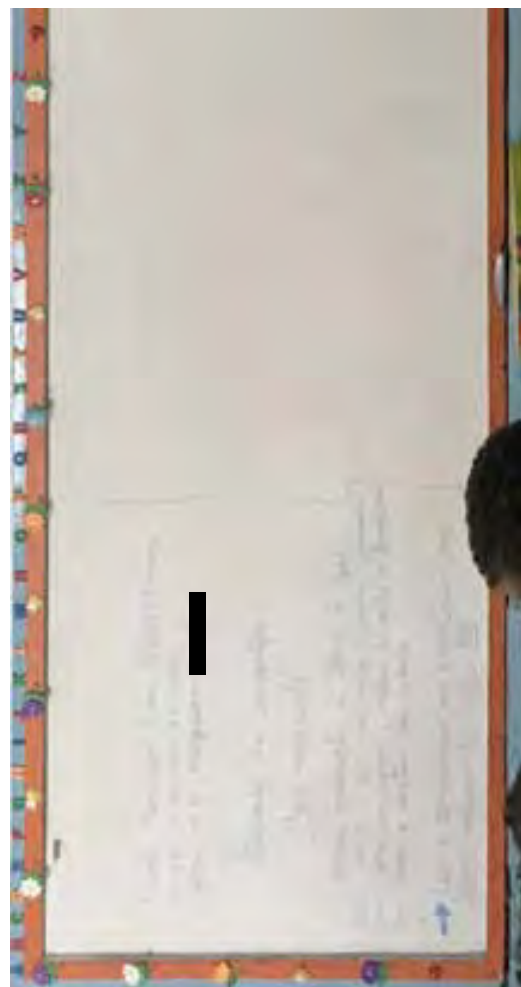
DHT0103 - GIOVANA



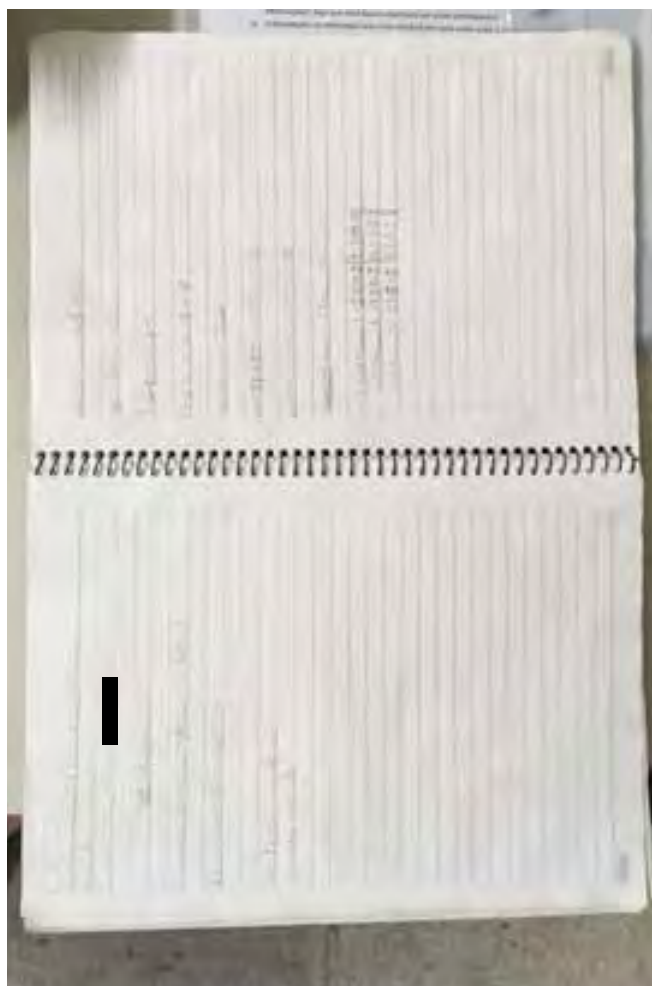
DHT0103 - JANAÍNA



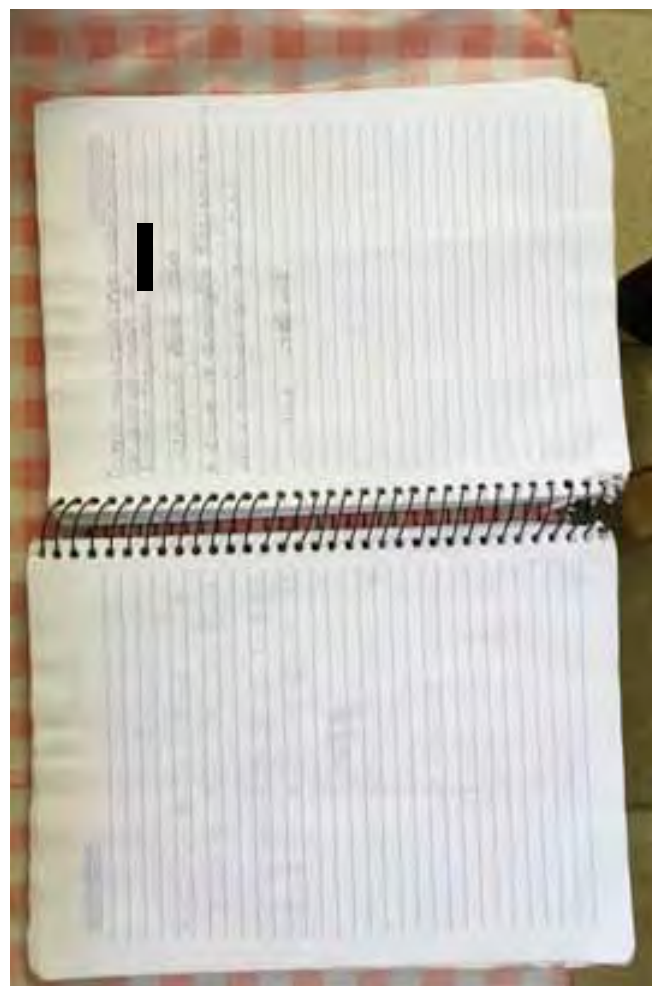
DHT0103 - MARIANA



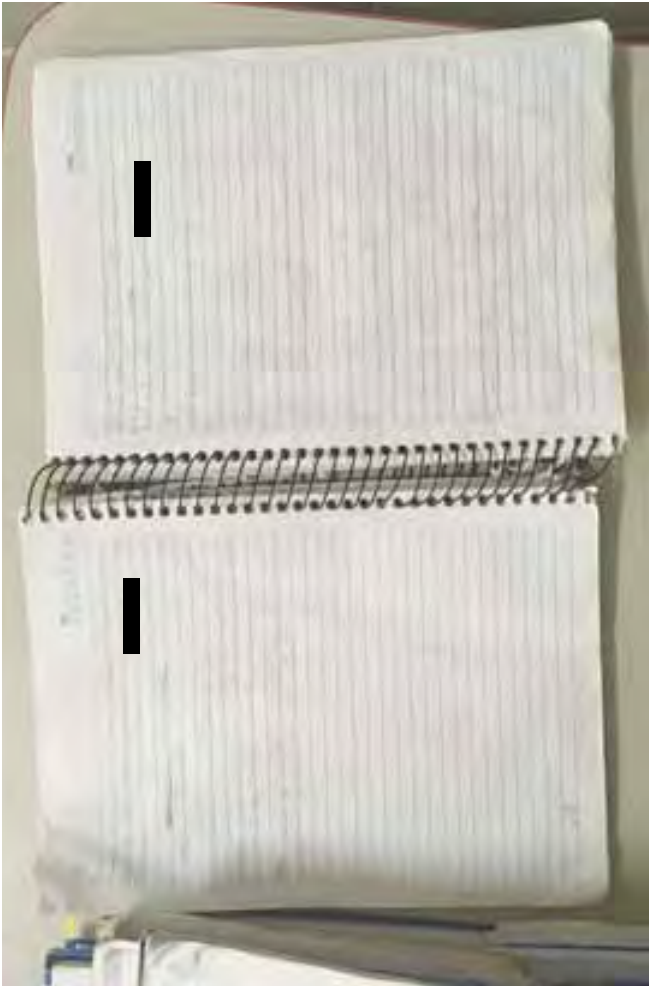
DHT0204 - JAQUELINE



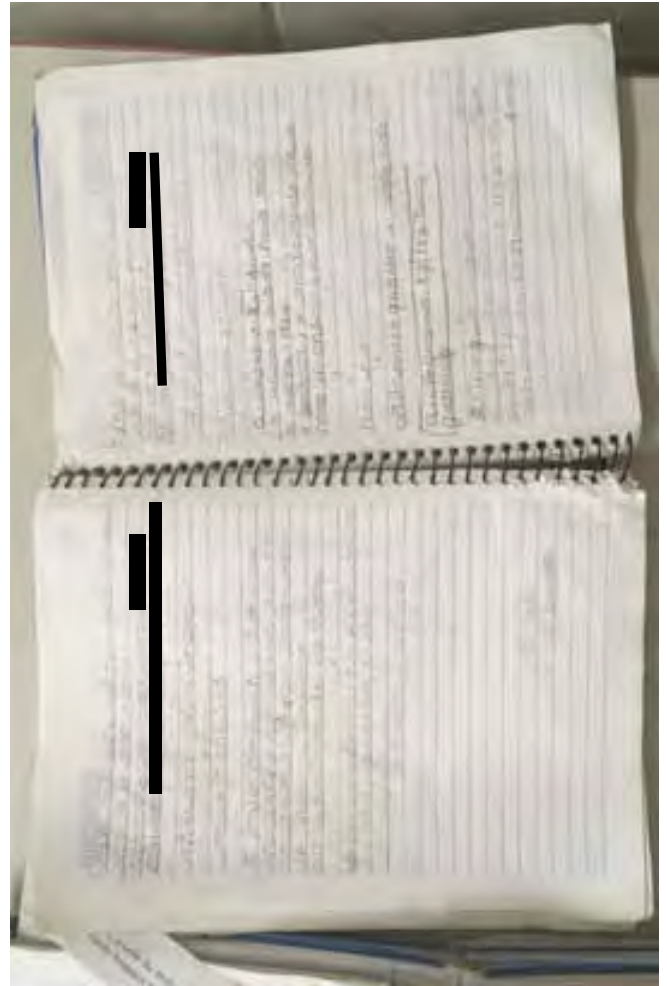
DHT0103 - ELIAS



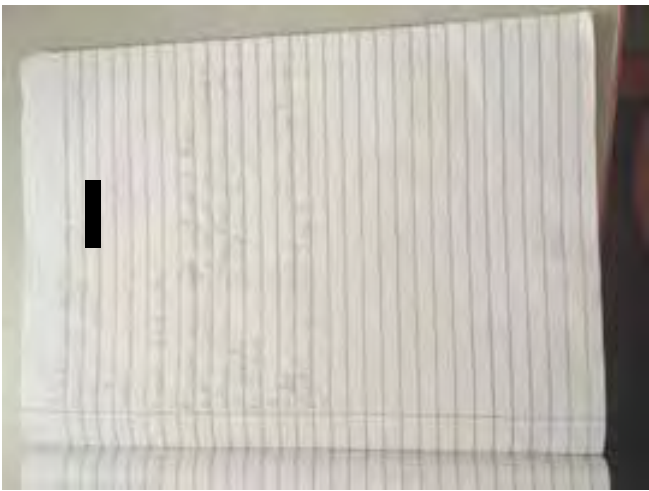
DHT0103 - ELOA



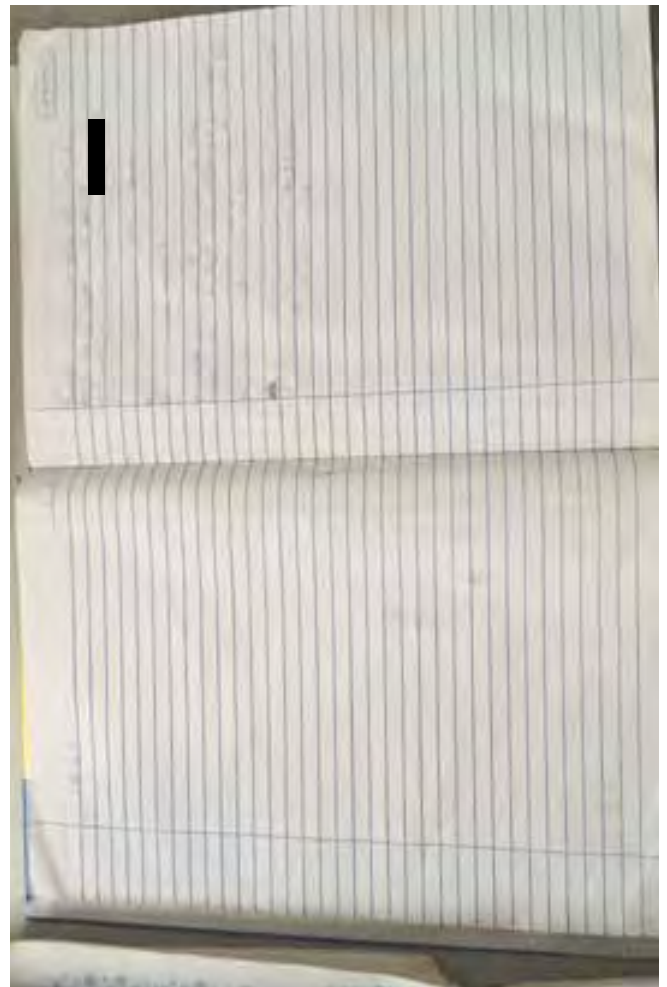
DHT0204 - RAVI



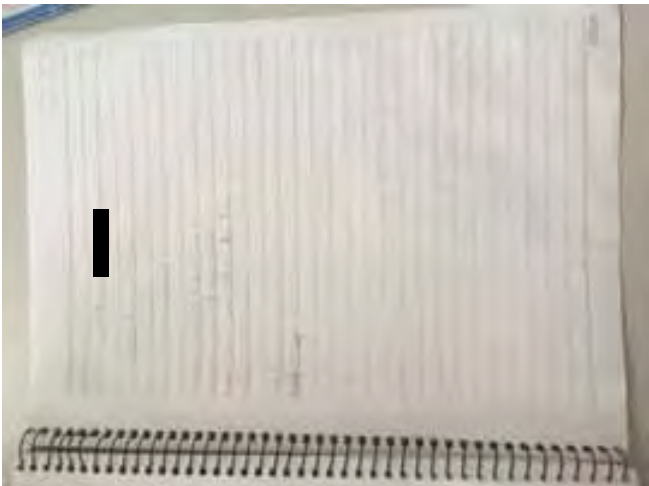
DHT0204 - ALEX



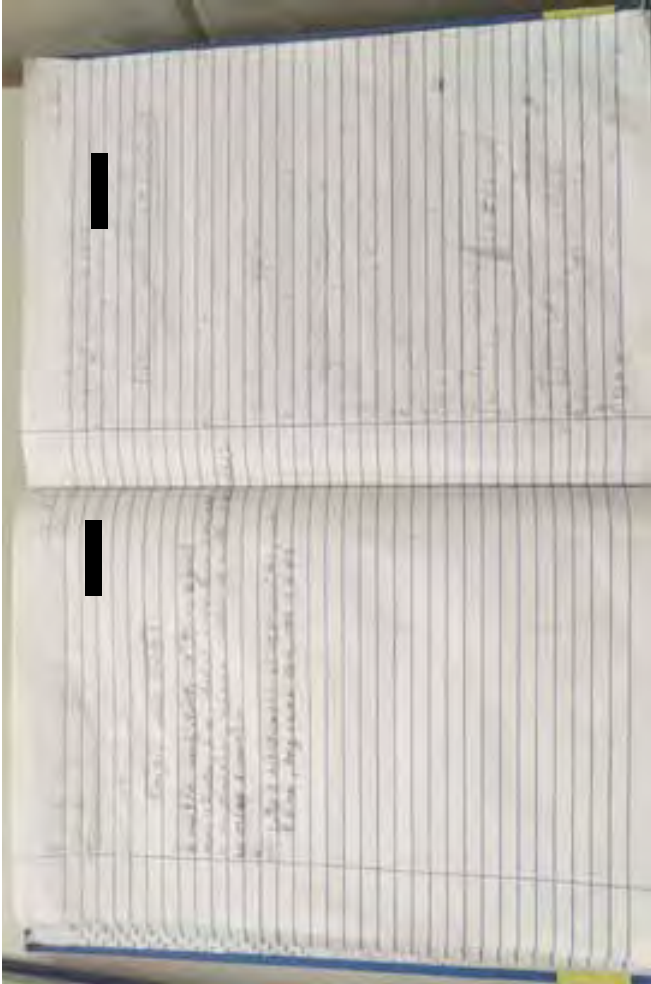
DHT0204 - RONY



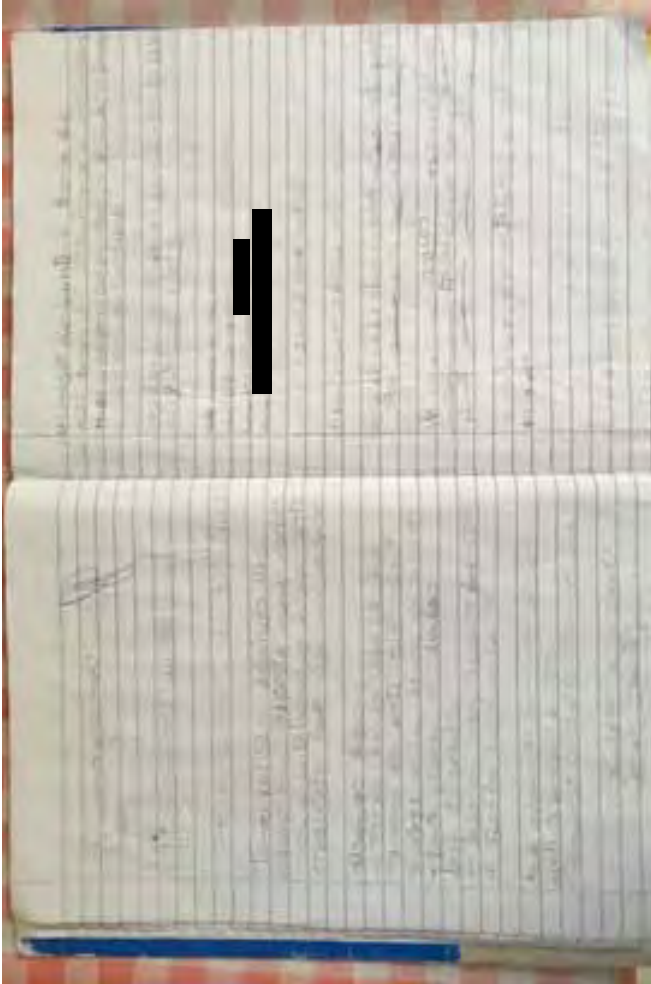
DHT0204 - DAVI



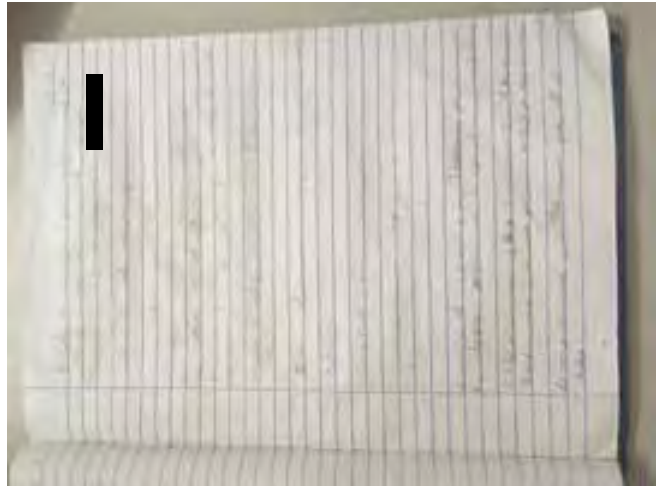
DHT0204 - FERNANDO



DHT0204 - JANAÍNA



LB1010 - GIOVANA



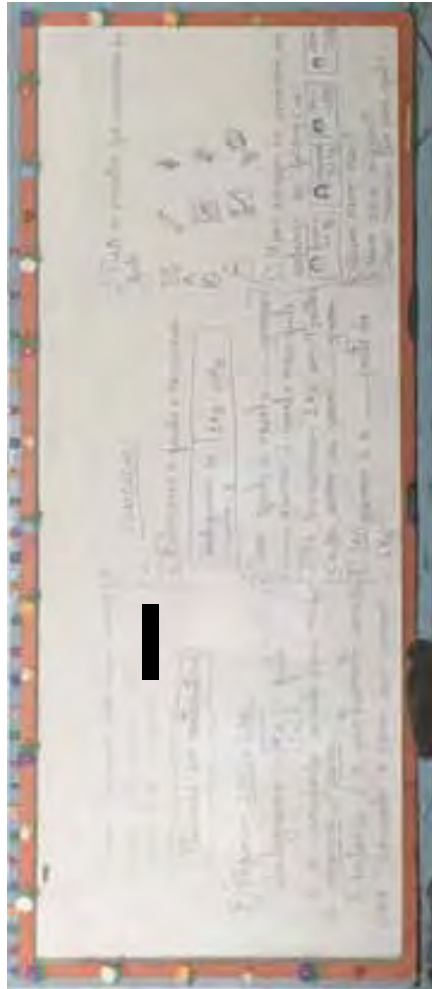
DHT0204 - CARLA



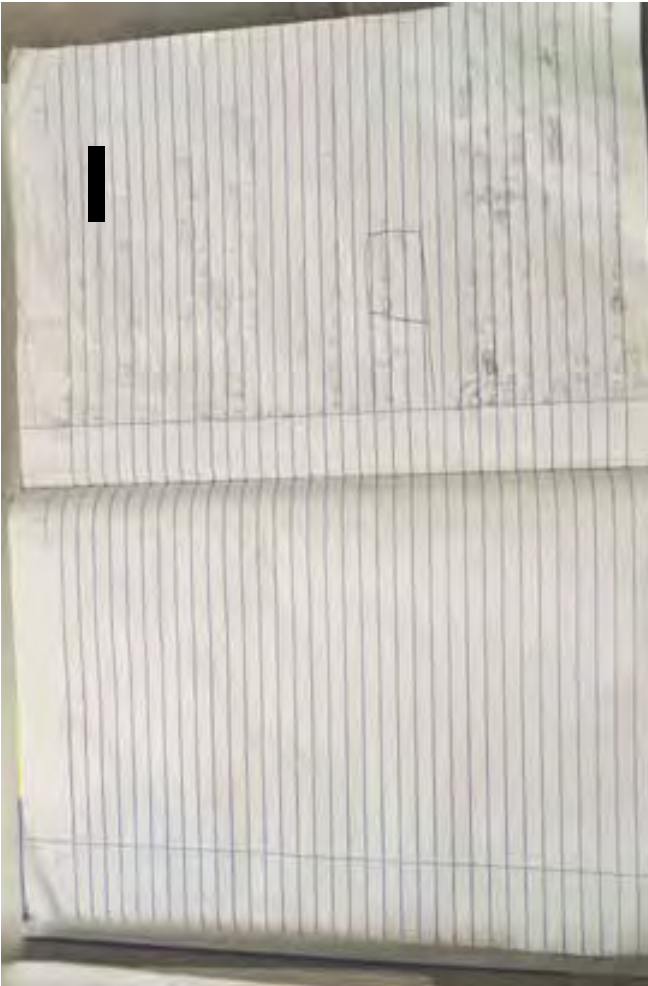
DHT0204 - ALLY



DHT0204 - ELOÁ



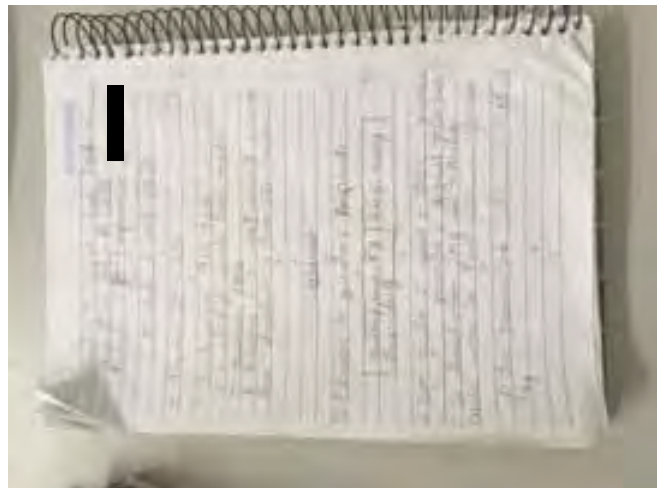
DHT0302 - JAQUELINE



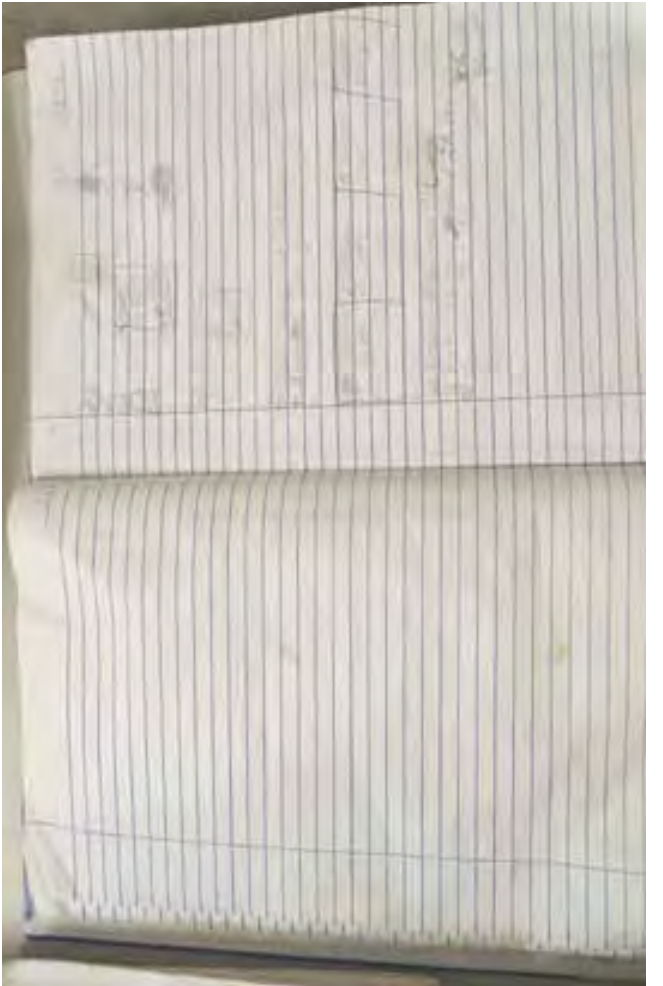
DHT0302 - DAVI-1



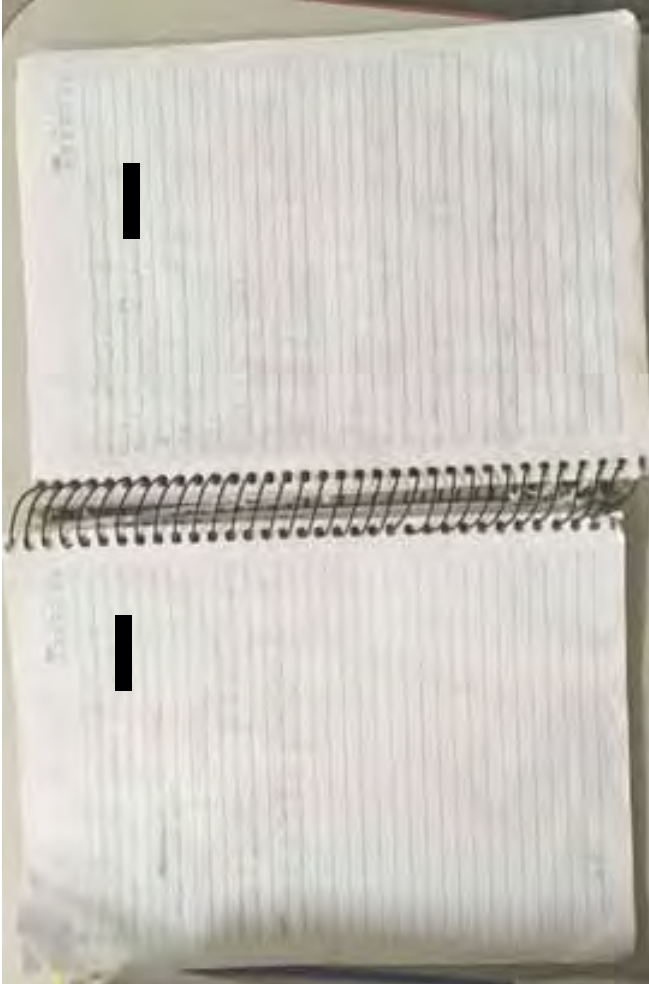
DHT0302 - PATRICK-2



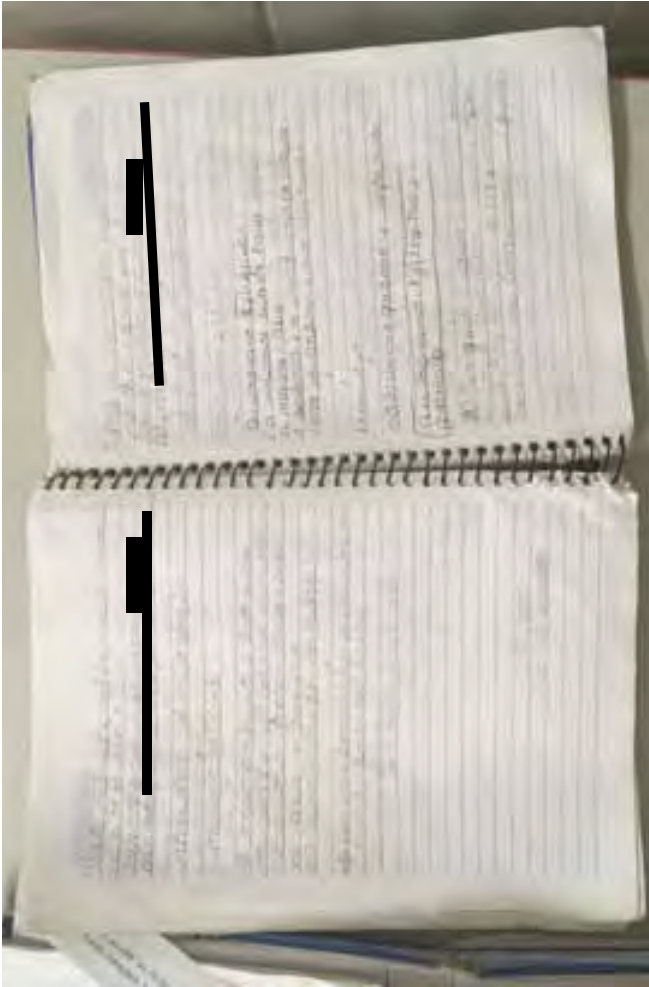
DHT0302 - PATRICK-1



DHT0302 - DAVI-2



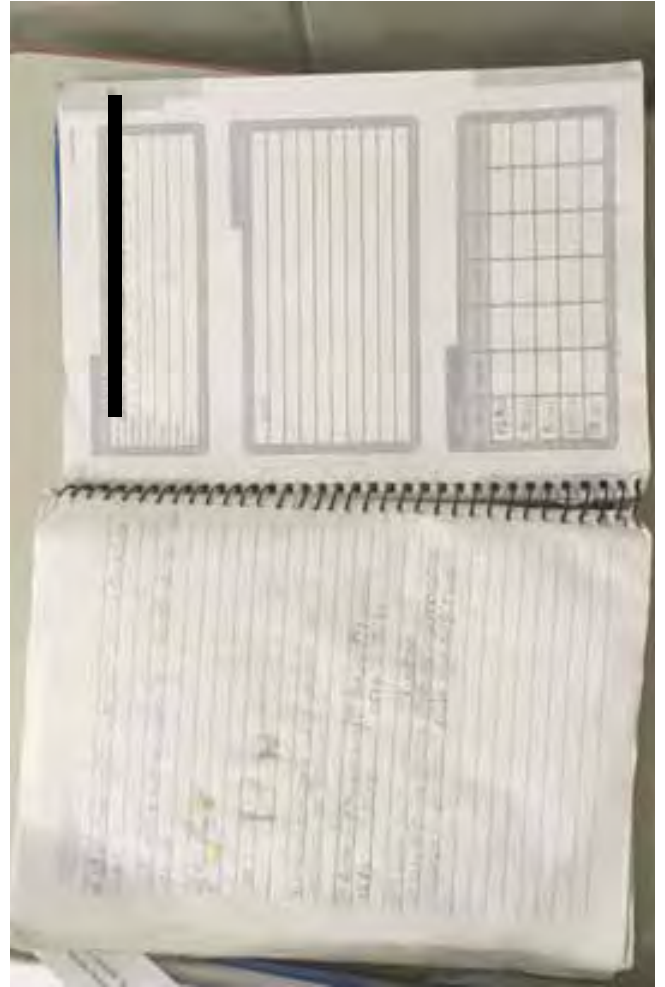
DHT0302 - RAVI-1



DHT0302 - ALEX-1



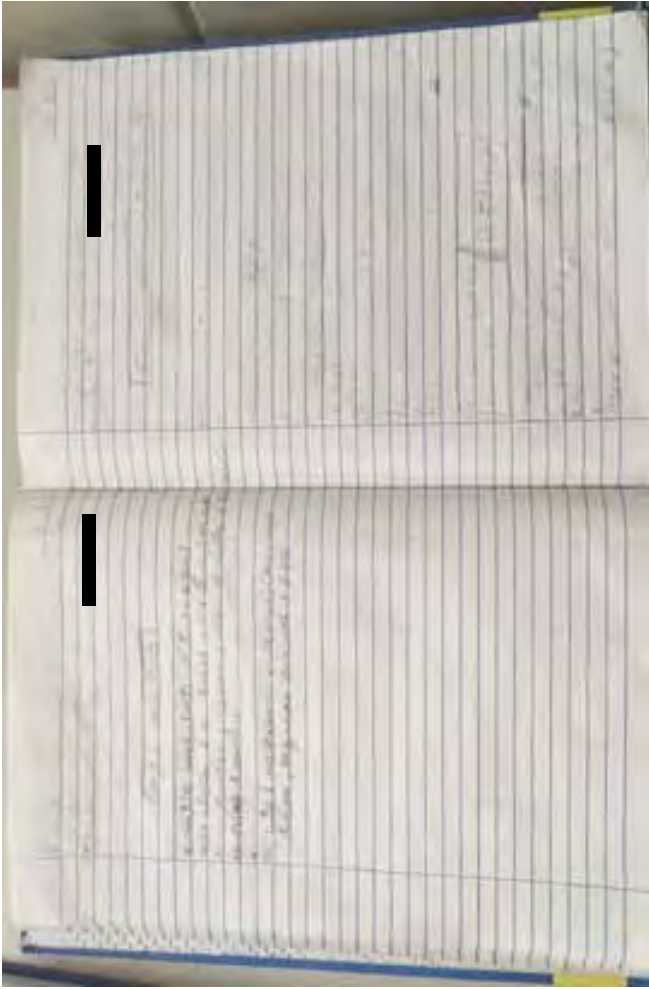
DHT0302 - RAVI-2



DHT0302 - ALEX-2



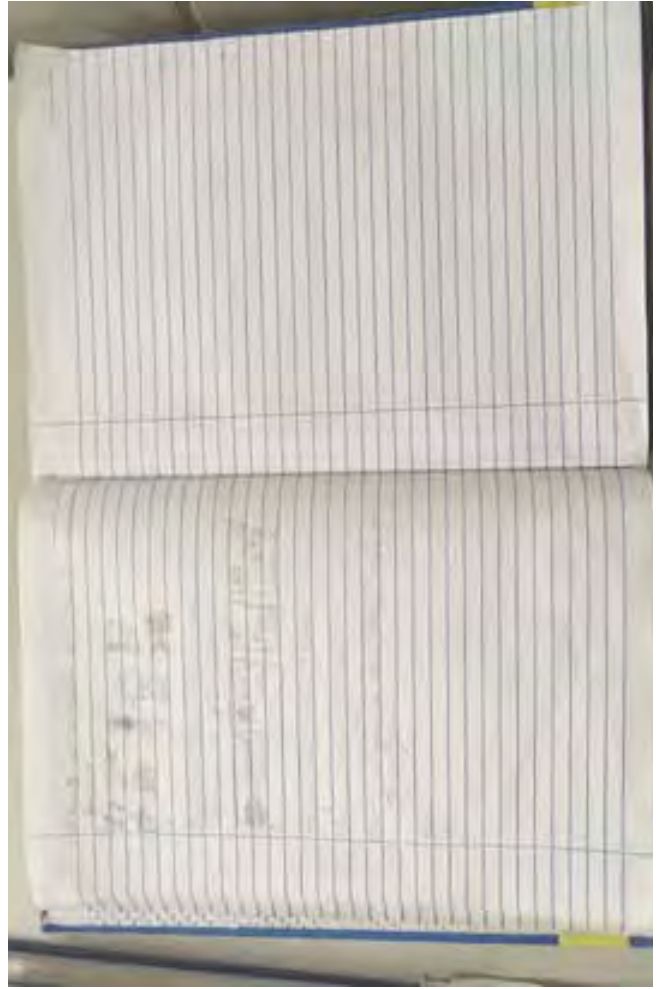
DHT0302 - ELIAS-1



DHT0302 - JANAÍNA-1



DHT0302 - ELIAS-2



DHT0302 - JANAÍNA-2



DHT0302 - FERNANDO



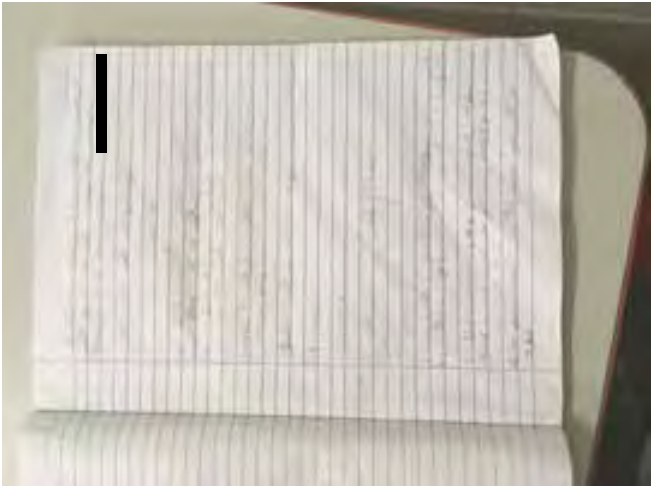
DHT0302 - MARIANA



DHT0302 - ELOA



DHT0302 - CARLA-1



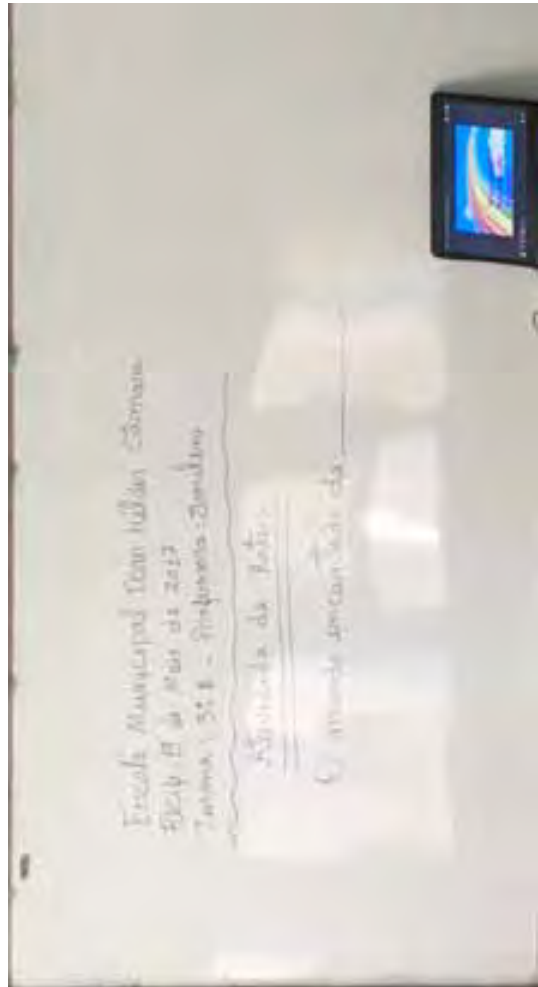
DHT0302 - CARLA-1



DHT0401 - GIOVANA



DHT0401 - JANAÍNA



DHT0401 - JAQUELINE



DHT0401 - RAFAELA



DHT0401 - LEVI



DHT0401 - MARIANA



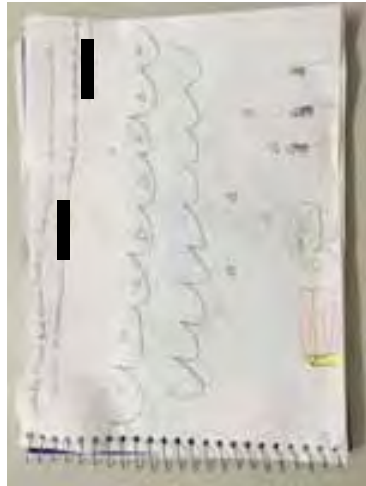
DHT0401 - MAYA



DHT0401 - CONRADO



DHT0401 - RONY



DHT0401 - CARLA



DHT0401 - ELOA



DHT0401 - ELIAS



DHT0401 - FERNANDO



DHT0401 - PATRICK



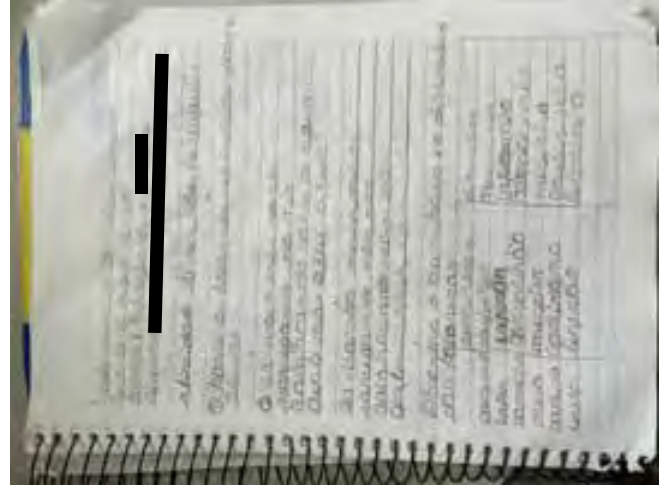
DHT0502 - ELIAS-1



DHT0502 - ELIAS-2



DHT0502 - JANAÍNA



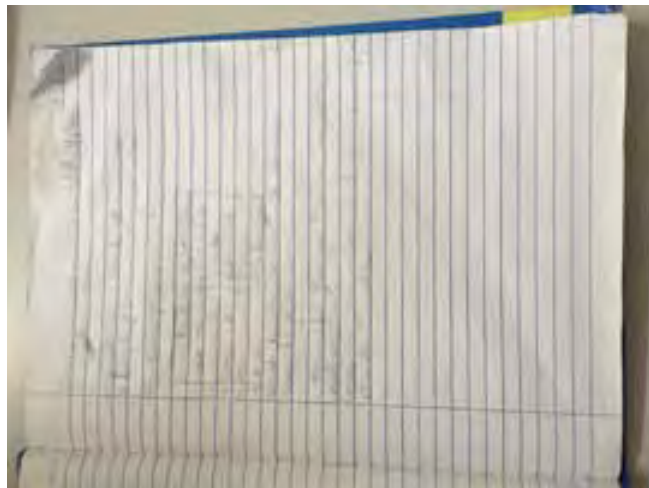
DHT0502 - ALEX-1



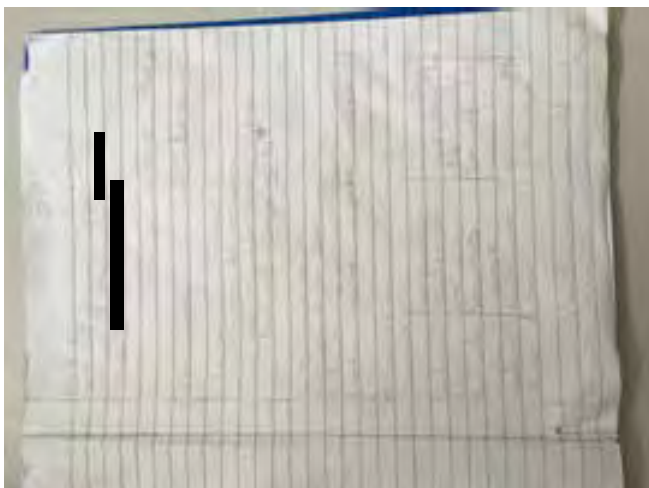
DHT0502 - ALEX-2



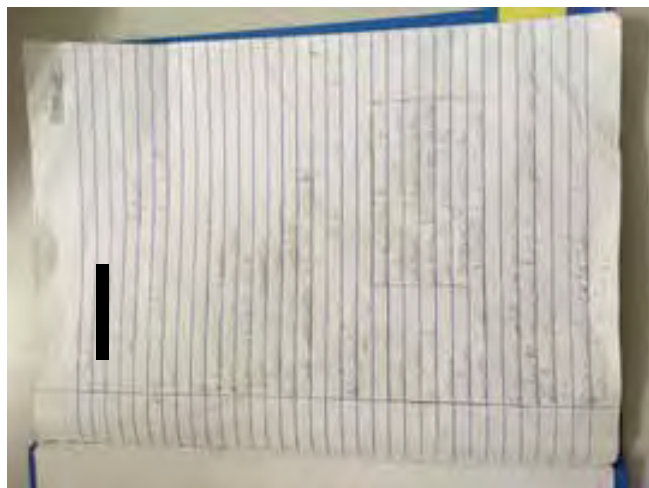
DHT0502 - MARIANA-2



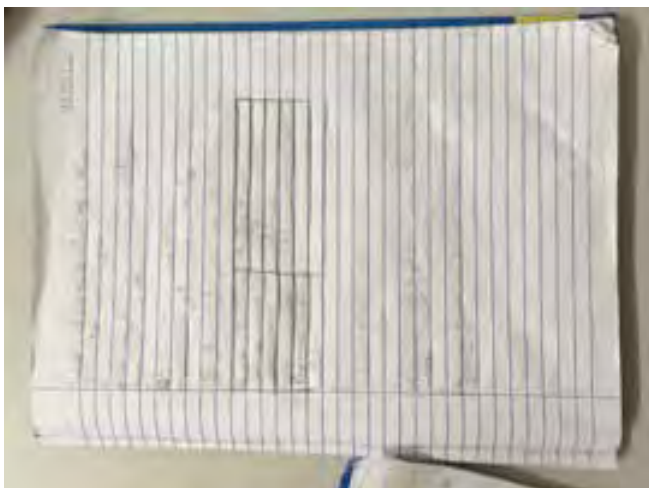
DHT0502 - RAFAELA-2



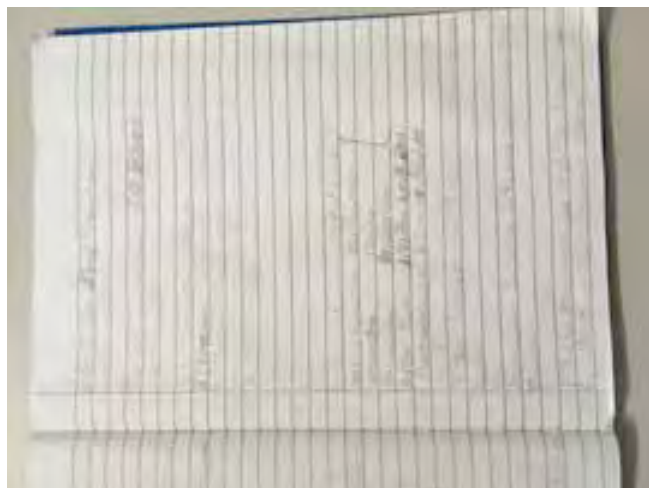
DHT0502 - MARIANA-1



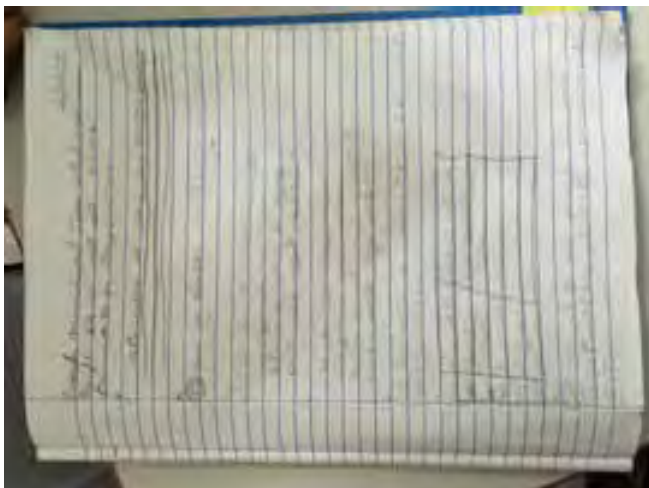
DHT0502 - RAFAELA-1



DHT0502 - DAVI-2



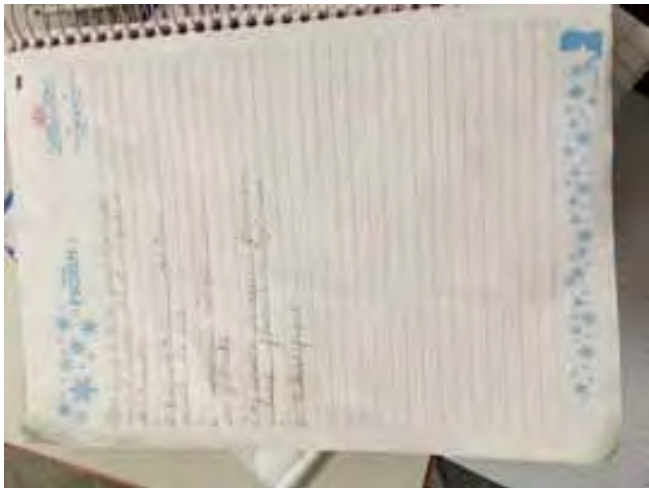
DHT0502 - RONY-2



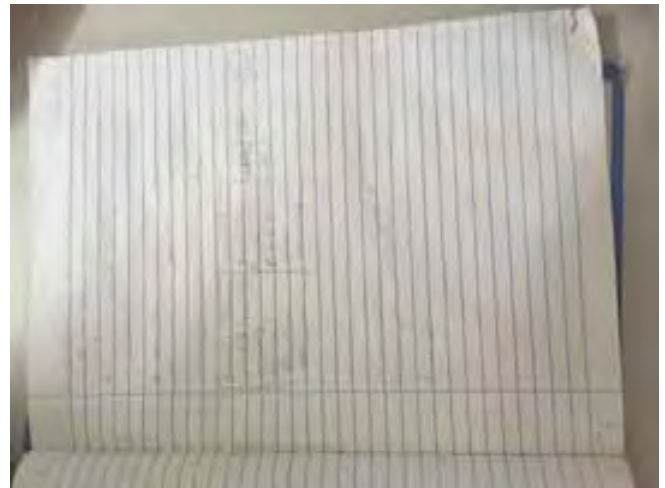
DHT0502 - DAVI-1



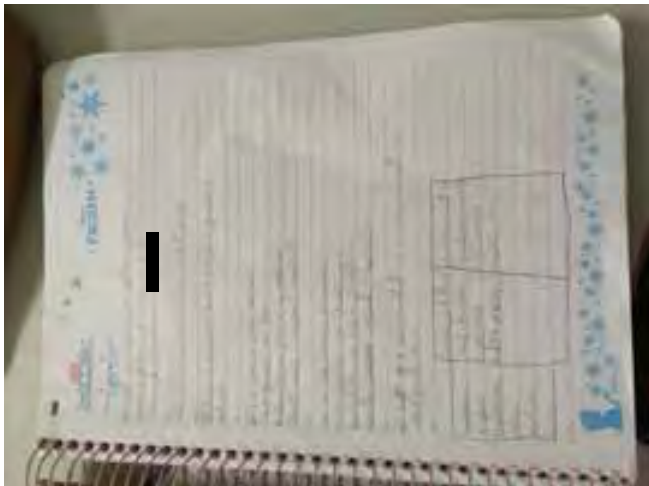
DHT0502 - RONY-1



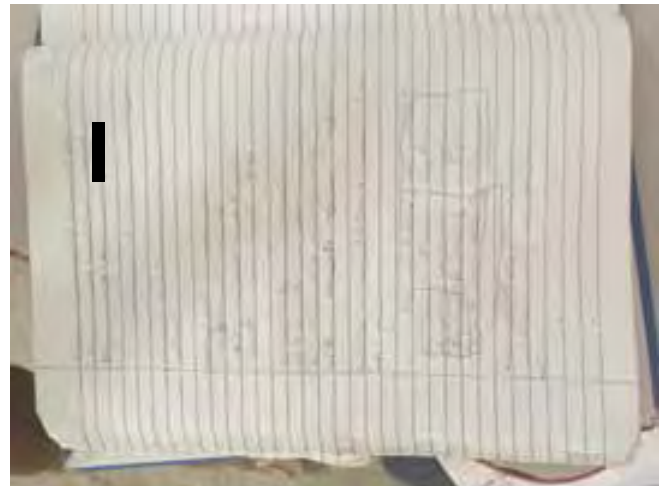
DHT0502 - ELOÁ-2



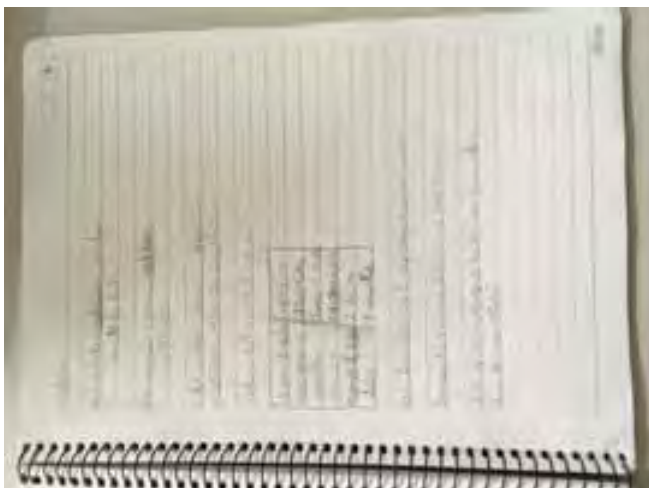
DHT0502 - CARLA-2



DHT0502 - ELOÁ-1



DHT0502 - CARLA-1



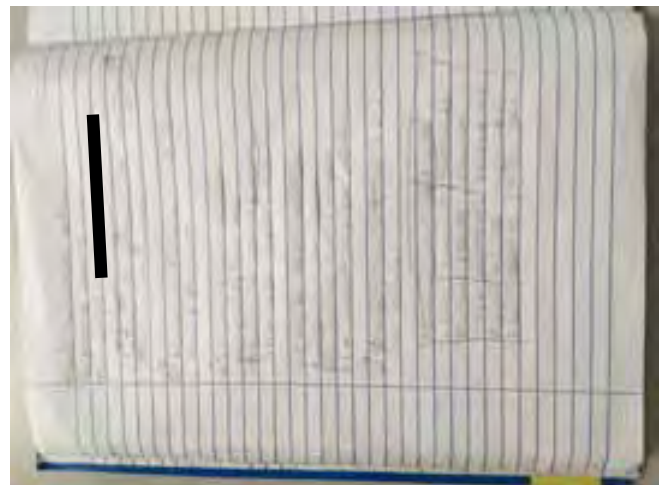
DHT0502 - FERNANDO-2



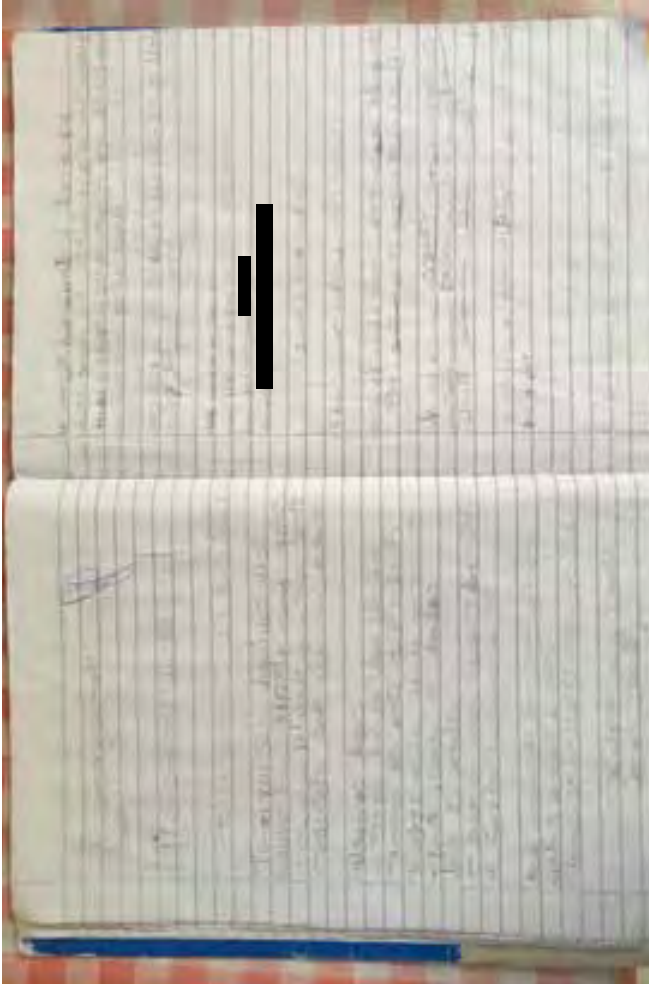
DHT0502 - JANAÍNA-2



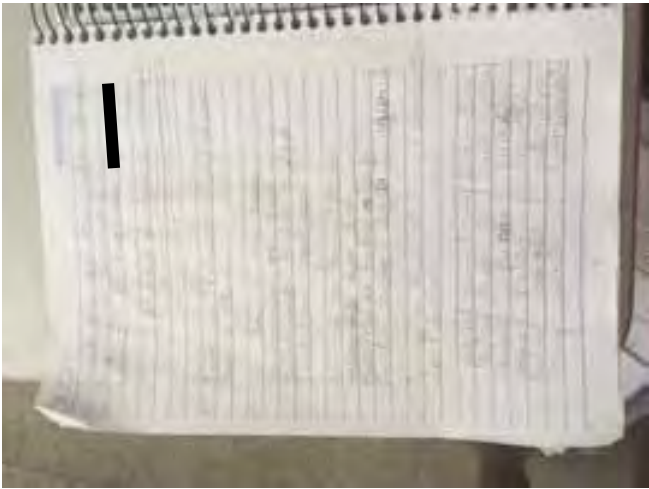
DHT0502 - FERNANDO-1



DHT0502 - JANAÍNA-1



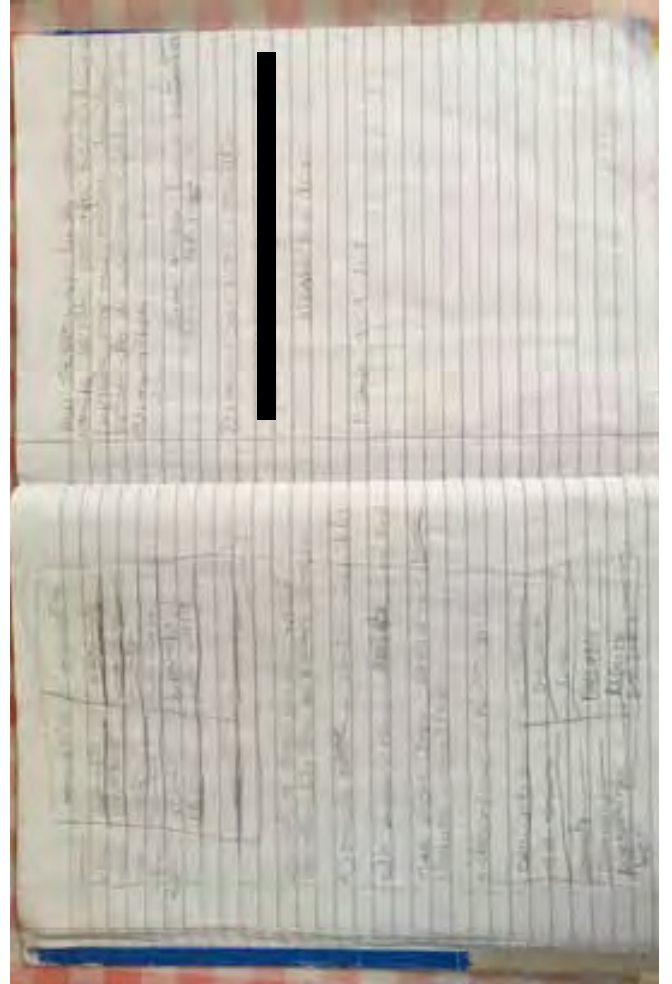
DHT0502 - GIOVANA-1



DHT0502 - PATRICK-1



DHT0502 - PATRICK-2



DHT0502 - GIOVANA-2



DHT0606 - JAQUELINE



DHT0606 - FERNANDO



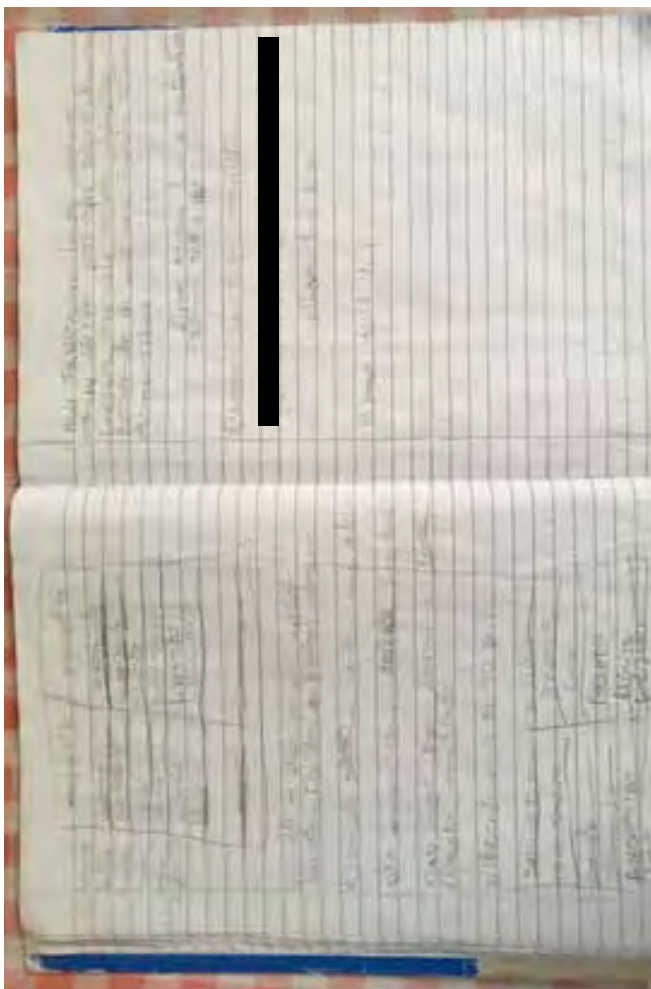
DHT0606 - MARIANA



DHT0606 - PATRICK



DHT0606 - RONY



DHT0606 - GIOVANA



DHT0606 - ALLY



DHT0606 - CARLA



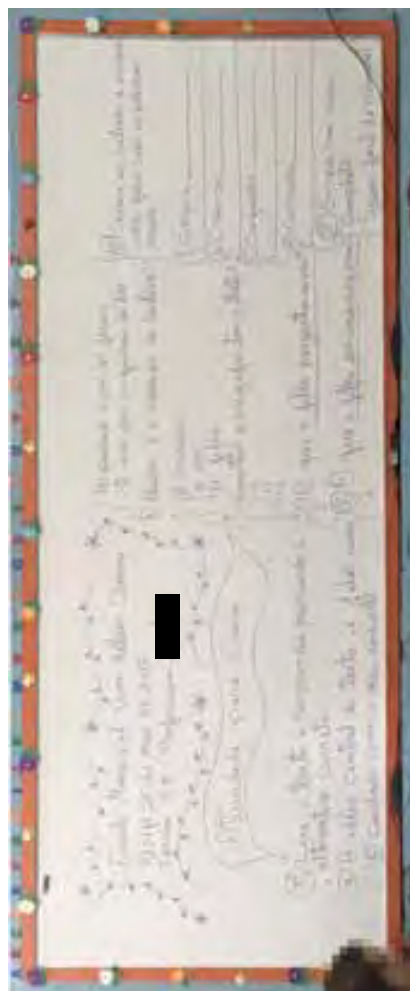
DHT0502 - DAVI



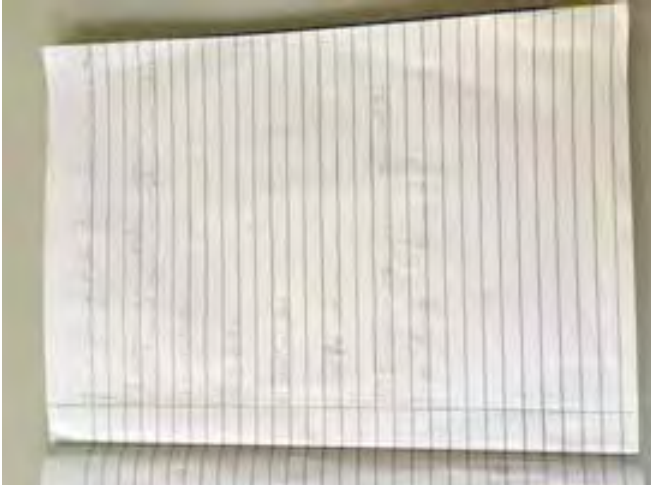
DHT0502 - JANAÍNA



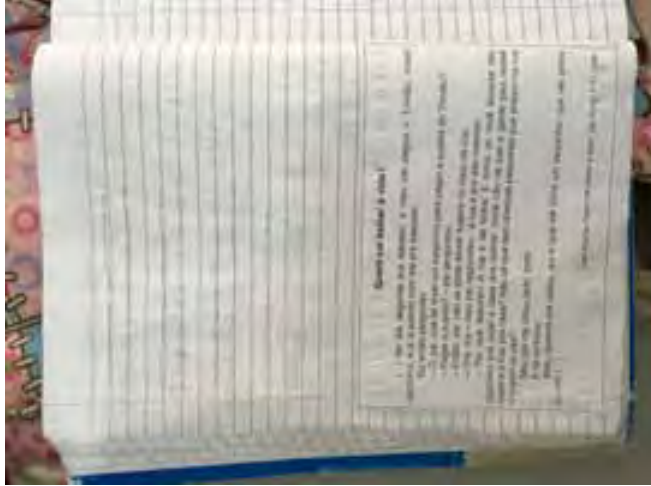
DHT0502 - ELOA



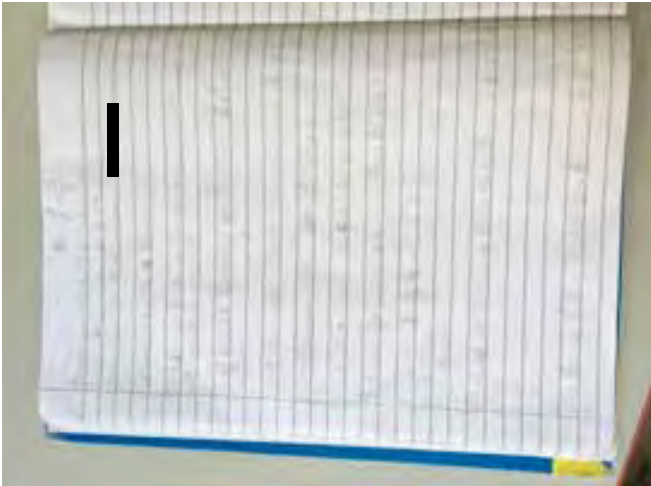
DHT0901 - JAQUELINE



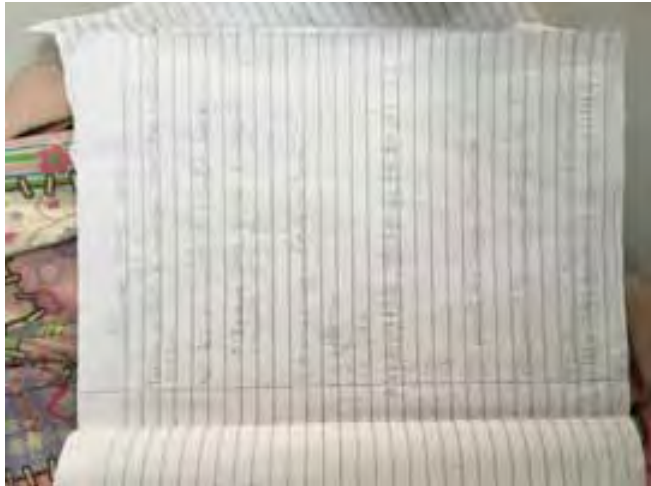
DHT0901 - RONY-2



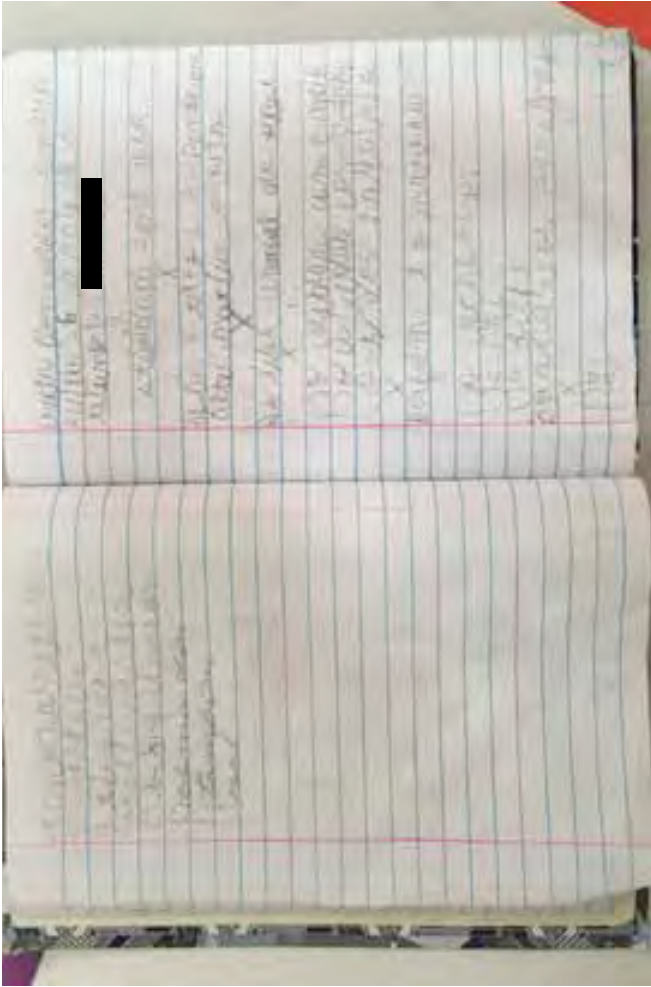
DHT0901 - GIOVANA-2



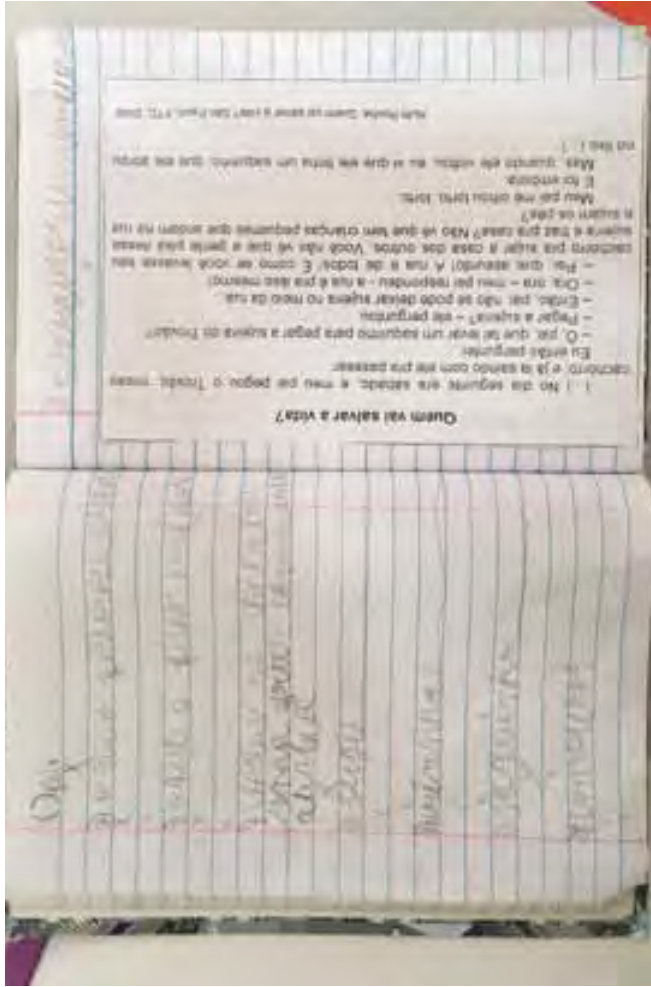
DHT0901 - RONY-1



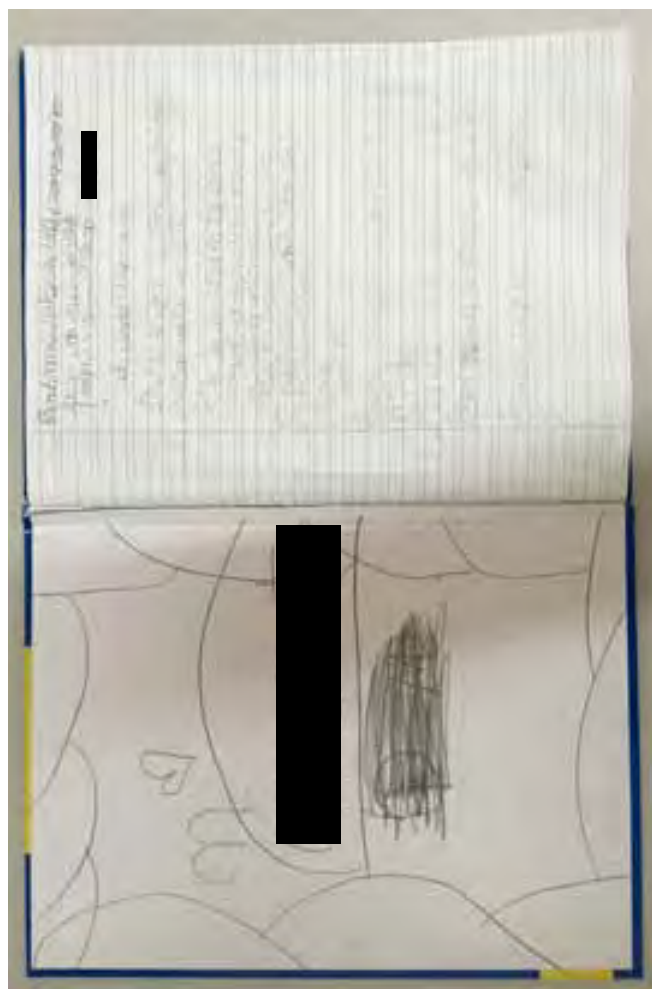
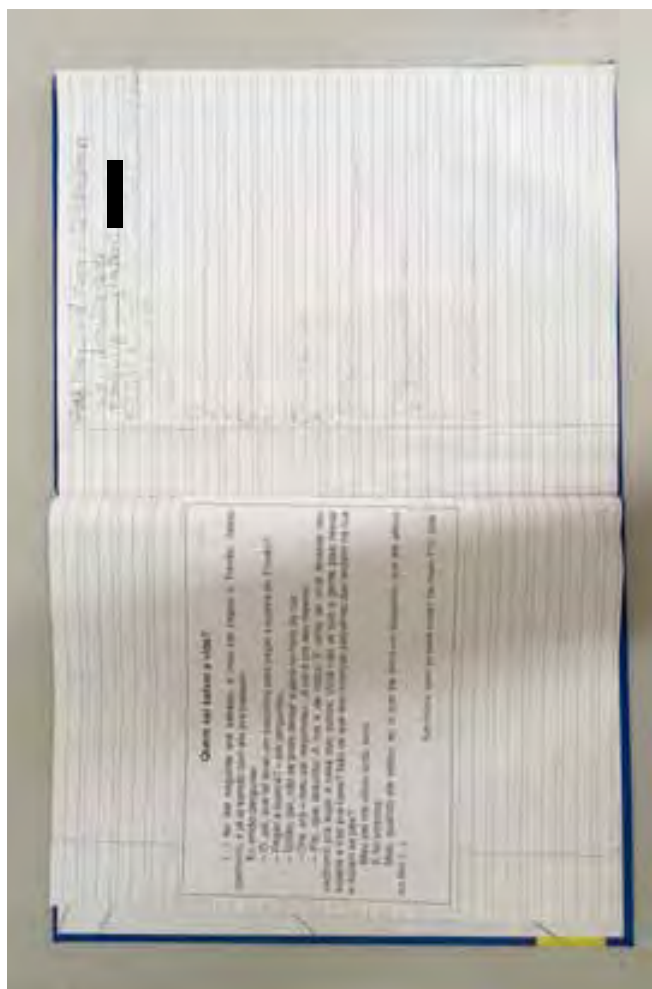
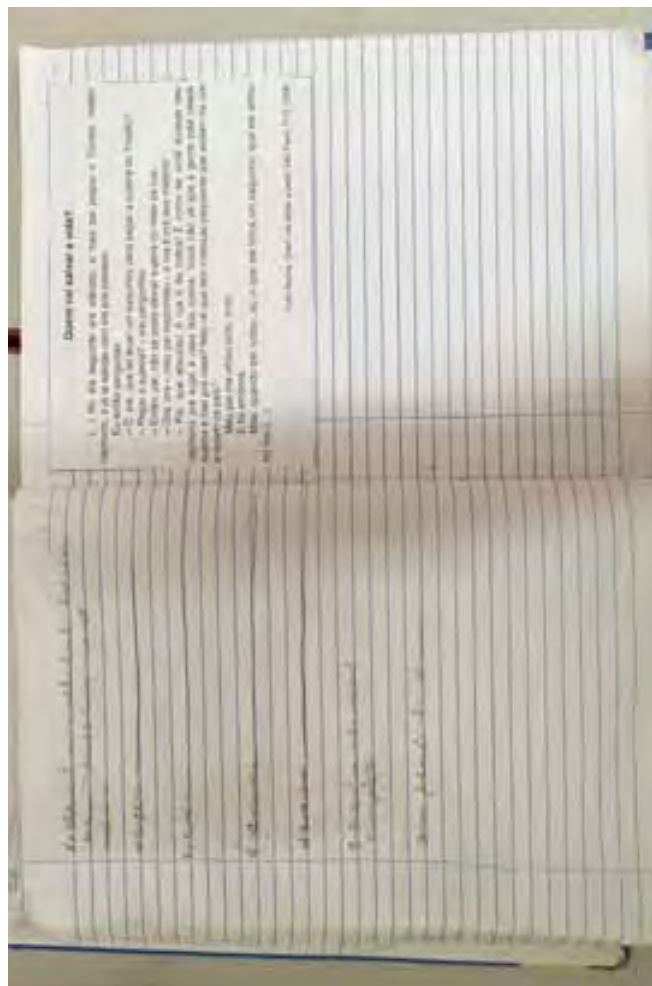
DHT0901 - GIOVANA-1

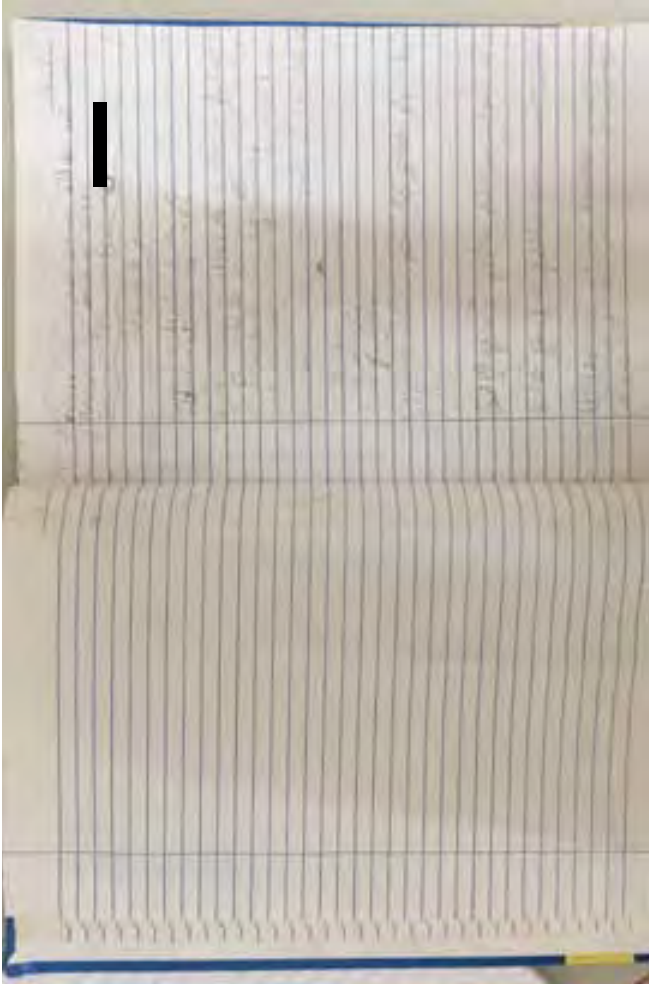


DHT0901 - ELIAS-1



DHT0901 - ELIAS-2

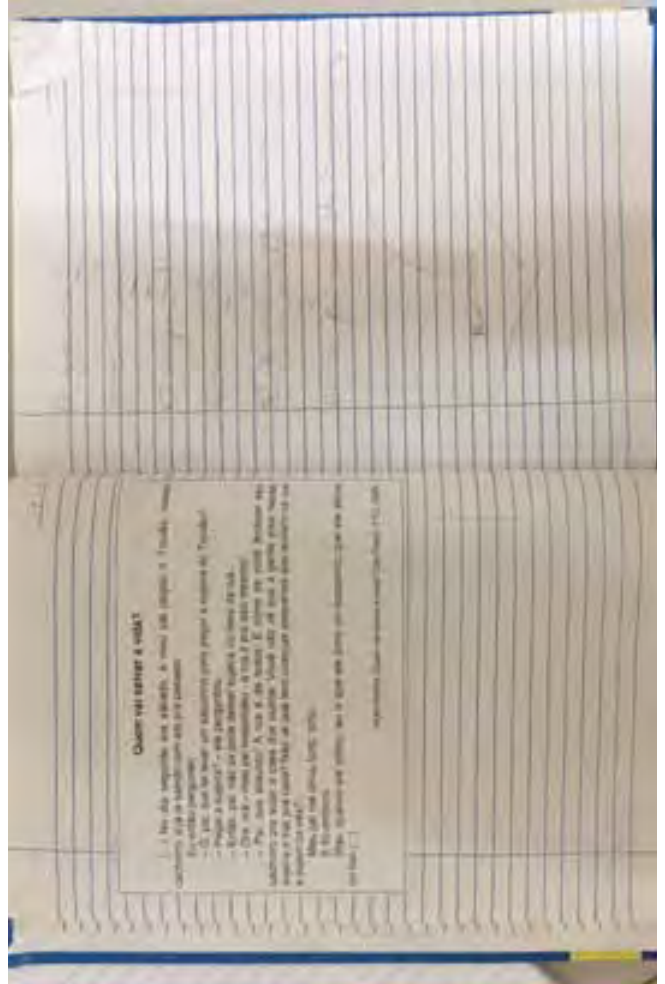




DHT0901 - RAFAELA-1



DHT0901 - PATRICK-1



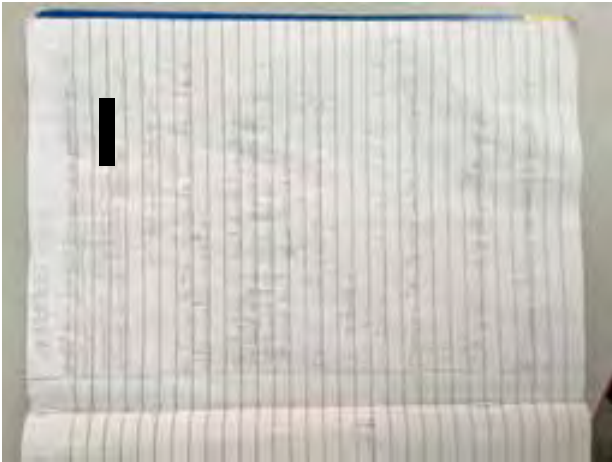
DHT0901 - RAFAELA-2



DHT0901 - PATRICK-2



DHT0901 - ELOA-1



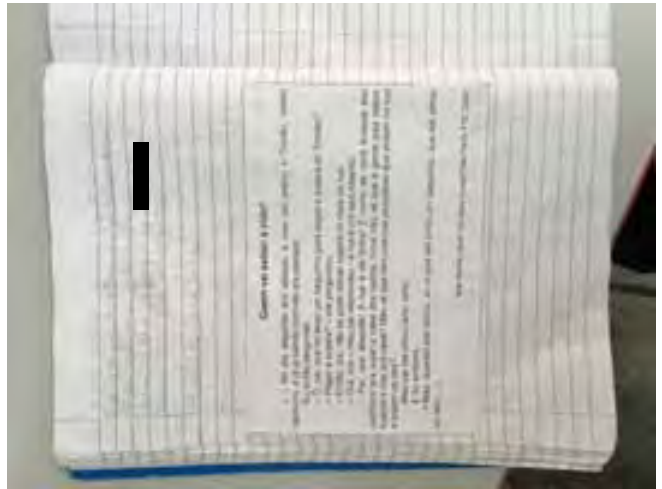
DHT0901 - MARIANA-1



DHT0901 - MARIANA-2



DHT0901 - ELOA-2



DHT0901 - MARIANA-3



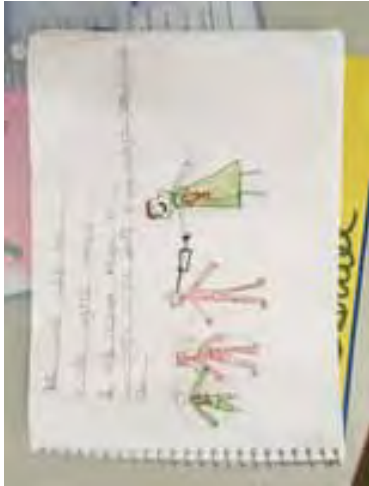
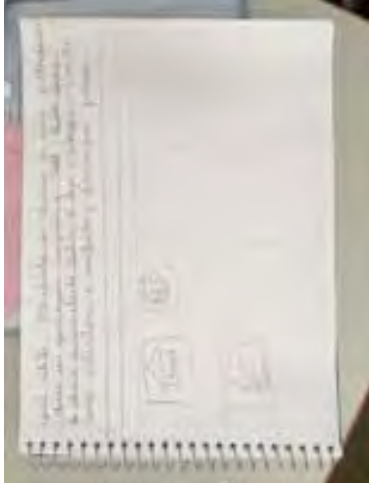
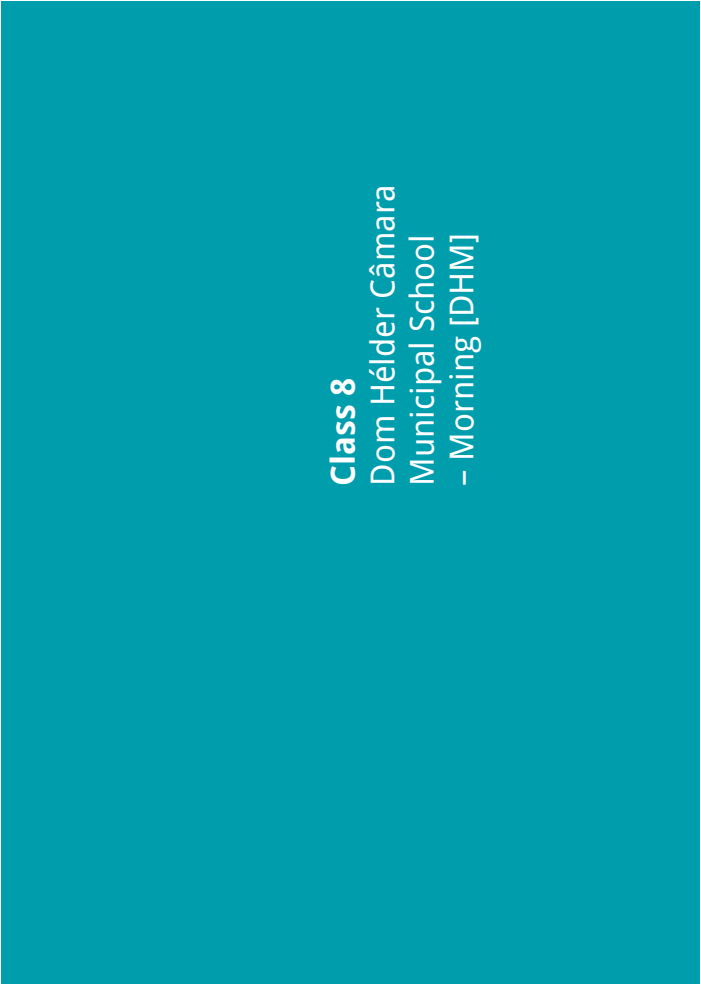
DHT0901 - DAVI-1



DHT0901 - ALEX-1



DHT0901 - DAVI-2



DHM0105 - BÁRBARA

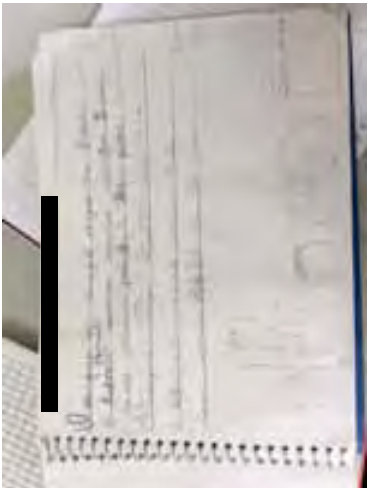
DHM0105 - ÍCARO



DHM0105 - MARIA-1



DHM0105 - MARIA-2



DHM0105 - LUCAS



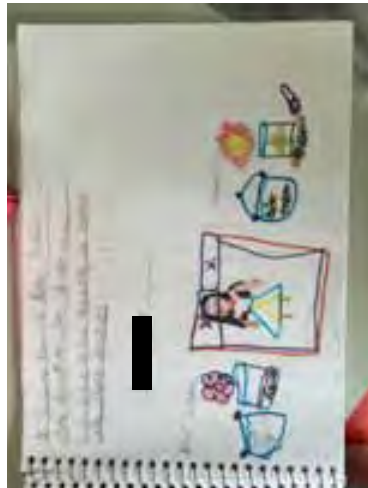
DHM0105 - MURILLO



DHM0105 - YURI-1



DHM0105 - YURI-2



DHM0105 - EDNA



DHM0105 - MÂRCIO



DHM0105 - CÍNTIA



DHM0105 - JUCA



DHM0105 - KÁTIA



DHM0105 - ANDRÉA



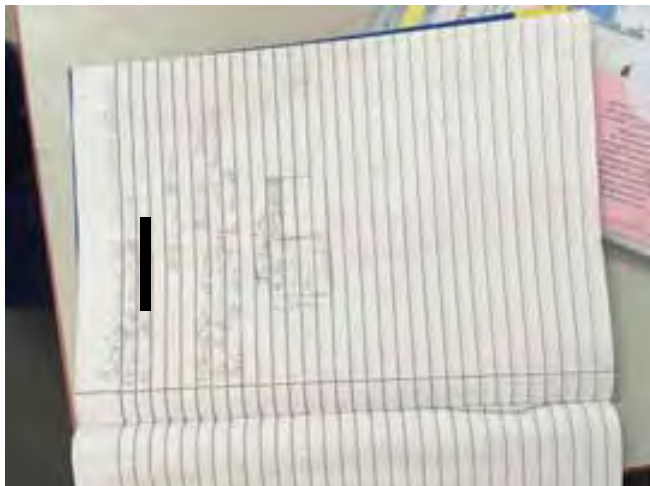
DHM0105 - VITOR



DHM0105 - MIGUEL



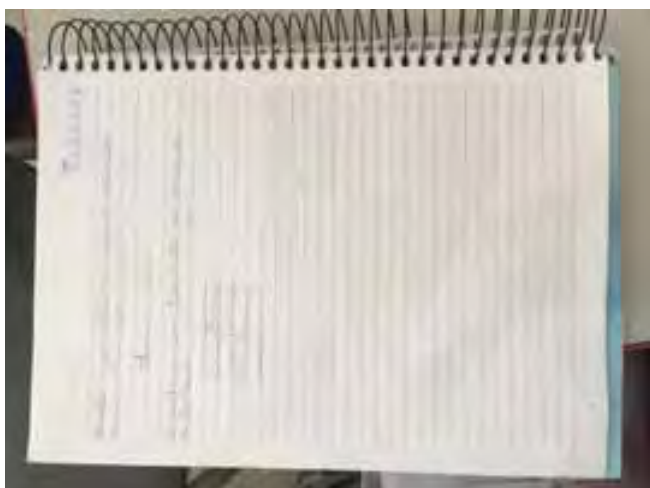
DHM0204 - RITA



DHM0204 - EDNA



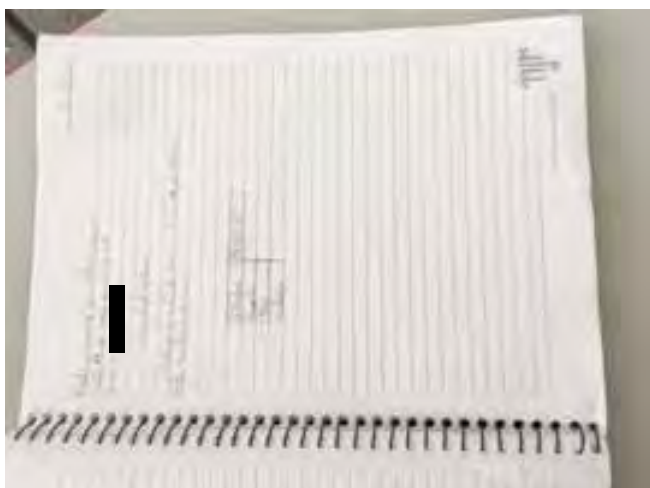
DHM0204 - YURI



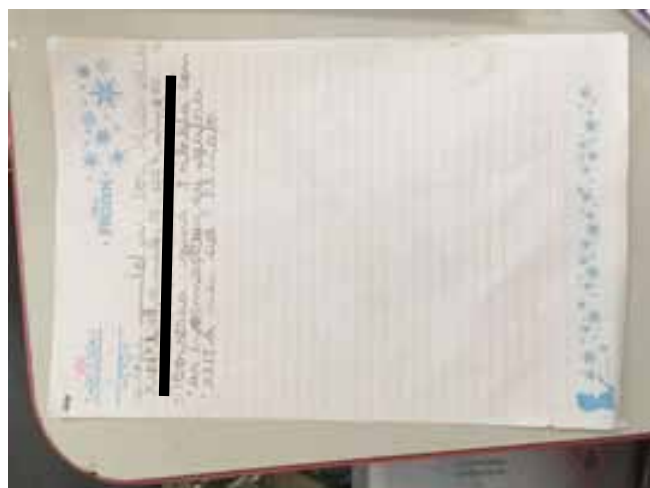
DHM0204 - VITOR



DHM0204 - ANDRÉA



DHM0204 - JUCA



DHM0204 - EDUARDO



DHM0204 - JOAQUIM



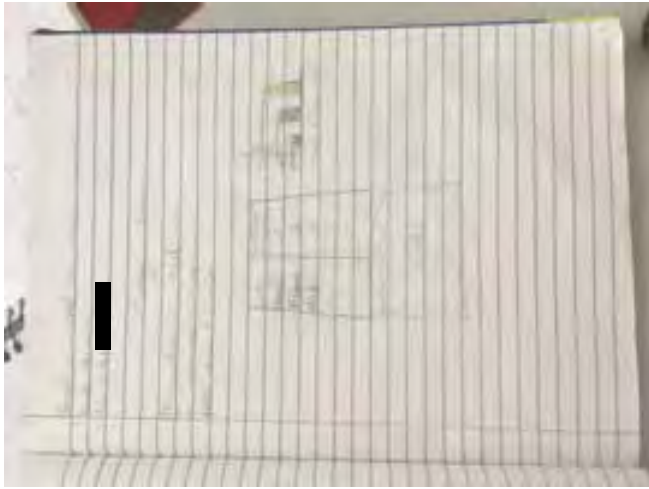
DHM0204 - ÍCARO



DHM0204 - MURILO



DHM0204 - MIGUEL



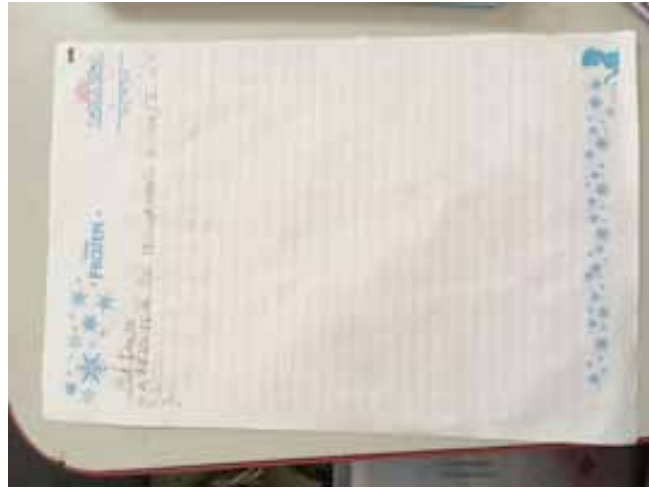
DHM0204 - CÍNTIA



DHM0204 - LUCAS



DHM0204 - KÁTIA



DHM0205 - EDUARDO



DHM0205 - VÍTOR



DHM0205 - JUCA



DHM0205 - KÁTIA



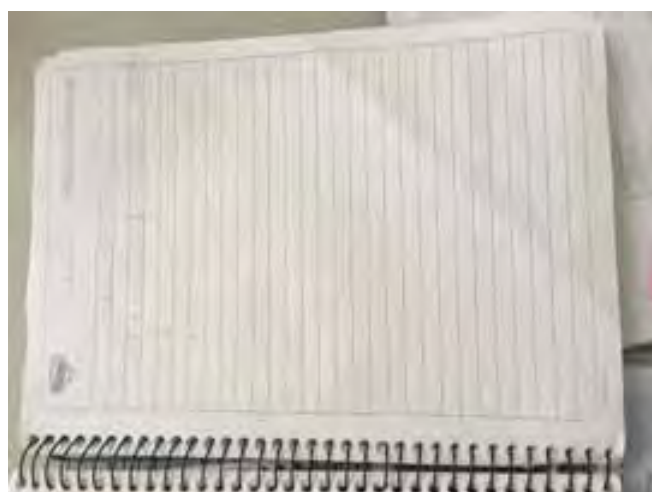
DHM0205 - MURILO



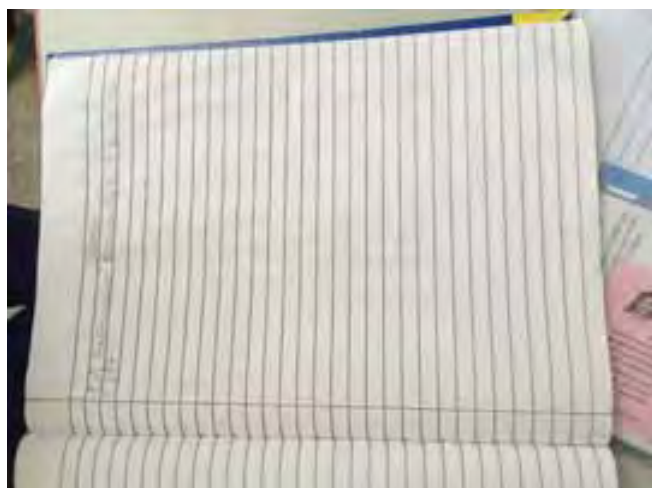
DHM0205 - VITOR



DHM0205 - ANDRÉA



DHM0205 - YURI



DHM0205 - EDNA



DHM0205 - ÍCARO



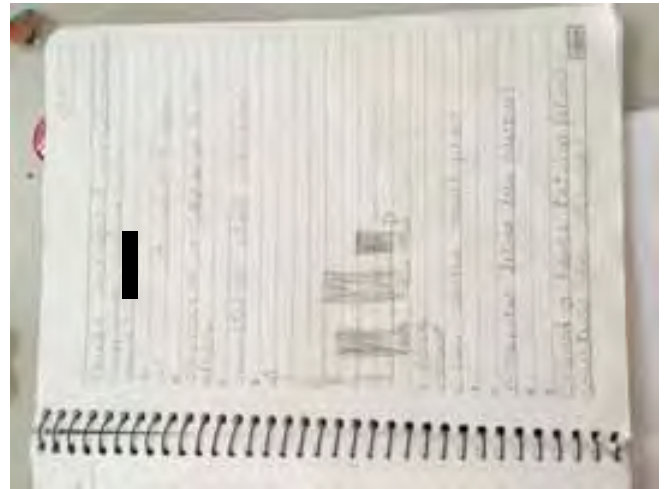
DHM0405 - MARIA-2



DHM0405 - LUCAS-2



DHM0405 - MARIA-1



DHM0405 - LUCAS-1



DHM0405 - MURILO-2



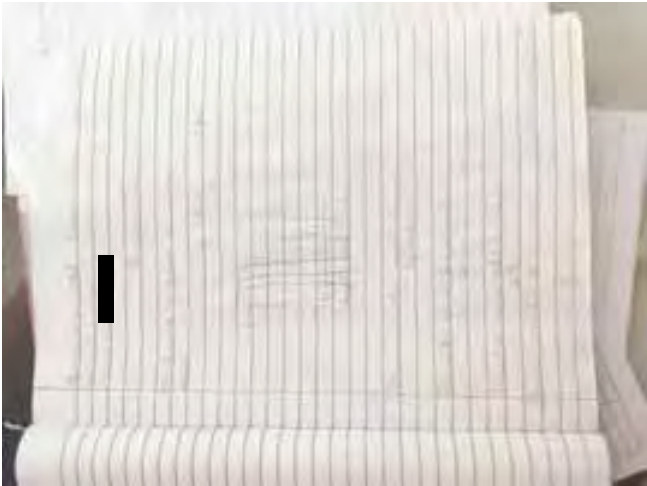
DHM0405 - JUCA-2



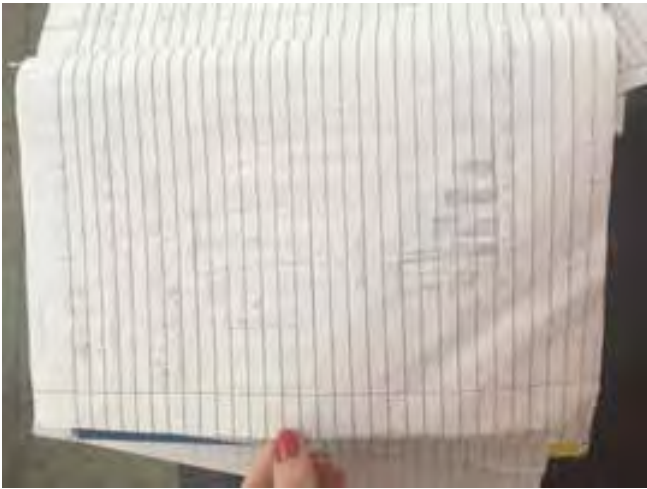
DHM0405 - MURILO-1



DHM0405 - JUCA-1



DHM0405 - CÍNTIA-1



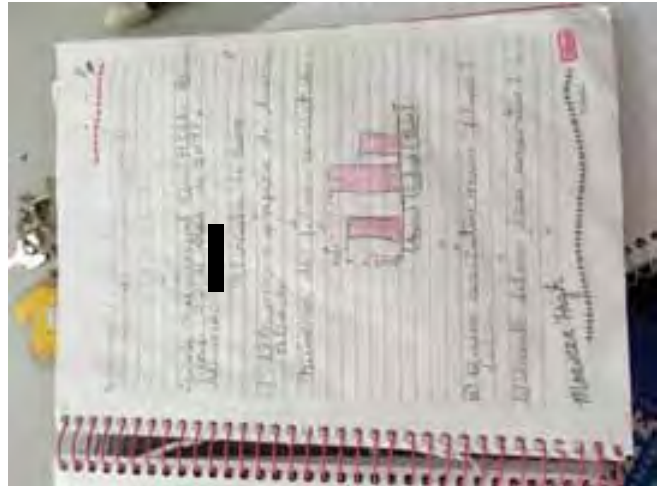
DHM0405 - CÍNTIA-2



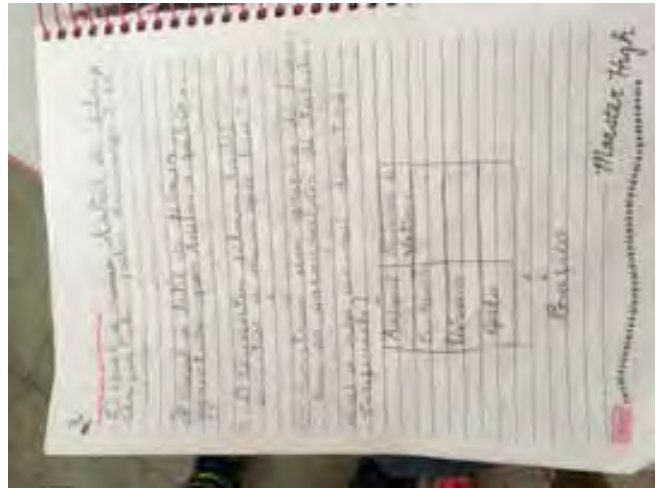
DHM0405 - KÁTIA-1



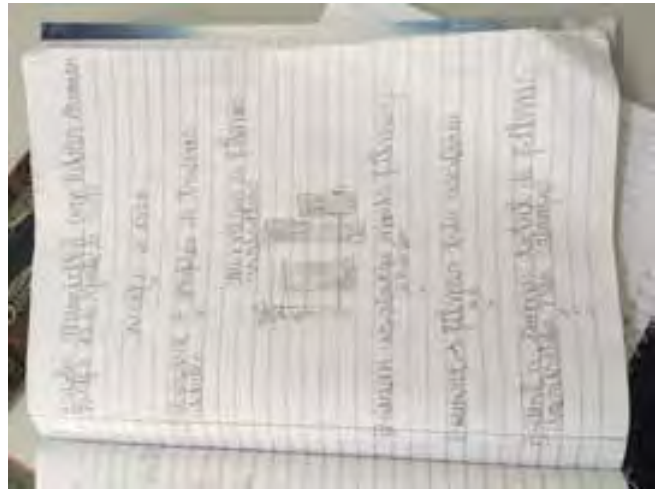
DHM0405 - KÁTIA-2



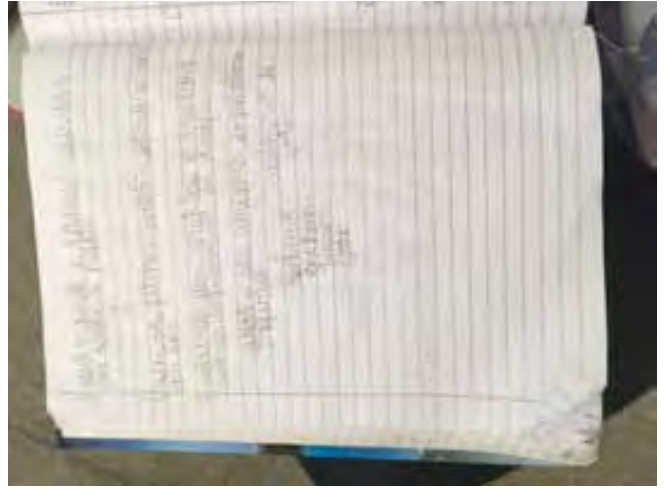
DHM0405 - BÁRBARA-1



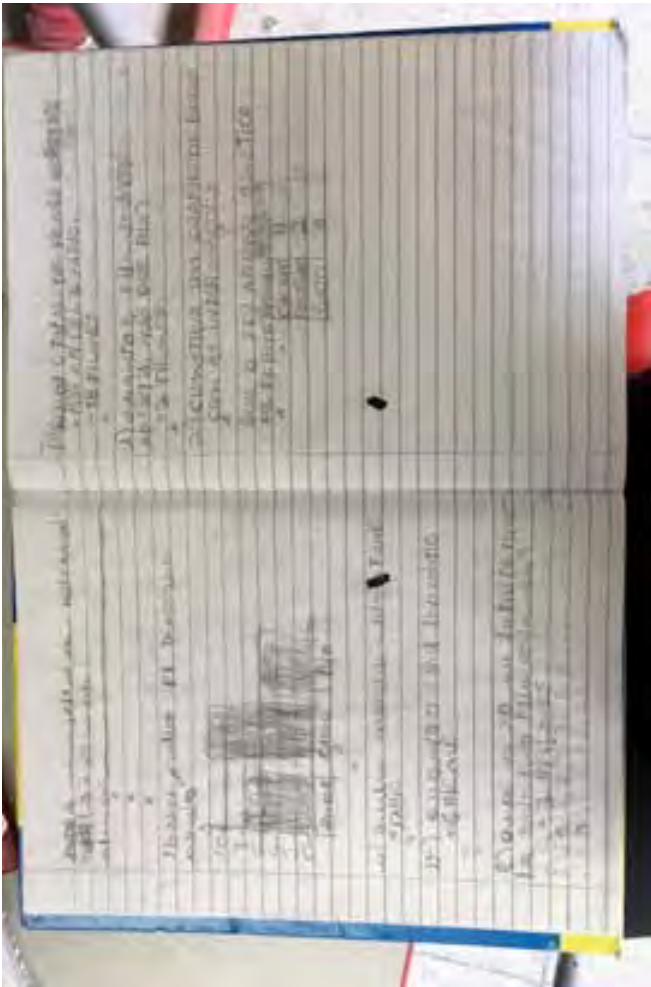
DHM0405 - BÁRBARA-2



DHM0405 - MÁRCIO-1



DHM0405 - MÁRCIO-2



DHM0405 - EDUARDO



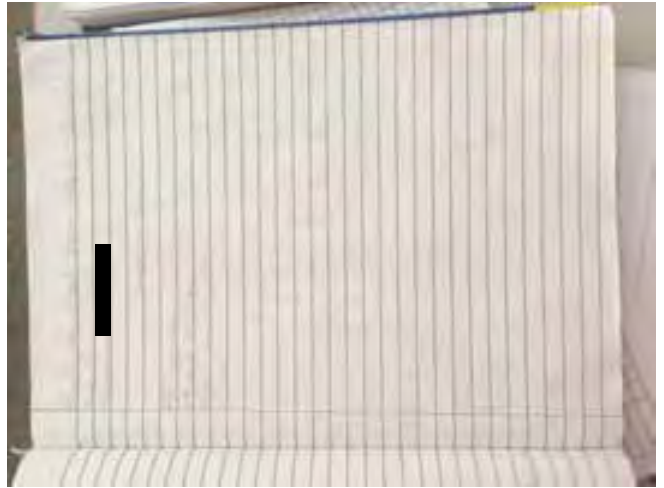
DHM0405 - VITOR



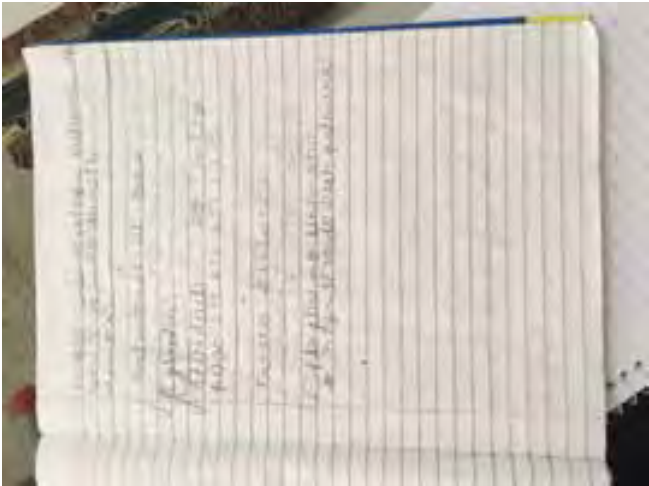
DHM0505 - RITA



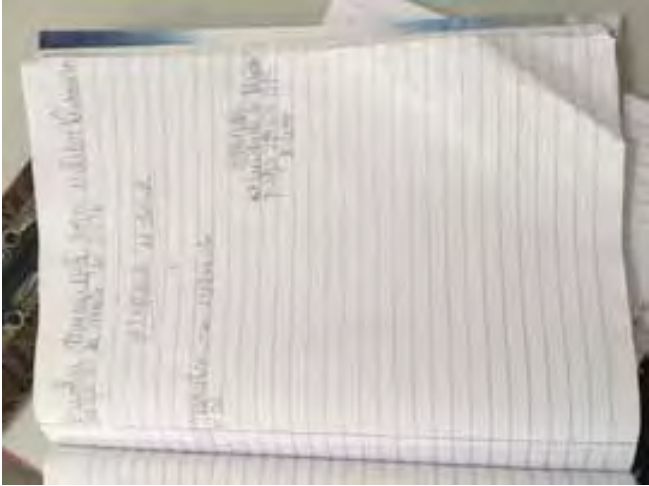
DHM0505 - JUCA



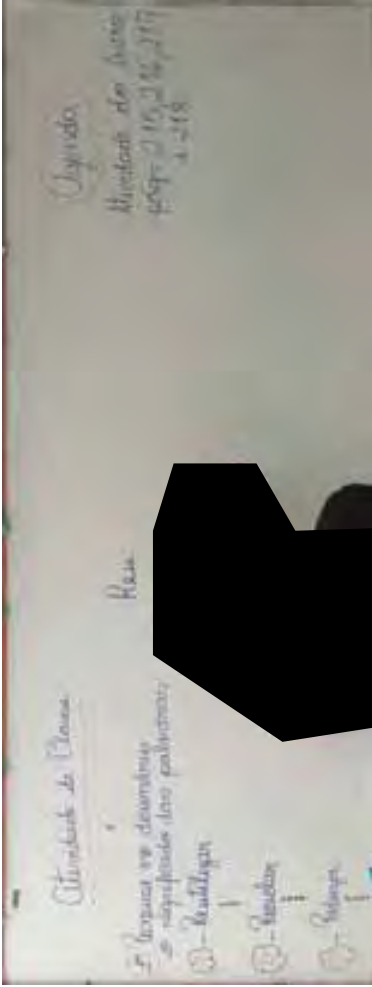
DHM0505 - CINTIA



DHM0505 - EDUARDO



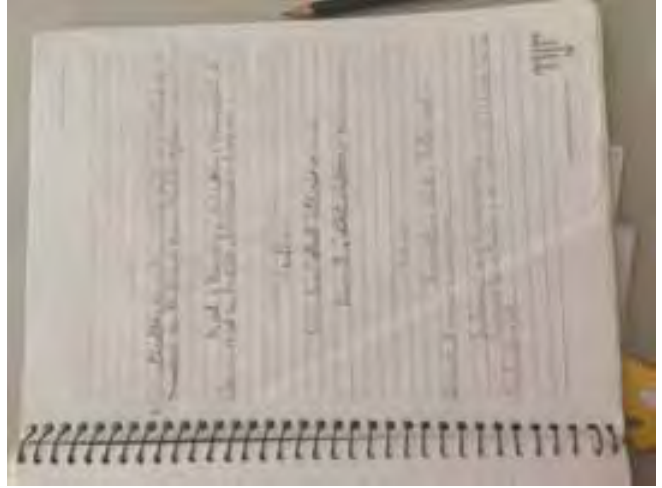
DHM0505 - MÁRCIO



DHM0506 - RITA



DHM0505 - EDUARDO



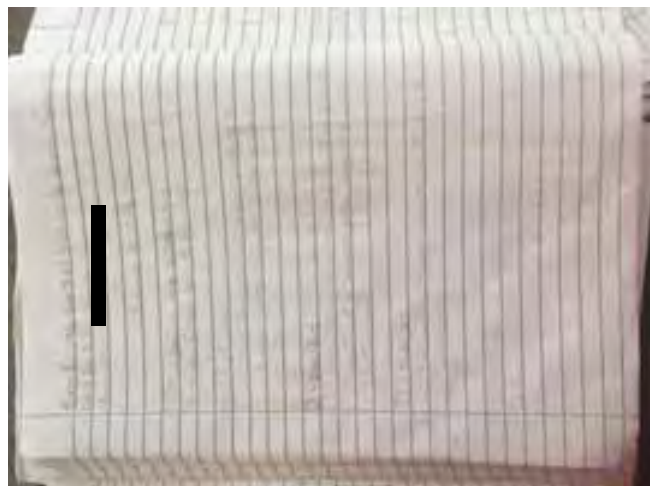
DHM0506 - JUCA-1



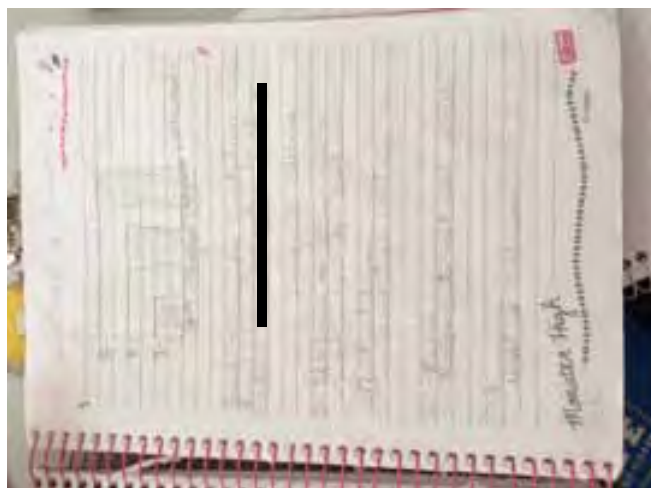
DHM0506 - JUCA-2



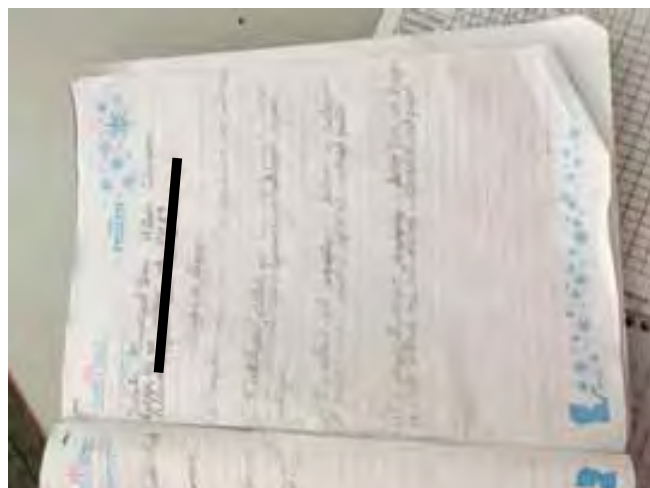
DHM0506 - VITOR



DHM0506 - CÍNTIA



DHM0506 - BÁRBARA



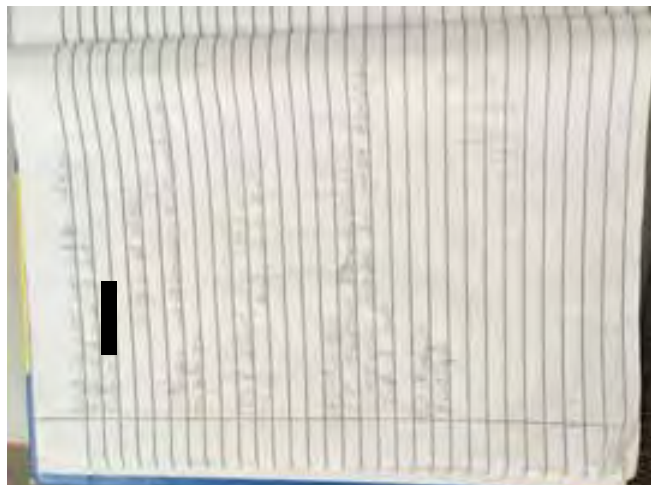
DHM0506 - KÁTIA



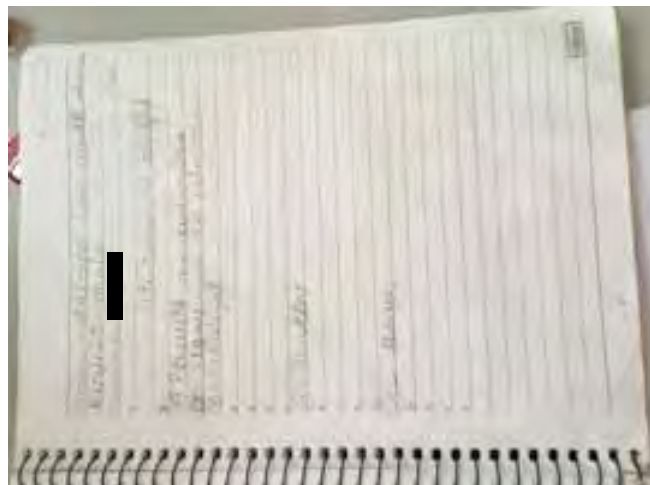
DHM0506 - ANDRÉA



DHM0506 - MARIA



DHM0506 - EDNA



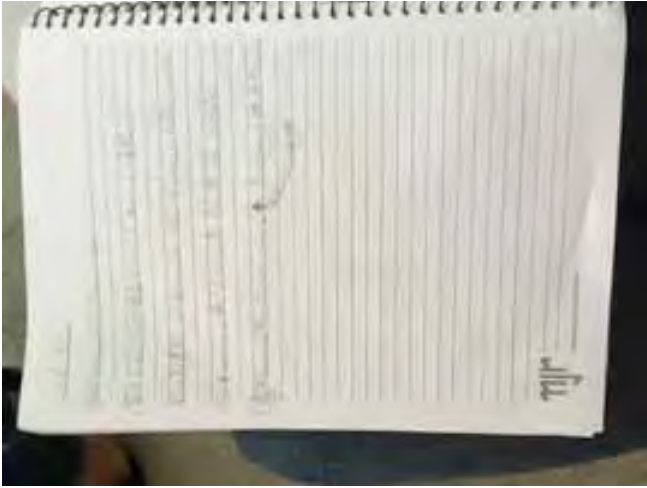
DHM0506 - LUCAS



DHM0601 - RITA



DHM0601 - JUCA-1



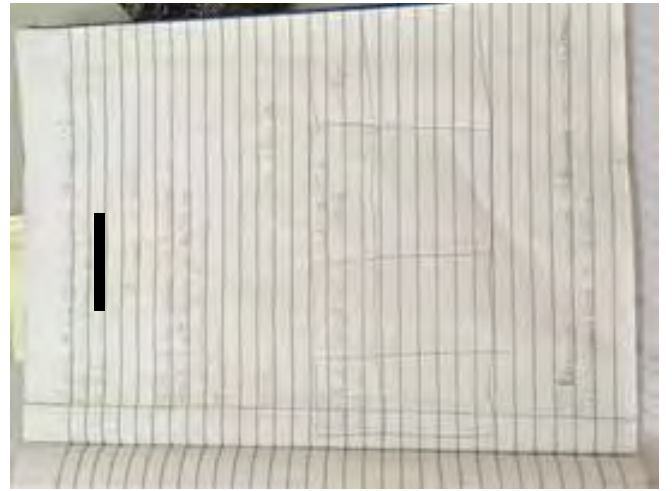
DHM0601 - JUCA-2



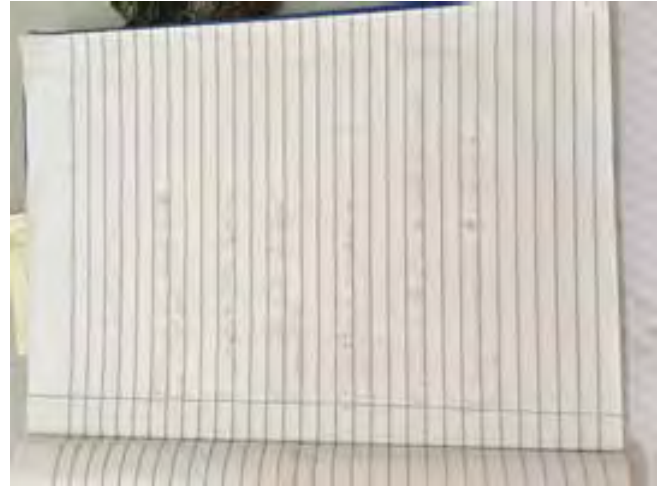
DHM0601 - JOAQUIM-1



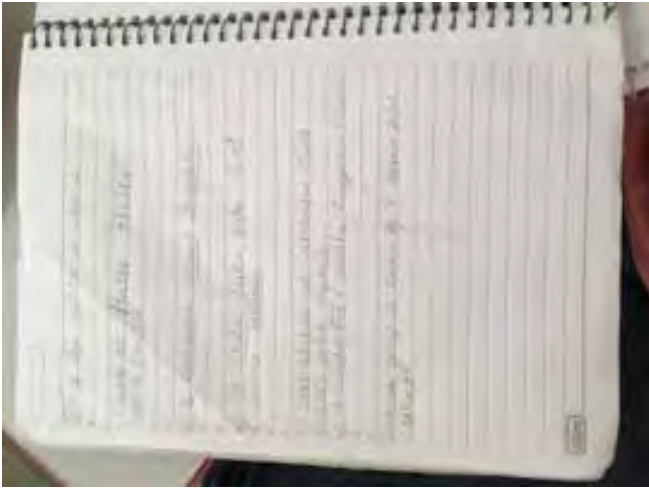
DHM0601 - JOAQUIM-2



DHM0601 - CÍNTIA-1



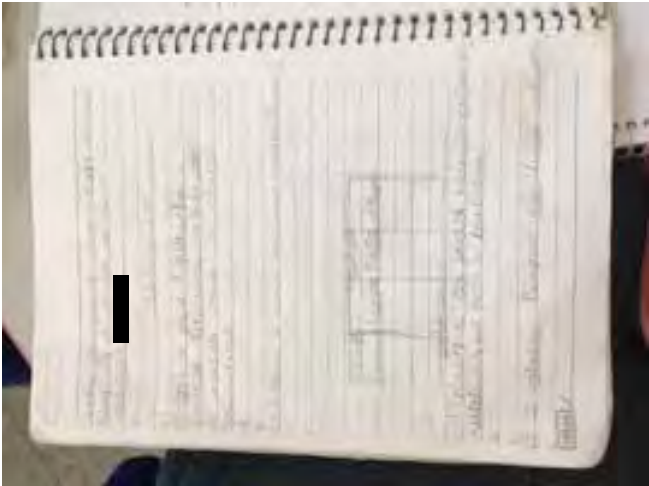
DHM0601 - CÍNTIA-2



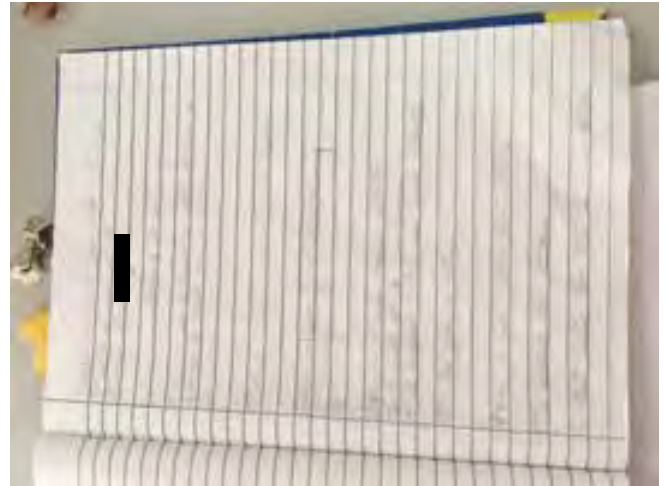
DHM0601 - LUCAS-2



DHM0601 - EDNA-2



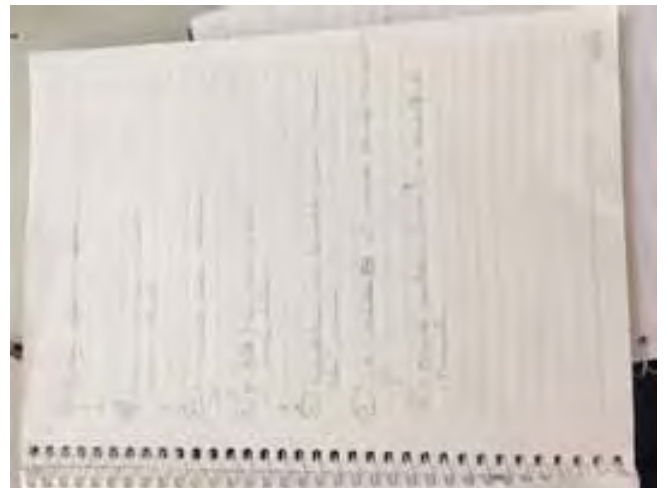
DHM0601 - LUCAS-1



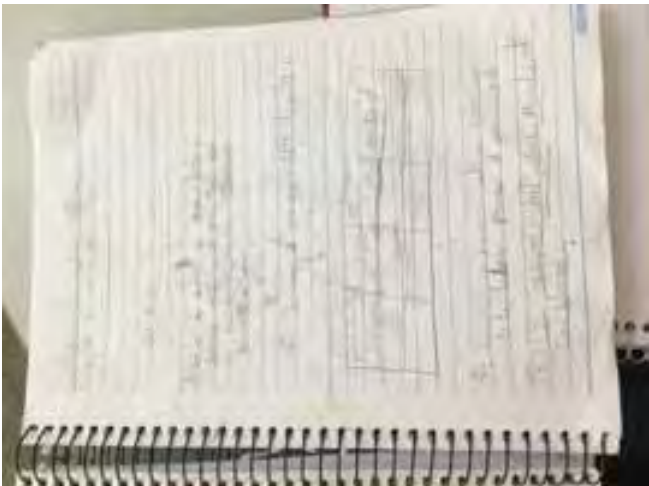
DHM0601 - EDNA-1



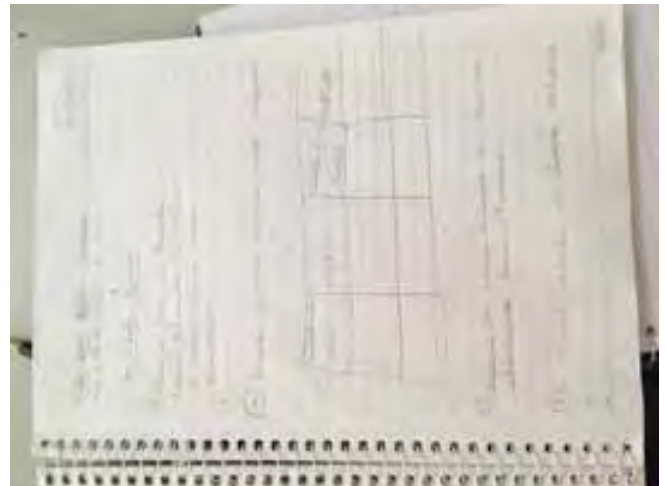
DHM0601 - ÍCARO-2



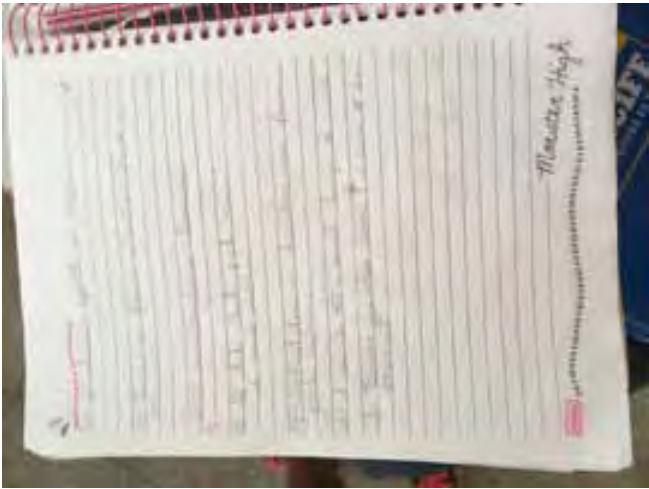
DHM0601 - ANDRÉA-2



DHM0601 - ÍCARO-1



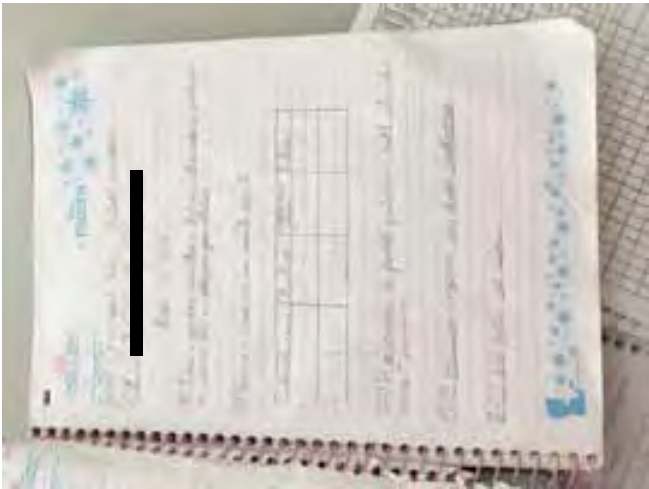
DHM0601 - ANDRÉA-1



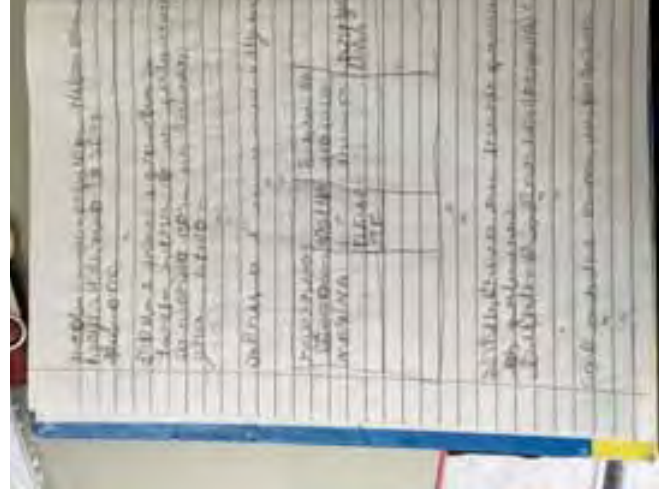
DHM0601 - BÁRBARA-2



DHM0601 - VITOR-2



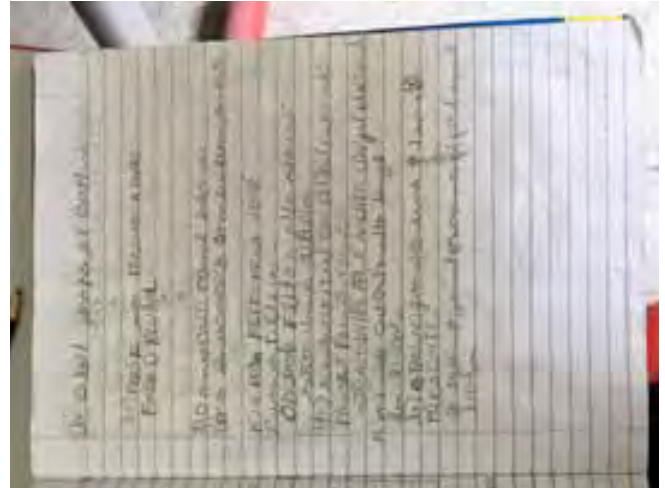
DHM0601 - KÁTIA-1



DHM0601 - EDUARDO

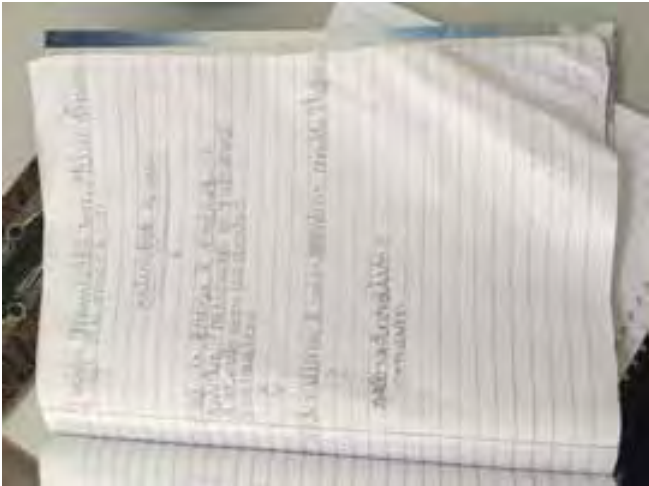


DHM0601 - KÁTIA-2

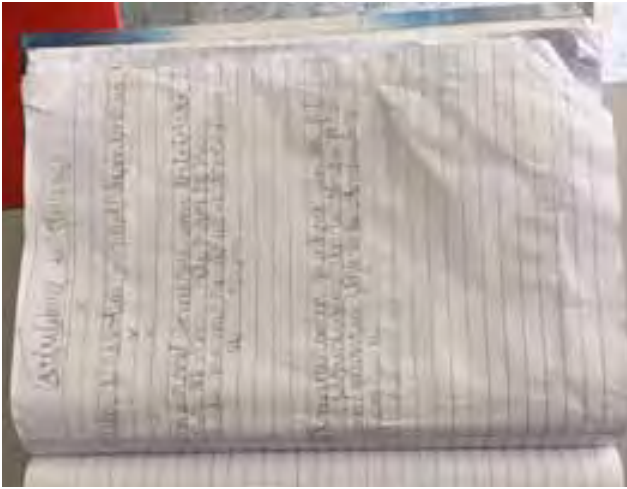


DHM0601 - VITOR-1

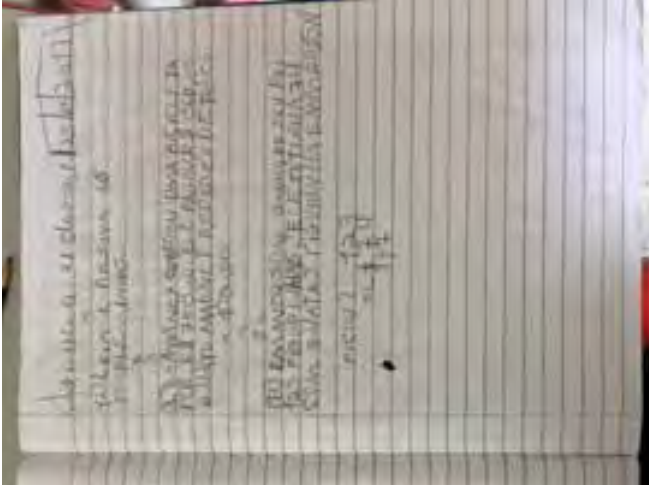
DHM0601 - BÁRBARA-1



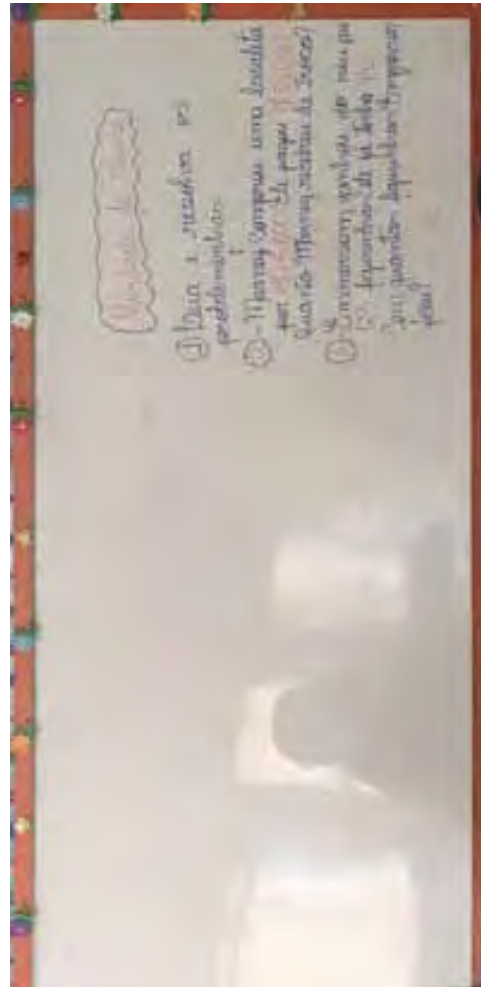
DHM0601 - MÁRCIO



DHM0701 - MÁRCIO



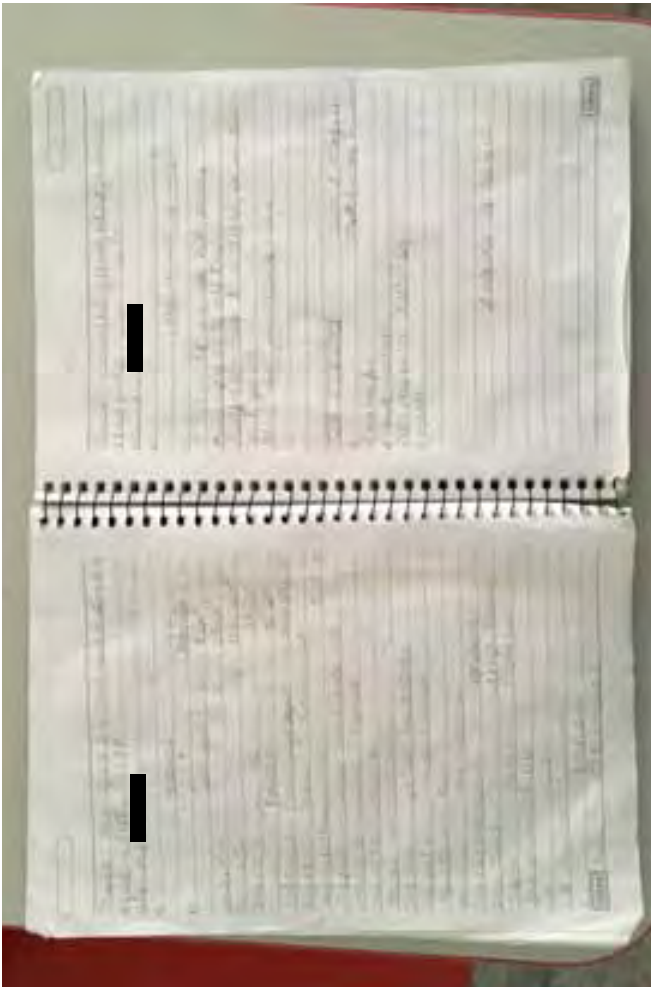
DHM0701 - EDUARDO



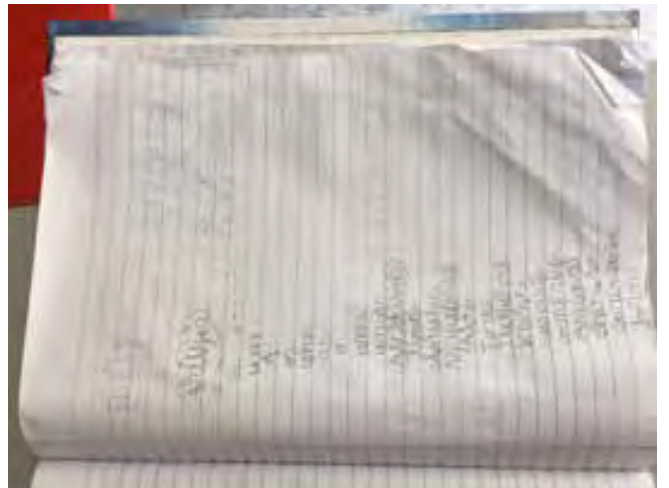
DHM0701 - RITA



DHM0904 - RITA



DHM0904 - LUCAS



DHM0904 - MÁRCIO-1



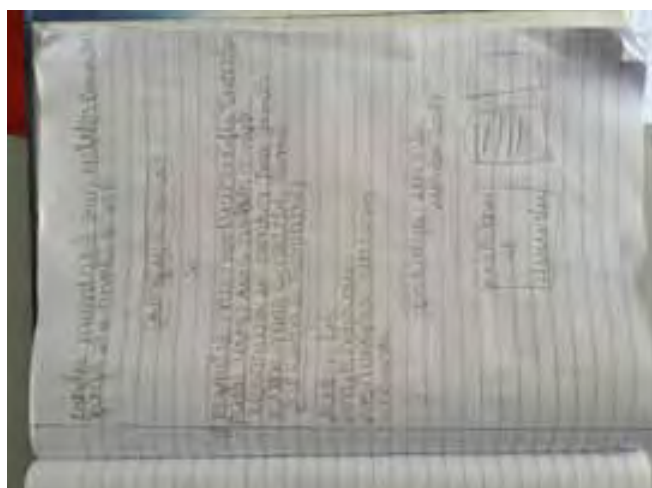
DHM0904 - MÁRCIO-1



DHM0906 - RITA



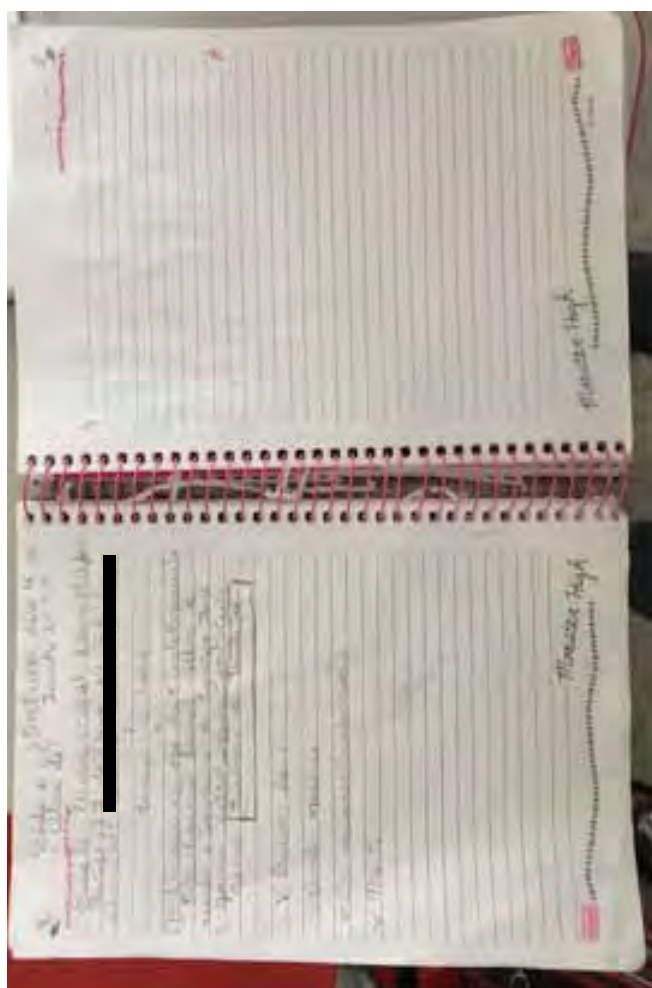
DHM0906 - JUCA



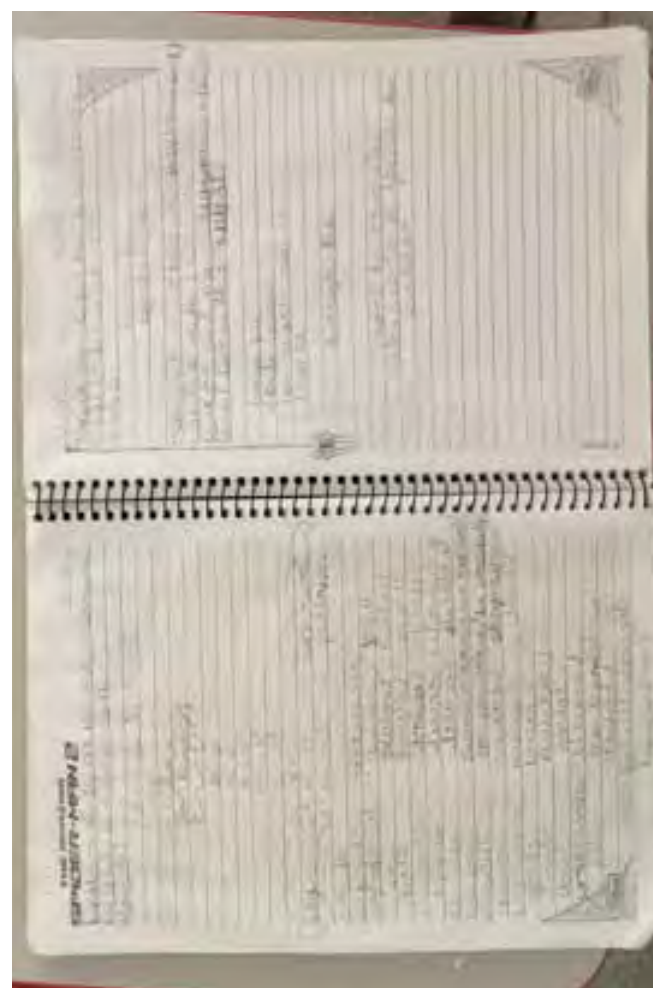
DHM0906 - MÁRCIO



DHM1003 - RITA



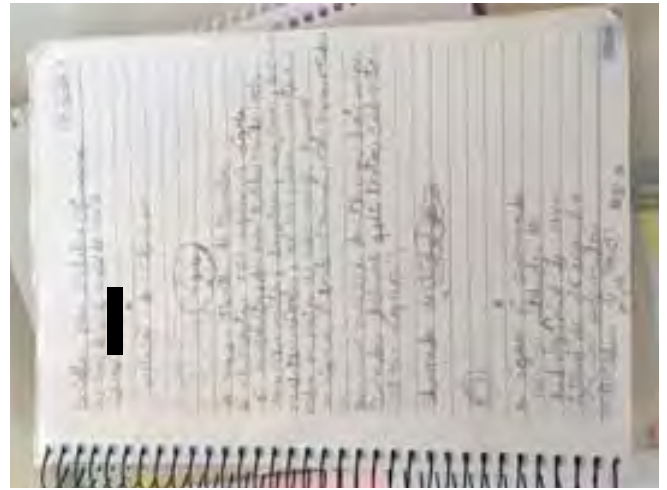
DHM0906 - BÁRBARA



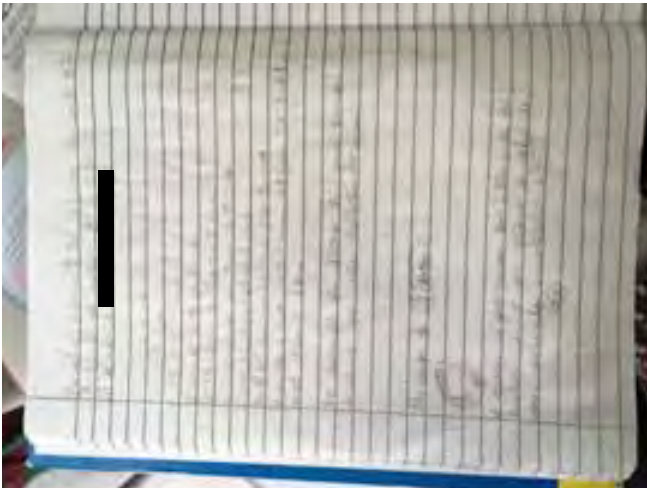
DHM0906 - MURILO



DHM1003 - YURI



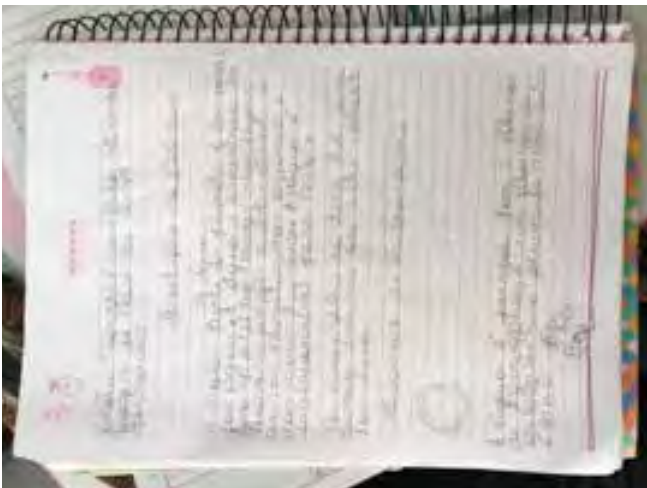
DHM1003 - ICARO



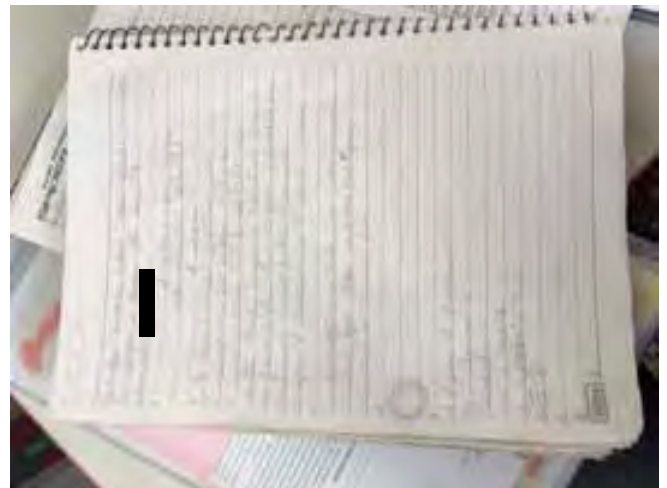
DHM1003 - EDNA



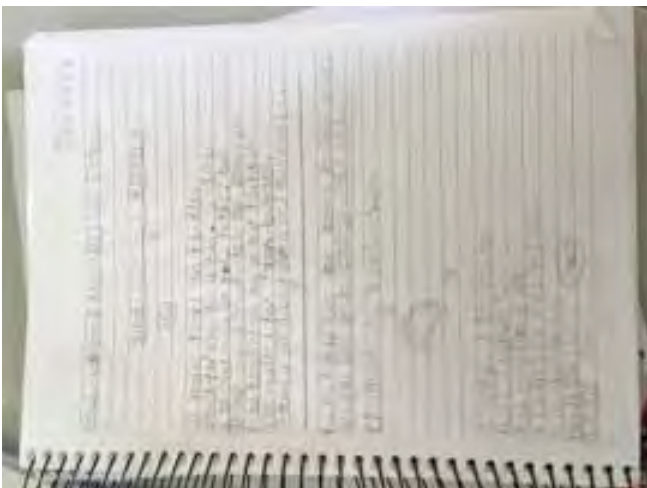
DHM1003 - VITOR



DHM1003 - MARIA



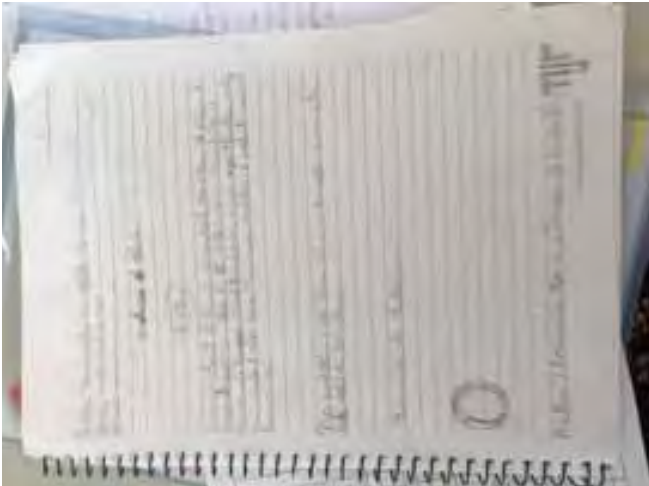
DHM1003 - LUCAS



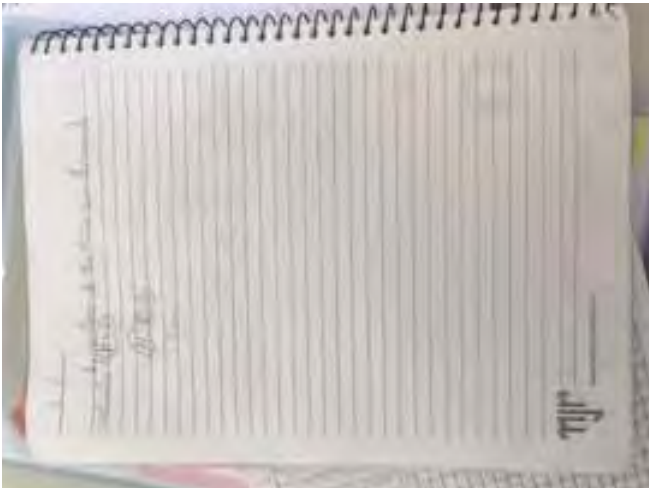
DHM1003 - MIGUEL



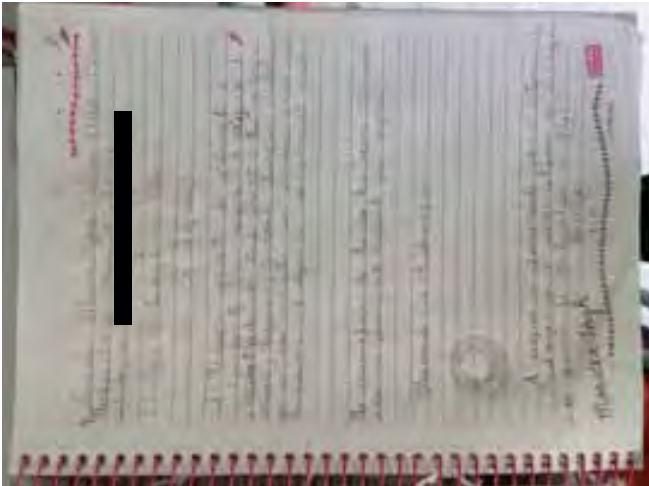
DHM1003 - MURILO



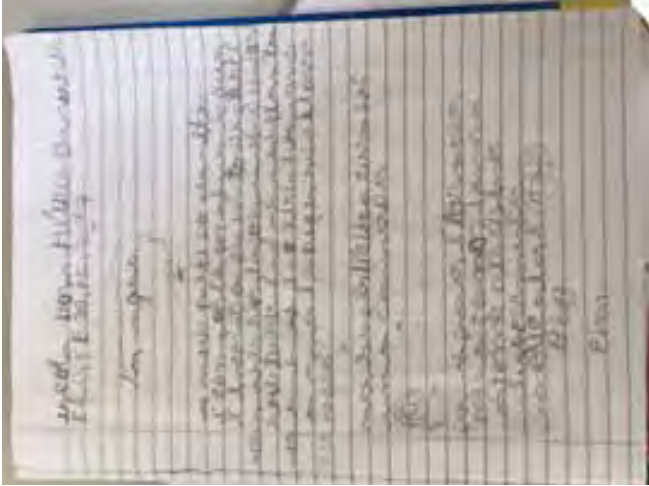
DHM1003 - JUCA-1



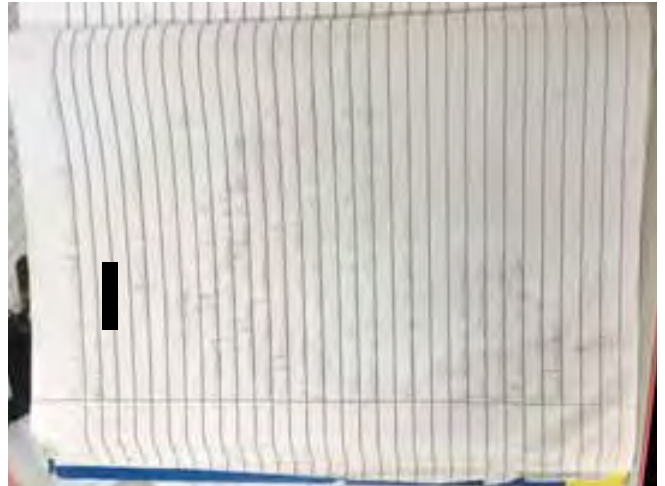
DHM1003 - JUCA-2



DHM1003 - BÁRBARA



DHM1003 - EDUARDO



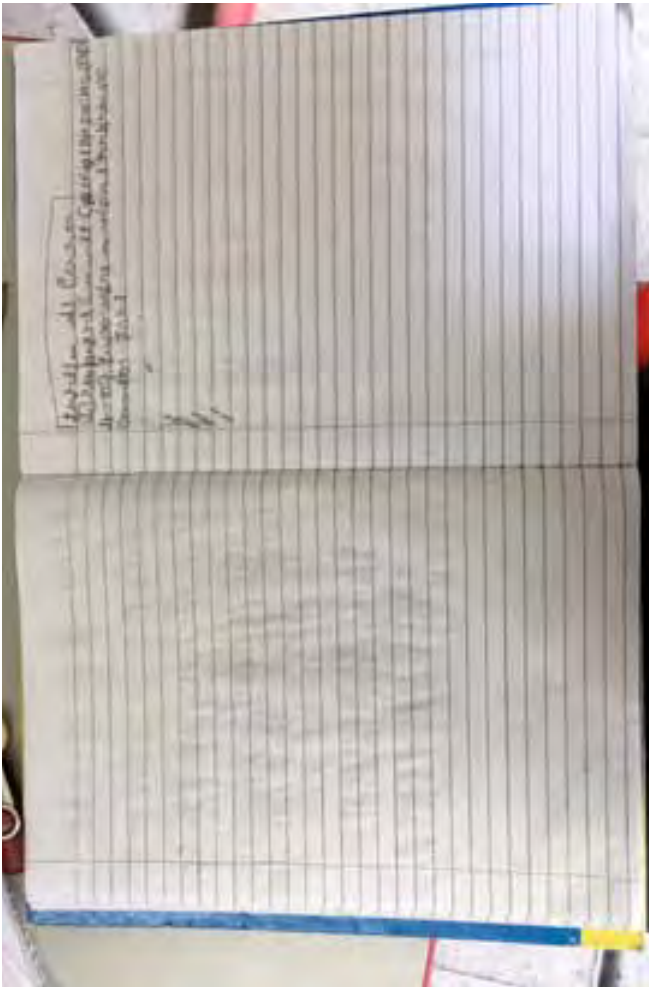
DHM1003 - CÍNTIA



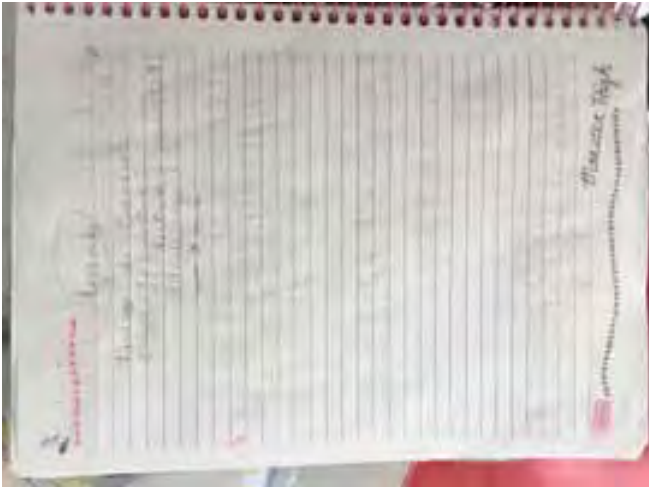
DHM1003 - KÁTIA



DHM1004 - RITA



DHM1004 - EDUARDO



DHM1004 - BÁRBARA



DHM1004 - EDNA



DHM1004 - MÁRCIO