



**FACULTAD DE EDUCACIÓN DE PALENCIA
UNIVERSIDAD DE VALLADOLID**

First steps to create Classroom Culture based on developing Thinking Skills within CLIL premises

**Primeros pasos para crear Cultura de Aula basada en el desarrollo de Destrezas de
Pensamiento basado en los presupuestos que rigen el AICLE**

**TRABAJO FIN DE GRADO EN EDUCACIÓN PRIMARIA
(MENCIÓN LENGUA EXTRANJERA, INGLÉS)**

AUTOR/A: Lucía Román Nieto

TUTOR/A: M^a del Carmen Alario Trigueros

Palencia, 11 de julio de 2024



RESUMEN

Este Trabajo de Fin de Grado (TFG) tiene como objetivo principal realizar una investigación sobre la aplicación de la cultura de aula y las destrezas de pensamiento que se desarrollan en las clases de inglés, mediante la realización de una propuesta de Ciencias Naturales. Para la realización de la propuesta, el lenguaje, así como la teoría de la adquisición del lenguaje apoyado tanto por Vygotsky como por Bruner ha sido tenido en cuenta. El aprendizaje experiencial basado en los pasos clave del Método Científico, las estructuras textuales y el uso del inglés como lengua vehicular han sido un referente para analizar las destrezas de pensamiento, basada toda la investigación en las bases propias del AICLE.

PALABRAS CLAVE

Destrezas de pensamiento, tipos de lenguaje, cultura de aula, aprendizaje de ciencias, método científico, lenguaje científico, el inglés como lengua vehicular.

ABSTRACT

The main objective of this Final Degree Project (FDP) is to carry out an investigation about the Classroom Culture and the Thinking Skills which are developed in English classes, through the fulfilment of a Natural Science proposal. The development of the proposal, language, as well as Language Acquisition Theory supported by Vygotsky and Bruner has been taken into consideration. Experiential learning based on Scientific Method steps, text structures, and the use of English as a vehicular language have been a reference in order to analyse the Thinking Skills, based all the investigation on CLIL basis.

KEY WORDS

Thinking Skills, types of languages, Classroom Culture, Science learning, Scientific Method, Scientific language, English as a vehicular language.

INDEX

INTRODUCTION.....	5
OBJECTIVES OF THE STUDY.....	6
MAIN OBJECTIVE.....	6
SPECIFIC OBJECTIVES.....	7
RESEARCH QUESTIONS.....	7
HYPOTHESES.....	8
THEORETICAL FOUNDATION.....	8
1. THINKING SKILLS.....	8
2. VYGOTSKY’S THEORY: LANGUAGE ACQUISITION THEORY.....	9
3. JEROME BRUNER: LANGUAGE ACQUISITION SUPPORT SYSTEM.....	11
4. HARVARD UNIVERSITY: PROJECT ZERO.....	12
RESEARCH & PROPOSAL DESIGNED TASKS.....	13
CONTEXT.....	13
JUSTIFICATION.....	14
METHODOLOGY.....	14
TEXT STRUCTURE.....	17
AIMS OF THE PROPOSAL.....	19
SCIENCE.....	19
LITERACY.....	19
PROPOSAL DESIGN TASKS.....	21
CLASSROOM CULTURE DEVELOPMENT.....	21
SCIENTIFIC THINKING STRATEGIES DEVELOPMENT.....	23
CREATIVE-THINKING TASKS.....	23
ORGANIZATION & COMPARISON TASKS.....	24
CLASSIFICATION TASKS.....	26
SELECTION TASKS.....	26
PROBLEM-SOLVING TASKS.....	28

DISCUSSION TASKS.....	29
SELF-REGULATING TASKS.....	30
COLLABORATIVE-THINKING TASKS.....	31
CONCLUSIONS.....	33
REFERENCES.....	34
APPENDIXES.....	37
APPENDIX 1 - LESSONS OVERVIEW CHART-.....	37
APPENDIX 2 -EXAMPLES OF TASKS THAT CAN BE USED IN THE PROPOSAL-.....	49

INTRODUCTION

The Primary Education Stage is known to be a significant neurological and educational phase. However, there is little emphasis on the importance of the integral development of children. If we want to get an integral development, the design of learning experiences requires a common link among the different knowledge areas.

Considering Bilingual Schools, two subjects are closely linked: Science and Foreign language -in our case, English-. The official curriculum in both subjects responds to the Sciences supporting them. English is “the language” used for scientific thinking, and provides the opportunity to apply the Scientific Method: observing, describing, comparing, rising hypotheses, obtaining data and getting conclusions.

All this process requires a systematic procedure that can be included in a sort of map leading our lesson experience, associating oral skills (listening and understanding -responding and speaking) to specific thinking routines. Consequently, English is used as a vehicular language that will let children develop thinking processes which will be useful for their integral development (fostering interpersonal and intrapersonal competencies) and for the rest of the knowledge areas.

Language feeds our brains providing the opportunity to explain the world around us at early ages. The way we, as teachers, design our students' learning situations from the very beginning will be the key to developing thinking minds from a very short age -taking into account that we must first know our children's needs and capacities so as to adapt teaching processes to them and obtain better learning results.

Furthermore, classroom culture will also be analysed in this paper, since it has a relevant role in children's integral development and it fosters students' coexistence inside and outside the classroom, helping children to solve problems among them in a peaceful way. Classroom culture also helps pupils' development and the way you manage classes by the creation of efficient routines. Those routines also encourage pupils' autonomy and independence in doing certain tasks that can be later extrapolated to other contexts.

To conclude, there is no thought without words and paralinguistic, sentences with their inner music and movements, connectors and paragraphs organised in texts that populate

our minds and configure our inner language. What has been previously explained helps children to facilitate the development of their neurological connections, so that they become critical thinkers.

In this document, the steps which are required in order to develop a classroom culture and some of the most relevant Thinking Skills in a bilingual context are studied by designing a Natural Science proposal taking into consideration each student's needs and capabilities.

OBJECTIVES OF THE STUDY

MAIN OBJECTIVE

The main objective of this document is to design a proposal where the thinking process is the prior line which helps the teacher with the selection of the text type and its structure, classroom discourse as well as language necessary to generate real thinking processes leading to Scientific reasoning using logical language as a guideline.

In order to develop those thinking processes, the Didactic Unit will be designed following the premises set in the Northern Ireland Curriculum, specifically, according to the Thinking Skills and Personal Capabilities for Key Stages 1 & 2 where certain techniques, as: Managing information, Thinking, Problem-Solving and Decision-Making, Being Creative, Working with others and Self-Management are organised within a clearly acquisition process. During the present work, some of these techniques used to make “thinking visible” will be subject of analysis.

Furthermore, the innermost part of the main objective of this research consists of introducing complex challenges in the tasks children are required to put into practice.

The development of thinking structures encompasses connections through which children learn, the step pupils follow while they learn it, the language they use in each stage and the use they give to those speeches so as to make them part of their thinking heritage achieving a main result: creating a rich linguistic competence.

Moreover, with the proposal, the central purpose focuses on developing Thinking Skills. We will concentrate on identifying similar features in machines and animals or

plants. Considering that the proposal is directed to Year 2 students, we had to select aims and targets included in the compulsory curriculum, and the comparison between natural and artificial structures and how these last ones imitate nature matched all the requirements. In addition to the theoretical concepts, while carrying out the proposal, there is a need to create a classroom culture, with the aim of generating a set of automatic thoughts and actions, known as routines, which will help students to develop autonomy and independence.

SPECIFIC OBJECTIVES

So as to achieve the main goal of the Final Degree Project, the following specific objectives are established:

- Use English as a vehicular language in every learning situation in Natural Science classes supporting oral language with non-verbal one.
- Be technically efficient as an English teacher establishing routines and structuring the lessons according to the discourse analysis and the Thinking Skills we want children to develop.
- Promote the development of some Thinking Skills in children by creating connections among the theoretical terms and the classroom culture.
- Develop a classroom culture based on routines with different objectives based on awareness rising making Thinking Visible..
- Analyse the Thinking Skills and cognitive benefits that the tasks carried out during the project have.

RESEARCH QUESTIONS

As in every investigation process, there are certain research questions that must be followed so as to focus the investigation as much as possible. The ones followed here are:

- How can classroom culture be designed so as to enhance critical Thinking Skills?
- How does the integration of Thinking Skills in classroom culture affect students' achievements?

Throughout this Final Degree Project, I will develop a complete research so as to finally conclude with the answers for these questions.

HYPOTHESES

The hypotheses I have created according to my research questions are the following:

1. The younger the children are, the easier they incorporate their classroom culture to their daily lives.
2. The establishment of new routines needs to be progressive and useful to be effective.
3. Establishing an effective classroom culture helps students to develop their Thinking Skills and stimulates their integral development.

After carrying out the research a conclusion will be established about if these hypotheses were true or false.

THEORETICAL FOUNDATION

1. THINKING SKILLS

Learning and teaching go beyond knowledge, it includes many other elements teachers must take into account. It is a must to create a **classroom culture** where the development of **Thinking Skills** is encouraged.

Moreover, the evolution of Thinking Skills is said to be easier if a classroom culture is established. The Thinking Skills and personal capabilities are the following (Council for the Curriculum, Examinations and Assessment, 2000):

1. Managing information → its purpose is that students learn how to ask focused questions; select, classify, compare and evaluate information and communicate with a sense of audience and purpose, mainly. During the designed project there will be specific tasks in which children would have to interpret information in order to classify it, for example, between natural and artificial structures.
2. Thinking, problem-solving and decision-making → it makes reference to sequence, order, classification and being able to make comparisons; justify opinions and conclusions; generate possible solutions and evaluate outcomes

and make connections between learning in different contexts. It will also be worked during the proposal, since children will have to cope with information in order to later give us an answer; these tasks will always be done in small groups fomenting language acquisition in a cultural and contextual environment as Vygotsky defends on his theory.

3. Being creative → it includes experimenting with ideas and questions; learning from and valuing other people's ideas and taking risks for learning. According to Project Zero, which will be later shown, every learning starts from art. Consequently, there will be activities in which creativity will be the most valued, and others in which science will be the most marked. An example of a creative activity that will be carried out in the proposal is the "pictionary".
4. Working with others → it is based on children listening to their classmates and sharing opinions; giving and responding to feedback; taking personal responsibility for working with others and evaluating their own contribution to the group. Due to the students' age, most of the activities will be done in small groups and some of them in big groups -after having worked in small groups; working with others will help them develop their Thinking Skills and will allow them to share their knowledge with the rest of their team members; in fact, before creating the groups, as they are going to be fixed, there is a long and critical thinking period by the teacher.
5. Self-management → its aim is to be aware of children's personal strengths, limitations and interests; manage their behaviour in a range of situations and review learning and some aspects that might be improved. Assessment for Learning will be present from the very first moments in the unit, with the suitable written mediators to develop their learning awareness by doing a task at the end of each session.

All the former theories have been developed by many authors, who offer us the opportunity to ground the proposal

2. VYGOTSKY'S THEORY: LANGUAGE ACQUISITION THEORY

Lev Vygotsky defends the importance culture has in children's cognitive development, as well as reasoning and communication. Moreover, he highlights that adults are responsible for fostering children's cognitive development by encouraging them to participate in **meaningful and challenging activities**.

Vygotsky's theory is based on the idea that culture is significantly relevant for the development of mental abilities in children. In fact, he confesses that every content, writing and, what is more, the oral language arise from **cultural development** -mental abilities and psychological functions.

Furthermore, referring to languages, Vygotsky establishes a classification of different languages present in children's development and the order of their acquisition. **Public, inner, private and social speech** are the ones that children are going to develop and incorporate offered by the adult -the teacher in this case-. During the later analysis of different tasks, the language children will work with will be shown (Stanley, 2011).

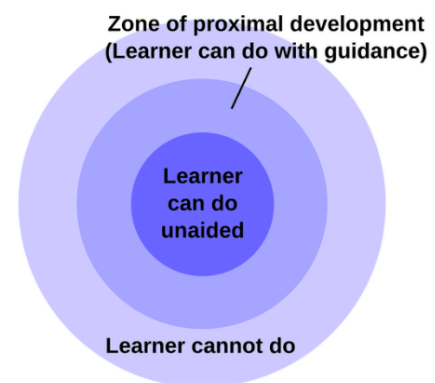
In addition, he upholds that **social interaction** in children has as a consequence the potential development in their mental functions. Children need interpersonal competence to develop themselves integrally. Going over the eight key competences present in the curriculum, most of them are linked to the multiple intelligences of Daniel Goleman, which will also be present in the whole proposal.

To summarise, everything children learn out of interacting with others, in safe and well known contexts and when there is a suitable environment mainly, will be used in other similar future circumstances -known as extrapolating their learnings.

When talking about Vygotsky it is relevant to mention the **Zone of Proximal Development (ZPD)**, which shows what cognitive processes a child is able to develop under the supervision of an adult or expert but that s/he is carrying it out on his/her own, although it cannot be fulfilled without assistance (Fani & Ghaemi, 2011).

Furthermore, when a student in the ZPD is fulfilling their tasks with assistance, it is called

scaffolding; it consists of helping students through a diversity of tools (mediators, displays, instructions or progressive activities). There are steps -scaffolds- teachers may follow so as to foster children's mental abilities. For instance, scaffolding is a theory which defends that teachers must be aware of what they put into practice at each moment, since memorization cannot promote creative critical thinking at the same time it fosters meaningful remembrances. In this proposal, pupils will work in small groups



Vygotsky zone of proximal developme

and they may need their teammates' help; however, the teacher will be a guide for them and will provide their knowledge when it is required (Fani & Ghaemi, 2011).

One of the main goals of scaffolding is creating independent thinkers who, using their techniques, are able to solve problems and to look for resources they may need in different situations; this justifies the importance of using students' nearest context in order to extrapolate and generalise their discoveries.

It is relevant to remark the fact that a language is not just used to express ideas but to establish knowledge and that **language and thinking** are **inseparable**. Teachers' awareness of this premise, when planning, would lead to higher or lower language acquisition. For instance, the use of Vygotsky's language theory involves acquiring and interiorizing diverse learnings and knowledge through communication, consequently, by language.

3. JEROME BRUNER: LANGUAGE ACQUISITION SUPPORT SYSTEM

Jerome Bruner, differently from Vygotsky's theory, defends that **children already have some knowledge** about the real world, even before knowing anything related with the language.

According to him, children, first of all, develop themselves in a delimited and systematic context with their family -pre-linguistic and linguistic communication. When children go into the language and culture world it is because they are prepared to discover new ways of relating with others according to society's requirements (Aramburu, 2004). As teachers, we must prepare tasks which involve sociocultural premises, letting learning go beyond the class itself.

Children need systematic and abstract context in order to develop the basic mechanisms of language acquisition. Those routines children follow in familiar scenarios adapted to the premises to design meaningful "interaction structures" in foreign language instruction settled by Carmen Alario in (Vez Jeremías, J.M. 2010:211-212) , to our proposal to apply **Language Acquisition Support System (LASS)** premises to the language used by teachers in order to provide clear thinking routines. It is remarkable that we, as teachers, should focus on language acquisition, since acquisition lets language enter in our thinking processes.

Linguistic code is needed in order to know how to use language in a communicative way, but communicative strategies, non-verbal language and command of discursive features, in short, “CULTURE” is essential to participate in a conversation with the intention to make language the most important tool to develop thinking processes.

In compliance with Bruner, the format is the principal LASS’s means. Moreover, it is contingent, it means that each member’s answers depend on the previous answer given by the other people in the conversation. Furthermore, the formats include children’s communicative intentions inside a cultural matrix; this social interaction leads to repetitions with unexpected changes. Depending on the culture we perceive the world from, the language everyone will use will be different -it is not the same Namibian language and Spanish language, due to the great differences there are between both cultures.

As a conclusion, early language acquisition depends on how context is arranged for the creation and interpretation of diverse messages in familiar contexts. Bruner says that the context is created by children and adults. Consequently, during the project, teachers will have the responsibility to foster language acquisition by extrapolating the class learnings into different contexts -this will be shown later, in “Proposal Designed tasks”.

4. HARVARD UNIVERSITY: PROJECT ZERO

Goleman worked on the idea that there are multiple intelligences in each person for a long time; later, this idea was progressively defended by many scholars. For instance, Project Zero tries to understand and improve people’s potential by taking into account humans' conditions and contexts in which they grow up.

Project Zero was designed by Nelson Goodman, philosopher at Harvard Graduate School of Education in 1960. He began to study multiple intelligences by considering that all learning comes through the arts. Nowadays, Project Zero has exponentially grown and is focused on educational processes and systems in order to support and encourage students to learn with the purpose of changing the world where they are going to live (McHugh, Abramowitz, Liu-Constant & Gardner, 2020).

The designed proposal is based on developing creative thinking and also on encouraging students to develop their acquisition and thinking processes as much as possible, taking into consideration the community and pupils and teachers’ roles in the different fields of knowledge. Although the project is based on Experiential Sciences,

the tasks that will be proposed are directly linked with other knowledge areas so as to improve and make children conscious of the links among different areas and their relationship with their nearest and furthest contexts.

RESEARCH & PROPOSAL DESIGNED TASKS

The research that will be carried out will be based on putting in practice a Didactic Unit in Natural Sciences by creating resources and techniques with the main purpose of developing Thinking Skills in children. The design of the Didactic Unit includes an Assessment for Learning -in other words AforL- that will help children and the teacher to analyse children's learning and extract conclusions from it so as to be able to propose certain solutions and improvements if necessary. Moreover, a classroom culture will be established to analyse how the classroom atmosphere affects the thinking process in a positive or negative way.

CONTEXT

The proposal is going to be carried out in a **bilingual public school** located in the town of Palencia.

It is a **double line** school in every course. Its main language is Spanish and its second one is English.

Analysing the children's context where I am going to implement the proposal, it is a class of 25 students in Year 2 of Primary Education. None of the students have a curricular adaptation; however, every student learns in a different way and pace and some of them have certain learning difficulties that are solved by adapting the methodology and creating inclusive and flexible resources.

Among the students, there are three whose nationality is not Spanish; those children have some difficulties with writing and speaking in Spanish and English, except for one of them who comes from an International School in Cuba and has difficulties when reading, writing and understanding Spanish, but she understands English perfectly, since she comes from a school where the first language was English.

JUSTIFICATION

The developed proposal is about **structures**. This topic was chosen due to the multiple choices there were to work with different types of vocabulary, grammar constructions, semantics and lexicography. Moreover, structures are really present in the students' daily life, although they are not really conscious of that fact; consequently, the purpose is not only that children learn the specific terms for their class use, but also for their daily life so as to foster their neurological connections.

First of all, different compulsory references have been taken into account such as the DECRETO 38/2022, de 29 de septiembre, por el que se establece la ordenación y el currículo de la educación primaria en la Comunidad de Castilla y León (*DECREE 38/2022, of September 29, which establishes the organization and curriculum of primary education in the Community of Castilla & León*) (Boletín Oficial de Castilla y León, 2022).

This investigation is really necessary for the actual teachers, so that they can follow a teaching-learning process based on the development of Thinking Skills and processes children need to develop to obtain an integral growth, since most teaching-learning methods used nowadays are based mostly on theoretical contents and memorization, resulting in a lack of thinking processes and being useless in children's learnings acquisition.

Moreover, it is easier for younger pupils to develop those thinking processes if some well thought and adapted routines to their necessities are established, fomenting a great atmosphere in class which promotes learning. However, there are few studies which analyses the effectiveness of establishing routines in a class, which conform to what is called: the classroom culture.

Due to the reasons explained in the paragraphs above, an investigation will be done in order to conclude whether classroom culture promotes thinking processes.

METHODOLOGY

The methodology implemented in our lessons and projects is not a matter of chance, it has to be really well thought out so that it is adapted to children's needs and characteristics according to diverse factors such as their age or their likes. In this section, the methods that will be put into practise in the following Experimental Science designed proposal will be explained.

All these theories already seen, linked to the techniques that will be later exposed are connected in the proposal following the approach adopted in the Common European Framework of Reference for Languages (Council of Europe, 2001).

Scientific learning

The steps which will mark all the lessons will be those of the **Scientific method**. Working Science using English as a vehicular language is completely natural, since English is Science's International language. Children will work first by observation, manipulation and then by creating their own hypotheses - the teacher will ask them a question and they will have to say "yes" or "no"; taking into consideration that they do not need to know what a hypothesis is due to the year with which we are working- and verifying them. As it can be seen in the Scientific method's steps, working scientifically involves the rest of knowledge areas, creating a holistic learning process.

Creation of classroom culture

The creation of a classroom culture consists of sharing elements among students and also between teachers and students. It means establishing goals, expectations and routines shared among all scholar classroom /community members.

Children need to feel identified with the class they belong to. In order to obtain that comfortable atmosphere, it is a must to conceive a classroom culture where pupils and teachers share common routines and even ways of thinking. When a strong classroom culture is created, students' social and emotional development increases exponentially.

Classroom culture is created by using a common language, having responsibilities among a group and the way we teach. Its development involves fostering children's Thinking Skills. As teachers, we must take into account what our pupils need in order to grow and deepen their learning as much as possible.

According to Kurt, James G., Michael, April Lynn & Sasha L., classroom culture involves pupils' success, since it entails students' motivation and autonomy, as well as self-esteem, improvement of relationships -not only with the teacher, but also among peers, and improvement in attitudes. That is why, during the Experimental Science project that will be designed, there will be some specific **routines** that children will automatize and that will be put into practice not only during Natural Science classes, but

also during the rest of the subjects. (Squire, MaKinster, Barnett, Luehmann & Barba, 2003).

Consequently, as it can be seen in the previous paragraph, a positive classroom culture is not only beneficial for students, but also for teachers, since, we get into children's minds and we obtain their predisposal to start a new class, getting pupils' motivation and management with simple instructions.

Development of Thinking Skills

During the design of the proposal, as teachers, it must be taken into account students' previous knowledge, in order to establish our expectations and the objectives we want pupils to achieve.

Thinking Skills help children to develop their cognition by giving them clear opportunities of learning and thinking about their learning processes. Taking into consideration the Northern Ireland Curriculum, where the Thinking Skills' progress in English language are deeply explained and developed according to students' stages, Year 2 students can use the information given by managing it, thinking about it, and even by solving problems and taking decisions. It is a must encourage children to give it a chance to face complex challenges -according to their age and integral development- as well as value their creativity in Science areas, not only in Arts, with the aim of valuing what being creative really means.

Moreover, all these previously mentioned Thinking Skills can be even more enriching when working collaboratively, since all knowledge is shared among the team members as Vygotsky supports with his sociocultural theory. Most of the activities will evolve in small groups in order to promote learning from others and sharing their learnings, but there will also be sharing tasks where every class student will be encouraged to share what they know about the topic -taking into consideration the class's time limit. Firstly, students will work in their small groups, and later on, each leader of the team will be responsible for sharing the group's main ideas to the rest of the class-. The groups will be fixed, although each member role will be flexible.

Furthermore, in relation to classroom culture, we must encourage students to develop their **self-confidence and autonomy**. That is obtained by self-management tasks in which children will be able to know which learning point they are in. This will be

primarily fostered in the proposal by the individual Assessment for Learning that students will take 15 minutes of the period -in such a way that it might generate a routine in itself.

Content Language Integrated Learning (CLIL)

When designing an English proposal it is important to take into consideration the CLIL methodology, taking into account the competences teachers must develop so as to create effective CLIL learning environments.

As we are aiming at a holistic education, the CLIL methodology favours English learning connecting contents and language with other subject areas -the contents which will be worked in Science, will also be worked in other subjects, such as, for example Mathematics-, letting children be aware by themselves that everything has a relationship and that they do not have to learn isolated pieces of knowledge, but that they can use a piece of knowledge in multiple situations.

In addition to those CLIL characteristics, this methodology aims at generating an active and flexible way of learning. The proposal is based on multiple active tasks, where children learn by experimenting, manipulating, and solving problems in a creative and scientific way (Espejo, Londoño & Álvarez, 2017).

Moreover, in the Didactic Unit Science and Literacy will be worked on; children will work on both of them at the same time, obtaining a contextual and useful learning, developing at the same time some Thinking Skills.

TEXT STRUCTURE

After establishing the Science and Literacy aims of the proposal presented, it is a must to determine the type of text that will be used during the project.

Taking into account that the students are from Year 2, there will be three text structures that will be most used during the Didactical Unit: instructional, descriptive and argumentative text -from the simpler to the most complex text structure- based on what pupils can demonstrate according to the Spanish/English integrated curriculum. The objective is not that they use those text structures as professionals, but that they understand what they are saying, comparing and being able to express their thoughts (Agudo, et al., 2015).

- Instructional text → It will be used in every lesson, although its use will decrease as students feel confident to express their ideas and learnings in English. At first, the instructions will be given by the teacher, but later on, tasks will become complex until they will have to create in teams their own instructional text. Imperative is the verb form which characterises the instructional text
 - They will listen to instructions given by the teacher.
 - They will react to the instructions given.
 - They will read instructions using inner speech and later public one.
 - They will give instructions to a partner orally
 - Draw a series of pictures and write sentences which show the steps to do it.
- Descriptive text → As students gain self-assurance in relation to the terms associated with the project, they will start to give details of the structures studied or even others proposed by themselves. The use of the terms will be a key piece for the development of the descriptive text that will be used from the second lesson onwards. It is in this type of text where syntax, morphology and semantics are mostly worked.

Syntax is worked in the last descriptive text step when children have to build their own sentences following a given pattern.

Morphology is used in a descriptive text to give sense to what students are writing, paying attention to the word formation and if it is masculine, feminine, plural or singular. This will be more worked with the key words and terms.

Finally, semantics will be used by classifying the terms they find in a text according to the structures' content blocks that will be worked on: natural structures, artificial structures, uses of structures and how structures can be moved.

In order to work with descriptive text, some steps will be followed from the simplest ones to the complex ones:

- Use simple picture glossaries to understand specific vocabulary
- Look for keywords in short information texts.

- Use language structures practised in class to present information learnt in a class topic.
- Argumentative text → From the fourth lesson onwards, children will not only have to justify their decisions to their team members, but also to the rest of the class. In this way, although they may lack English fluency, they have to use their verbal and non-verbal communication with the purpose that everyone understands them.

Following the PDZ, as well as scaffolding, asking and answering questions is a way of demonstration of the thinking process designed, where children, through the language introduced as public speech requiring responses, and using private speech in shared and independent activities, when it is required.

- Use simple structures to answer questions → “Because...”
- Ask questions following a clear pattern when the justification is not clear enough.

AIMS OF THE PROPOSAL

By putting in practice the Didactic Unit, it is intended that by the end of it, children achieve the objectives that are reflected in this section.

SCIENCE

- To identify similarities and differences between natural and artificial structures in school context as an initial observation.
- To distinguish between natural and artificial structures by identifying who has created them -humans or nature..
- To illustrate a structure so as to classify it according to its main use.
- To hypothesise about the diverse absorption ways that exist and which ones are used either by natural or artificial elements, with teacher’s guidance.
- To ask themselves questions about the bee’s capacity to take pollen and share their thoughts in a class debate.
- To use their results in order to conclude whether artificial structures imitate natural ones or vice versa.

LITERACY

Test level

Sentence level

Word Level

Skills (CEFR)

- **Oral language**

- To use terms related to natural and artificial structures.
- To be aware of the importance of phonological elements when speaking.
- To take part in discussions within their team and among the re of the teams, justifying their decisions.
- To question and respond to their classmates' questions.
- To retell previous learnings in different active dynamics.

- **Reading and written interaction**

- To look for specific information using either linguistic or semiotic information.
- To recognise specific terms or keywords in different types of text.
- To show comprehension of texts by matching them to an illustration.
- To show comprehension of texts by reading their main terms.

- **Writing**

- To follow a pattern to write specific terms and sentences, such as colour coding.
- To use capital letters and full stops when writing lists, using the diagram, or even in written interaction, when children may include already written cards within proposed boxes. sentences.

- **Listening, understanding & responding**

- To listen and follow simple instructions given by the teacher or their team members.
- To listen to their classmates and reply to them with relevant information
- To ask, using English as a vehicular language, for clarification or help when necessary
- To show understanding by asking and answering questions made by the teacher or other classmates.

PROPOSAL DESIGN TASKS

Being conscious of what the official documents Real Decreto 157/2022, de 1 de marzo, por el que se establecen la ordenación y las enseñanzas mínimas de la Educación Primaria (*Royal Decree 157/20200, of March 1, which establishes the organisation and minimum teachings of Primary Education*) and Ley Orgánica 3/2020, de 29 de diciembre, por la que se modifica la Ley Orgánica 2/2006, de 3 de mayo, de Educación (*Organic Law 3/2020 of December 29, which modifies Organic Law 2/2006, of May 3, on Education*) established as compulsory theoretical Natural Science contents for Year 2 and the need to work on the Thinking Skills, the proposal will be carried out. It is important to take into consideration that the Spanish Curriculum is a minimum decree and it is compulsory to fulfil the contents and objectives that appear there, but we can go further.

The Didactic Unit is composed of seven lessons. There is a need to clarify that as we are working with Natural Sciences, all the didactical activities proposed in the project are based on Scientific Method steps and most of the tasks will have relation with other knowledge areas as well as with the pupils' context.

Due to the extension limit, in this part of the document diverse kinds of tasks that can be implemented on the designed proposal will be explained and analysed relating them to the classroom culture creation and the development of Thinking Skills.

CLASSROOM CULTURE DEVELOPMENT

According to Ron Ritchhart, there are four main categories of routines we must establish in the classroom, which are the following:

- Management routines → These routines are often established at the beginning of the school year in order to make sure that the class is well developed. As children usually stand up at any moment of the class to go to the bathroom or to pick up some paper, we can put a laminated paper where childrens' names appear and they have to draw a line next to their name when they stand up. What is pretended with this routine is pupils' independence and autonomy to know when they have a real necessity to stand up or not. They could only stand up twice in a school day.

- Instructional routines → These routines are referred to how the teacher runs the class. There are some of them that are established and used in every subject, for example, children have to know that when they enter the classroom they have to wear their scientific coats, sit down, place their homework on the table and start reading. In addition, when the playtime finishes, they have to go up the stairs, sit down and start the relaxation moment. During the designed project, the most notable instructional routine can be that when the Science class is going to start children bring the English corner notice board to the centre of the class and remove the last flashcards that were there from the last session. They will also have to know that the class always starts with a retelling activity of the previous knowledge and ends up with the completion of a task about what they had learnt.

The most relevant instructional routines established are the following:

1. When the teacher says “*One, two, three*” children say “*Silence, please*”. When they say that, everybody in the classroom was quiet. This routine was used for asking for silence.
 2. When the teacher says “*Pop, pop*”, children say “*It’s time to stop*” and they have to be in silence and return to their places. This was used when the teacher wanted to add something or when they became too nervous.
 3. When the teacher says “*Macaroni and cheese*”, children say “*It’s time to freeze*”. This routine is used for changing the activity, so when it is put into practice, children have to put their hands up and then pick up everything they have on the table.
- Interactional routines → These ones are the most related to the interpersonal and intrapersonal competencies. These include the ones which mark the interaction between teachers and students and also among students. During the project, teamwork is presented in all the main tasks and usually in every activity. Moreover, there will be a constant interaction, not only among students, but also with the teacher by giving them oral and written feedback about how they have done the activities.
 - Thinking routines → Thinking routines are similar to instructional ones; nevertheless they include cognitive strategies. These will be present in every lesson since the project itself is based on scaffolding. When there are 15 minutes

left in class, pupils will know it is time for Assessment for Learning, which means it is time for students to reflect about their new learnings.

The routines most used by teachers nowadays are the ones related to management and instructional methods. However, if we only focus on these routines, we are going to have class control, but learning is not going to be encouraged.

Routines also aim for the development of Thinking Skills, since pupils have to manage information and think about their responses when something is said by the teacher. For instance, routines are very effective for children's integral development.

Our purpose as teachers is that those routines become part of the pupils' inner speech, which means that students include them as a mental self-task, automatizing them by having them in their inner voice, transforming language into thought.

The way we focus the tasks and routines we do attending to the type of language we want to develop in children is relevant. For example, as it has been expressed in the previous paragraphs, when "*Pop, pop*" is said, not only do children know they have to say "*It is time to stop*", but also their inner voice tell them to stop doing the task they are developing at that moment and be in silence to let the teacher speak.

SCIENTIFIC THINKING STRATEGIES DEVELOPMENT

CREATIVE-THINKING TASKS

Being creative is one of the Thinking Skills that will be worked on during the whole proposal. For its development, we have to let children propose their own thinking -without valuing if they are mistaken or not- and experiment with their own ideas by taking risks in their learning processes.

Creative-thinking activities are based on Nelson's Goodman project, named Project Zero, where all skills are worked, but starting from art and creativity with the aim of developing language and thinking at the same time. Although art has not been well valued for a long time, it is a must for teachers to take it into consideration in order to stimulate language in their students, since art is also language. When working with art, children are expressing a great amount of ideas and they are also improving their language.

Considering the creative-thinking tasks, a pictionary will be developed. This task can be even considered a routine since it is going to be done after each Natural Science class so children may automatise that every day there is Natural Science class, they will have to do the pictionary as homework. Furthermore, when Natural Science time comes, the books' responsible would directly take the Science notebooks from the shelves and distribute them to all their classmates, so, it also takes part of the classroom culture.

The use of this technique, as well as others specified in the proposal, aims at activating strategies, some of them to identify, others to associate, others to select and even to categorise. Consequently, the correct implementation of these strategies leads to transforming "words" into "terms" in the mind of our pupils going through a designed process encouraging mental organisation.

This pictionary has a chronological order since Year 2 students are still working chronologically to develop temporal thinking. As lessons go by, the definition of a term includes other relevant terms and keywords from the project.

When analysing the pictionary, it can be checked if the picture done by pupils is the same as the one used in class to present the term -flashcards- or they have thought about other structure or element with the same function. This strategy might help the teacher to evaluate the creativity of children and their evolution as lessons go by.

All these previous mentioned steps are entirely related to the flourishing of the Thinking Skills established by the Northern Ireland curriculum.

Taking into consideration the steps which have to be followed, the language that, as teachers, we want to work on during this task is the private speech, which consists of an external form of speech, where students in an audible or subvocal dialogue directed at themselves. When parents dictate the term's definition to their children, in order to maintain the attention and not to forget what they have been told, while writing, children may repeat in a low tone what their parents have just told them.

ORGANIZATION & COMPARISON TASKS

With the principal objective of developing Thinking, Problem-Solving and Decision-Making Thinking Skills, some organisation and comparison tasks can be carried out so that children become aware of their abilities to sequence, make

predictions and distinguish facts from opinions. In the proposal topic we are working on, by working with these kinds of activities pupils will be able to make connections by comparing the different structures and elements in order to know what they share or not. Taking into consideration the Scientific method steps, children will be working on observing and categorising structures in this case.

According to Rittchart, comparison and organisation tasks require previous understanding of the topic and not only knowledge, since children must previously know the terms and their characteristics, in order to later demonstrate their abilities of understanding, since comparison -finding similarities and differences- has the need of a deep understanding of what with are working in.

A proposed task will be creating a Venn's Diagram, in which students have to identify which elements natural and artificial structures share and be conscious of them -which means that, although their proceedings are different, these elements/structures also share certain characteristics or actions. As we are working with Year 2 students, it is not necessary to tell them what a Venn's Diagram is, but only explain to them they have to seek shared characteristics.

This activity is a way of introducing children to the comparative grammar structure and also creates cognitive connections among everything children have seen before. Although the comparative grammar structure is not included in the Spanish curriculum, it is an effective way for children to know how to compare diverse elements by paying attention to the characteristics they share.

For the first time, an already created Venn's Diagram will be given to the children with the shared characteristics and with diverse natural and artificial elements we want them to classify -the model can be seen in Appendix 2. If we want to make it more complex, more natural or artificial structures can be given to them or they might be given one structure that does not fit with the shared characteristics -we must have high expectations of students, but also know their capability and needs.

According to the language used in the previously described task, taking into consideration that children do not master these kinds of activities, firstly they will use private speech with the purpose of gaining ability in challenging tasks, internalising their own thoughts through language **-self-regulation**. As this activity is also

collaborative, pupils will also use social speech which is intellectually adapted to the rest of the team members and of the entire class when it is about sharing the results obtained, following Vygotsky's sociocultural theory.

CLASSIFICATION TASKS

Classification tasks consist of activities in which cognitive functions of people should be used in order to manage information -Thinking Skill-, identify it and break the task given into sub-tasks. In this proposal, classification activities will be carried out from the very beginning when presenting the first terms.

For instance, after presenting the first terms and identifying if they are natural or artificial structures by manipulating them and putting them into boxes -students use the method/strategy they consider more relevant such as, for example, using the senses -touch, sight-, in order to identify an element's proceeding.

After this subtask, in order to remember those terms, some broken flashcards which have in one part the picture and in the other face the term will be given to each team, so children have to fix them in the correct way. Visual learning is aimed with this activity, since children will look that the picture makes sense, more than paying attention to the letters.

This classification task do not only have a spelling purpose -which is the least important- but to associate a term with its picture, developing their visual thinking and working with "Managing information" Thinking Skill, since they have to use among the team members some methods in order to collate and represent a term; furthermore, they are also working in "Working with others" Thinking Skill due to the fact that they have to listen the rest of the group and be responsible of their acts and how can they affect to the rest of the classmates.

SELECTION TASKS

Also included in the Managing Information Thinking Skill, selection is a cognitive ability which helps students to classify and evaluate information, as well as asking focused questions. Taking into consideration children's age, we must be clear about what we want them to develop in order to create attractive and efficient tasks at the same time.

During this task, the capacity of association will be worked, based also on visual learning since children have to identify which word goes with which picture -**Pairs game**. Not only do we revise all the previous terms with this activity but also, by playing this game, more Thinking Skills and cognitive processes are worked.

There are three kinds of memory which work together at the same time and that are really present in this task -although children are not conscious of which cognition processes they are using: Short-term memory -students need to remember the location of the previously raised cards so as to find their matches, having to retain information in short periods of time; Spatial memory -pupils need to remember where each card is located; and Working memory, which makes reference to the way students manipulate cards' information in short periods of time; this becomes harder as the game goes on as it becomes more complex, since they have to retain more information. This task promotes healthy competitiveness, which is really linked with emotional intelligence of children, since all of them want to win, but if they do not win, are happy for their classmate's achievement.

Pattern recognition and visual memory are also two cognitive processes worked in this kind of task. Children have to identify and remember where each card is and what is the content of each one -pattern recognition is closely related to spatial memory. Moreover, visual memory makes reference to the ability to remember visual details and extrapolate this visual work to their daily lives.

The one from each group with the most cards will be the winner. However, although the rest of team members will not win, they should feel satisfied with the results they obtained.

Therefore, this activity can be used as a retelling task which encourages the development of **confidence** and **self-esteem** by finding matches and improving at the game when it is played more than once and also it encourages "Working with others" Thinking Skill, since it requires communication, cooperation and social interaction as it is played in pairs or groups.

The idea of this task is that pupils use **private speech**, where they talk out loud their thoughts -"*I think its pair is here*"- directing that speech to themselves. This speech helps students to internalise and externalise what they are working on -solidification of specific terms- through a second language -English, using it as a vehicular language.

PROBLEM-SOLVING TASKS

With the purpose of reviewing everything seen before, a **mimic** game will be played.

According to Bruner Language Acquisition Support System (LASS), playing games lets children enhance their learning opportunities, which will later be extrapolated to different daily occasions. Moreover, if we continue relating mimes with the LASS, the situations and context in which they appear permit students to develop the LASS, so that later they use those communicative and Linguistic learnings in bigger and even unknown contexts.

The teacher will tell one member of a group one term and for a minute they can debate with their team members how they are going to represent it.

Then, (while the protagonist is mimicking) the rest of the groups have to think and debate/discuss among themselves what they think is being represented and raise their hands as fast as possible. If they do not say the correct answer there is a rebound to another group. The winner is the team with more points.

Students must remember the specific corporal language that is used for that concrete term, since, in this task, we are not working with creativity, but with scientific vocabulary and common non-verbal communication, taking into consideration that we are always working during the proposal with logical thinking.

Analysing the dynamic, the mental abilities pupils develop while playing it are a great deal of them and in some occasions they are related to each one and to the development of Thinking Skills: non-verbal communication -children have to make use of their body to communicate what is being asked; critical thinking is developed by the “actors” and also by the public who has to guess what they are interpreting since they have to mentally relate non-verbal communication to their previous knowledges -moreover, as they are working on problem-solving, teacher must be a guidance and be focused on the theoretical foundation of this task which is based on the Zone of Proximal Development and scaffolding.

Moreover, neurological and cognitive flexibility is developed during this task, since it is a fast game in which pupils do not have many time to think about the answer -when they are guessers-, but also when they are “actors” they have to be fast in thinking

which corporal language represents the term they have to interpret and search for other interpretations if anyone answers correctly. It also fosters competitiveness.

In addition, according to the sociocultural Vygotsky's theory, in teamwork tasks, as the one being described now, all members have the same objective: guess what is being interpreted. Consequently, they develop communication skills as well as "Working with others" Thinking Skill.

Finally, language skill is also fostered with this kind of activities since they encourage children to be aware of the multiple possibilities there are to communicate an idea without the necessity of speaking; this does not mean children are not developing language, but they are doing it in other ways, using, mainly, inner speech.

The language which is required in this task is the inner language, so that students think in their minds about what is being represented, but also the social language, since they have to communicate with their team members in order to reach a conclusion and participate actively in the task. Working with these languages, and with teamwork problem-solving activities is complicated when children are young, since they tend to say what first comes to their minds; however, throughout the proposal all those types of thinking will be efficiently worked by this game.

DISCUSSION TASKS

When referring to Thinking Skills, discussion activities tend to be really complete since they include managing information, as well as thinking, problem-solving, including good behaviour and respect for what other classmates think -self-management.

After the students have practised some basic grammar structures and understood the fundamental terms about the topic of structures, a debate will be held about if there are natural elements which absorb and the students will have to justify their decision. After this question, it will be asked how bees get their pollen.

Previous to the debate, each team will have some time to prepare what they want to say; during this time, everyone will have to think and make decisions about what they are going to justify and how. In order to guide children to be able to create a good preparation, thinking routines are really useful. According to children's age, thinking routines must be as simple as possible, taking into consideration their efficiency. Consequently, children must prepare their debate by completing a table with 3 charts:

what I know, what I wonder and, after finishing the debate, what I have learnt. Moreover, it is significant that, as we are working also with visual learning, the thinking routines are visible, not only done orally, allowing learning to become visible, supported by Ritchhart (Ritchhart, 2016).

During the debate, the teacher will be the mediator so that every team has the opportunity to express their thoughts and in order to make sure everyone respects the rest of the students.

During this activity, most of the languages previously seen will be used, such as, public speech -they will have to share their ideas, private speech -before sharing the ideas- and the inner speech, when they are working in small teams and they have to silently remember the terms and their proceeding classifications.

SELF-REGULATING TASKS

Self-Management Thinking Skill, according to the Northern Ireland Curriculum, is the ability children should develop in order to manage their learning situations in the long term. Our main purpose with this strategy is that students become aware of their strengths and weaknesses in order to improve as much as they can, in an autonomous and independent way.

After research was carried out by Broadfoot, Daugherty, Gardner, Harley, James & Stobart they concluded that Assessment for Learning is a useful technique in order to guide classroom practice and students' learnings, as well as it fosters students' motivation due to the fact that AfL let pupils become conscious of their potential (Gardner, 2011)

During the whole proposal, children will have to complete a task during the last 15 minutes of class in order to know what they have learnt during that lesson and what they need to revise more -Assessment for Learning.

This activity is not usually done in any subject and their first reaction to the first photocopy is usually fear of being evaluated and of making any mistake. They do not associate this routine with a way of managing and regulating themselves according to the learning point they are in

Due to that fear, the first two lessons, after finishing the Assessment for Learning photocopy we will check it altogether. The rest of the days, the teacher will ask them to

keep that paper inside the team folder, so they obtain self-confidence about what they have done. Depending on the pace of the children some of them will feel better handling the task to the teacher or will not feel capable of keeping it in the folder without being corrected.

The experience I had as a teacher has let me realise that each student's pace is different and that is the reason why, depending on their necessities, they have to feel free to keep the AfL photocopy in the folder or hand it in to the teacher.

The language required for these tasks is the private one since it is an individual task in which they have to show what they know in written support.

COLLABORATIVE-THINKING TASKS

Working with others is a Thinking Skill that fosters the development of relevant cognitive and social skills. Firstly, it requires knowing what others are doing and thinking about why they are doing something different to us and discussing it, without seeing disagreement as a negative factor.

Furthermore, collaborative tasks are not really common nowadays due to the viewpoint some teachers have in reference to learning -they think it is always individual-. However, learning can be collaborative, individual, discursive and even reflective.

During the whole project, each main task will be collaborative, including the retelling tasks. Each member of the team has a role, so collaborative-thinking work is carried out in an organised way. Those roles form part of the routines which create the classroom culture.

When creating the groups, each of them will be formed by four pupils. However, creating effective learning groups is a challenging task. In this case, according to García & Millán as well as in consonance with other scholars who study the effectiveness of collaborative working attending to the social factor -meaning the students who form part of these groups- in each four-member group there should be a strong student who is self-confident, accepted by the rest of the members and able to cope with leadership inside the group. Furthermore, there should also be a pupil with the ability to adapt; he/she would be able to change some behavioural patterns with the aim of fitting in his/her group. Both types of students just described, can be considered the “strong” ones and each of them should be in diagonal with one of the “weak” students. Other students

who will form part of the group will be the one who contributes to bringing peace when some problems appear when there is a disagreement. The last, but not least, member of the team will be the tolerant one; it means that he/she has the capacity to discuss, but also is able not to enter in any conflict, respect others ideas and work. This group's design permits balance among all the team members, which will result in an effective group when working altogether.

Moreover, from a teacher's point of view, we must take into consideration the collaborative task that is going to be carried out each day, in order to select who is going to be the architect, builder, secretary and engineer -chose which role is going to play each student. Consequently, if it is a complex main task where the oral skill is worked more, we must choose as the architect the one whose oral and understanding skill with the purpose of he/she transmitting the rest of their team members knowledge and give the rest of the team members also a though and adequate role for its integral and English development.

Following this strategy we make sure that everyone in the group is going to think and transmit their knowledge to the rest and also that if they are comfortable with their role and feel capable of developing it, then there will not appear frustrations, we will encourage students to think without the necessity of telling them that literally and they will have no fears of expressing their ideas in a second language (García & Millán, 2013).

It is notable that, although a categorization has been done, there are certain cognitive elements that are shared among tasks that have been divided in different points. This is the result of a holistic education, where all knowledge areas share common elements and, as teachers, our purpose needs is to transmit this idea to the children by doing different tasks with different characteristics, so that children notice by themselves how everything is interconnected -based on every competence.

All of these proposed kinds of activities are based on the Zone of Proximal Development (ZPD) from Vygotsky, since, in every task, the teacher will be a guide in pupils' learnings and will be able to analyse which students require the teacher's or a classmate's assistance for completion of a task and the students who help the other ones and are able to fulfil the activities without any kind of assistance. This direct

observation done by the teacher will be used in order to create the fixed groups. so each of them is formed by students with diverse abilities and strengths.

CONCLUSIONS

Classroom culture and Thinking Skills are not really taken into consideration by teachers when they are programming their projects and Didactic Units even in Spanish language; for instance, Thinking Skills are usually considered to be already developed in children. Consequently, learning is not as efficient as it could be.

Creating a positive classroom culture following Ron Ritchhard's advice and his Teaching for Understanding Framework results in a better and more efficient learning development. Furthermore, following Project Zero's ideas for the correct development of Thinking Skills has been essential / vital

Moreover, following Vigotsky's Language Acquisition Theory and the types of languages it establishes, has let children enjoy themselves and learn while working in English. This has encouraged them to use English as a vehicular language considering the Content Language Integrated Learning teachers' competences, freeing pupils from the fear of expressing themselves in a second Language and from making mistakes, as it is considered as part of the learning process.

Going over the hypotheses established in one of the first points of this paper, it can be said that, with this research, all of them are true; however, more research is needed to assure the truth of those hypotheses.

Answering the research questions above, it can be seen that a classroom culture fosters students' inner language, resulting in automatising routines, which help pupils later to develop more complex thinking processes.

During the research I have observed there is little quality research about the implementation of lessons where the mind processes children have to develop in order to acquire a foreign language, in this case, English, are considered. So, I honestly believe that more research could be done about the thinking skills children need to develop so as to learn the different skills that a second language requires.

REFERENCES

OFFICIAL DOCUMENTS

Agudo, M.T., González, R., Hill, E., Justo, M. T., Kelly, R.,...Locke, M. (2015). Spanish/English primary integrated curriculum. Language and Literacy. Madrid: Centro Nacional de Innovación e Investigación Educativa (CNIE).

Boletín Oficial de Castilla y León (2022), de 29 de septiembre, por el que se establece la ordenación y el currículo de la educación primaria en la Comunidad de Castilla y León.

Boletín Oficial del Estado (2020). Ley Orgánica 3/2020, de 29 de diciembre, por la que se modifica la Ley Orgánica 2/2006 de 3 de mayo, de Educación.

Boletín Oficial del Estado (2022). Real Decreto 157/2022, de 1 de marzo, por el que se establecen la ordenación y las enseñanzas mínimas de la Educación Primaria.

Council of Europe (2001). Common European Framework of Reference for Languages: Learning, teaching, assessment. Cambridge (England) Cambridge University Press.

RESOURCES USED FOR THEORETICAL JUSTIFICATION

Alario Trigueros, M. D. C., Alonso Ramírez, M. D. L. C., Gómez Romero, M. B., & Robledo Ortega, M. Á. (2004). *Mi primer portfolio: 3-7 años: guía didáctica*.

Aramburu, M. (2004, September 26). Jerome Seymour Bruner: de la percepción al lenguaje. *Revista Iberoamericana de Educación*. Retrieved from <https://rieoei.org/RIE/article/view/2902> 9th July 2024

Beacco, J., Fleming, M., Goullier, F., Thürmann, E., Vollmer, H. & Sheils, J. (2016). *A handbook for curriculum development and teacher training the language dimension in all subjects*. Bari: Council of Europe.

Council for the Curriculum, Examinations and Assessment. (2000). *Thinking Skills and Personal Capabilities for Key Stages 1&2*.

Council of Europe. Council for Cultural Co-operation. Education Committee. Modern Languages Division. (2001). *Common European framework of reference for languages: Learning, teaching, assessment*. Cambridge: Cambridge University Press.

- Coyle, D., Hood, P. & Marsh, D. (2021). *Content and Language Integrated Learning*. Cambridge: Cambridge University Press.
- Espejo, N. E. P., Londoño, L. A. C., & Álvarez, C. A. R. (2017). La metodología CLIL o AICLE aplicada en el área de educación ambiental. *Educación y territorio*, 7(13), 83-106.
- Fani, T., & Ghaemi, F. (2011). Implications of Vygotsky's zone of proximal development (ZPD) in teacher education: ZPTD and self-scaffolding. *Procedia-Social and Behavioral Sciences*, 29, 1549-1554.
- Gardner, J. (2006) Assessment for learning: A compelling conceptualization. London. SAGE Publ. Ltd.
- García, V. J. L., & Millán, J. C. V. (2013). Innovaciones didácticas para fomentar el aprendizaje y la cohesión social en el aula. La técnica puzzle con equipo de sabios. *Innovación educativa*, (23).
- Harvard Graduate School of Education. (2010). *Project Zero*. Cambridge: Harvard Graduate School of Education.
- Vez Jeremías, J. M. (co), Guillén Díaz, C., & Alario Trigueros, C. (2010). *Didáctica de la lengua extranjera en educación infantil y primaria*. Madrid: Síntesis Educación.
- Kolb, D. A. (2014). *Experiential learning: Experience as the source of learning and development*. Englewood Cliffs: Financial Times Prentice Hall..
- Lee, D. (2022). *Design Thinking in the classroom. Easy-to-Use Teaching Tools to Foster Creativity, Encourage Innovation and Unleash Potential in Every Student*. Berkeley: Ulysses Press.
- Leech, G. (2004). *Meaning and the English Verb*. London: Pearson Longman.
- Li, J., Klahr, D. (2006). The psychology of scientific thinking: Implications for science teaching and learning. *Teaching science in the 21st century*, 307-329.
- McHugh, K., Abramowitz, K., Liu-Constant, Y., & Gardner, H. (2020). Project Zero: The first Fifty-Five Years. *Project Zero*.
- Nunan, D. (1988). *The Learner-Centred curriculum: A study in second language teaching*. Cambridge: Cambridge University Press.

Ritchhart, R. (2015). *Creating cultures of thinking. The 8 Forces We Must Master to Truly Transform Our Schools*. United States of America: Jossey-Bass A Wiley Brand.

Ritchhart, R. (2016). *Making thinking visible: Using routines in the classroom*. United States of America: Jossey-Bass A Wiley Brand.

Squire, K. D., MaKinster, J. G., Barnett, M., Luehmann, A. L., & Barab, S. L. (2003). Designed curriculum and local culture: Acknowledging the primacy of classroom culture. *Science education*, 87(4), 468-489. Seattle.

Stanley, F. (2011). Vygotsky- From Public to Private: learning from personal speech. At Tim Waller. (Ed.), *Making sense of Theory & Practice in Early Childhood: The Power of Ideas* (pp. 11-25). Berkshire: Open University Press

Zanón, J. (1993). *Materiales para la reforma. Educación Primaria (segundo ciclo). Orientaciones didácticas (Cajas rojas)*.

Zimmermann, C. (2007). The development of scientific thinking skills in elementary and middle school. *Developmental review*, 27(2), 172-223.

APPENDIXES

APPENDIX 1 - LESSONS OVERVIEW CHART-

UNIT 5: WE CREATE OUR WORLD	3 rd TERM
About the unit / Where the unit fits	
<p>The proposal is going to be carried out from the 24th of April to the 22nd of May, so it is included as, almost, the last Didactic Unit from the subject Natural Sciences. It is a project where everything seen before will be useful for developing and fostering it -including terms, grammar structures, semantics and communication and linguistic skills. The unit will be based on experiential learning and the use of a second language -English- with the aim of communicating and developing diverse thinking processes.</p> <p>The Unit will be carried out in a bilingual school in a Year 2 class formed by 25 students who learn each one in a different way. Before putting the project into practice, the necessities and abilities of children will be analysed in different areas of knowledge in order to focus also on the methodologies to which they respond better.</p> <p>It will be composed of seven lessons. In each one there will be a retelling of the previous learnings, a main task and a final Assessment for Learning activity, with the exception of the last session in which there will be an Assessment of Learning activity and a deep feedback of what they have learnt during the project, not only taking into consideration the theoretical contents, but also the thinking processes and routines they have been able to extrapolate from the Natural Sciences classes.</p>	

Prior Learning	Language used in the unit	Important resources
<ul style="list-style-type: none"> - How to behave during a class. - What a structure is. - English names of the most common structures in their familiar contexts. - The difference between a natural and an artificial structure. 	<ul style="list-style-type: none"> - Natural and artificial structures. - Structures: ladder, tent, arch, temple, castle, nest, shell, tree trunk and cave. - Uses of structures: reach, protect, give shape, support, absorb and hold. - Ways of moving structures: stretch, bend, push, pull, fold and spin. 	<ul style="list-style-type: none"> - Pictures' flashcards. - Internet connection. - Digital board. - Assessment for Learning papers. - Real and symbolic pictures. - Roles' materials -helmet, reflective vest, tools belt and secretary folder. - "English Corner" notice board.
Expectations		
At the end of this unit all of the students must...	Science: <ul style="list-style-type: none"> - Follow the routines established from the very beginning. - Follow instructions of the activities. - Recognize structures in diverse contexts and mentally classify them according to their proceeding. 	

	<ul style="list-style-type: none"> - Observe and manipulate different structures. <p>Literacy:</p> <ul style="list-style-type: none"> - Identify the key words and terms in a text. - Respond to simple questions. - Formulate simple questions. - Relate pictures with their term. - Follow routines with little guidance.
At the end of this unit most of the students should...	<p>Science:</p> <ul style="list-style-type: none"> - Identify the use of each structure with a justification. - Relate the way structures can be moved with each structure with which we have worked during the proposal. - Classify natural and artificial structures according to characteristics they share. <p>Literacy:</p> <ul style="list-style-type: none"> - Share ideas among their classmates and team members using English. - Understand short texts by identifying key terms and words. - Answers questions made by the teacher or other classmates using verbal and non-verbal language.
At the end of this unit some of the	<p>Science:</p>

students could...	<ul style="list-style-type: none"> - Create their own Ven's Diagram in which they establish the characteristic different structures share. - Justify why artificial structures imitate natural ones by giving real examples. - Create their own hypothesis and check them by following the Scientific method steps. <p>Literacy:</p> <ul style="list-style-type: none"> - Ask and answer questions fluently. - Participate in the debate by sharing ideas fluently, using the main terms properly. - Build sentences following teachers' instructions on their own.
--------------------------	---

Lessons Overview

UNIT 5 - WE CREATE OUR WORLD

Lesson	Learning objectives	Learning outcomes	Main activity	Assessment criteria
1	Science: <ul style="list-style-type: none"> - To locate the main structures of their school and its surroundings. - To classify those structures into natural and artificial ones. Literacy: <ul style="list-style-type: none"> - To order letters to form the word that the image represents. - To name the different types of structures. 	Students will be able to... Science: <ul style="list-style-type: none"> - Distinguish diverse natural and artificial structures. - Generalise the work done in the school to their own life. Literacy: <ul style="list-style-type: none"> - Write the name of the structures worked in class. - Explain the difference between a natural and an artificial structure. 	SCHOOL GYMKHANA	All of the students must be able to... <ul style="list-style-type: none"> • Form the structure's name attending to its picture. • Associate at least 2 structures to their creation (natural or artificial). Most of the students will be able to... <ul style="list-style-type: none"> • Associate at least 4 structures to their creation (natural or artificial). Some of the students could be able to.... <ul style="list-style-type: none"> • Associate all the structures to their creation (natural or artificial)
2	Science: <ul style="list-style-type: none"> - To distinguish among different structures' uses 	Students will be able to... Science: <ul style="list-style-type: none"> - To classify structures according to 	CREATION OF A STRUCTURE	All of the students must be able to... <ul style="list-style-type: none"> • Recognize structures • Classify structures into natural and

<ul style="list-style-type: none"> - To classify structures according to their origin and its main use <p>Literacy</p> <ul style="list-style-type: none"> - To retell the previous lesson's learnings - To name the different uses of structures - To differentiate between a noun and a verb in English 	<p>their use and origin</p> <ul style="list-style-type: none"> - To produce a structure's sketch <p>Literacy</p> <ul style="list-style-type: none"> - To build small descriptive texts ordering a set of words provided, helping themselves with illustrations. - To write the name of the structure drawn in the sketch - To complete the words with the correct letters. - To comprehend the definition of each element by doing a crossword - Read and understand short sentences. - Complete a text by underlining their preferences. 	<p>RE'S SKETCH</p>	<p>artificial ones.</p> <p>Most of the students will be able to...</p> <ul style="list-style-type: none"> ● Identify the uses of the structures by seeing an illustration of them ● Label/form the name of the structures <p>Some of the students could be able to....</p> <ul style="list-style-type: none"> ● Match the structures to their main use ● Define the structures seen in lesson 1. ● Write the name of the structures and their uses
---	---	--------------------	---

3	<p>Science:</p> <ul style="list-style-type: none"> - To associate the different ways of moving structures to the structures learnt before. - To understand an order and fulfil it. <p>Literacy</p> <ul style="list-style-type: none"> - To retell the previous learnings by saying its word when shown the picture. - To associate the picture to its word through the memory game. 	<p>Students will be able to...</p> <p>Science</p> <ul style="list-style-type: none"> - Identify the diverse ways of moving structures. - Differentiate between the uses structures can have and how they can be moved. <p>Literacy</p> <ul style="list-style-type: none"> - Distinguish the oral pronunciation of different commands and put them into practice. - Identify the verbs of moving structures in a wordsearch. 	<p>CORPORAL GAME WHERE EVERYONE IS WALKING AROUND THE CLASS WHILE LISTENING TO A SONG AND WHEN THE TEACHER SAYS ONE WAY OF MOVING STRUCTURES THEY HAVE TO DO THE GESTURE</p>	<p>All of the students must be able to...</p> <ul style="list-style-type: none"> • Associate one or more pictures with their writing. • Dramatise at least one way of moving structures when listening to an oral indication. <p>Most of the students will be able to...</p> <ul style="list-style-type: none"> • Associate three or more pictures with their writing • Categorise among all the vocabulary learnt the natural/ artificial structures and their uses. <p>Some of the students could be able to....</p> <ul style="list-style-type: none"> • Associate all the pictures with their writing. • Differentiate all the oral indications and respond to them by doing the corporal gesture.
4	<p>Science</p> <ul style="list-style-type: none"> - To categorise different natural and artificial elements according to what they share. - To interpret the meaning of shared 	<p>Students will be able to...</p> <p>Science</p> <ul style="list-style-type: none"> - Assign common functions and uses to natural and artificial structures. 	<p>CREATE A VENN'S DIAGRAM AND ESTABLISH</p>	<p>All of the students must be able to...</p> <ul style="list-style-type: none"> • Classify the natural and artificial structures in the correct place of the Venn's Diagram.

<p>characteristics by completing a Venn's Diagram.</p> <p>Literacy</p> <ul style="list-style-type: none"> - To articulate the vocabulary with the correct pronunciation. - To construct sentences with the Venn's Diagram information. 	<ul style="list-style-type: none"> - Compare the diverse functions and uses between natural and artificial structures. - Interpret a Venn's Diagram <p>Literacy</p> <ul style="list-style-type: none"> - Match the different verbs of movement or of uses of structures with the correct natural and artificial structures. - Paraphrase their matching after being given an example -oral and written- of how they have to do it. 	<p>WHAT NATURAL AND ARTIFICIAL STRUCTURE S ARE SHARED</p>	<ul style="list-style-type: none"> ● Identify the shared characteristics of two or three natural and artificial structures. <p>Most of the students will be able to...</p> <ul style="list-style-type: none"> ● Complete the Venn's Diagram in a correct way by discussing with their team members. ● Articulate one or two sentences to express the decisions taken by the group to place a structure in one place or another, using the structure given by the teacher. <p>Some of the students could be able to....</p> <ul style="list-style-type: none"> ● Justify their decision of situating/relating a natural and an artificial structure to a common use or way of moving them. ● Judge if natural structures copy the artificial ones or otherwise, after being asked this question by the teacher.
---	---	---	---

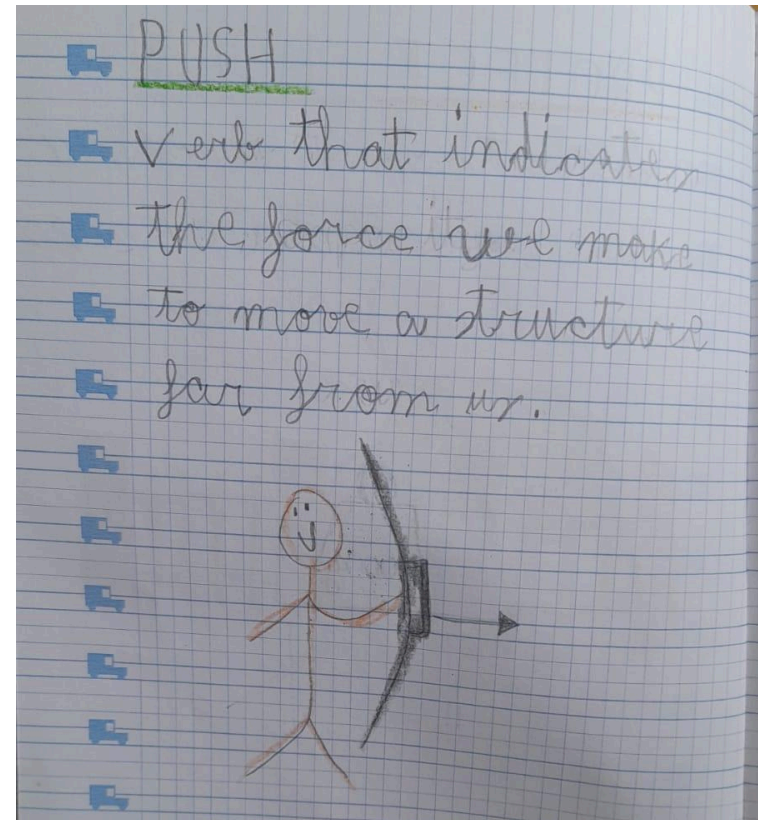
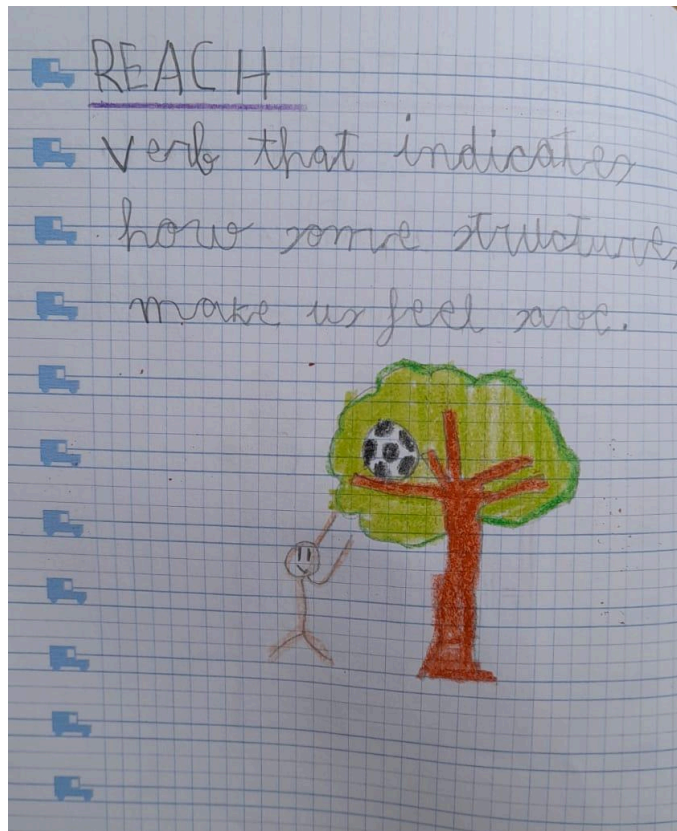
5	<p>Science</p> <ul style="list-style-type: none"> - To recollect/extract the most important information from visual videos and the following paraphrasing of the teacher related to the bees absorbing function. - To compare the different ways of absorbing by giving examples. <p>Literacy</p> <ul style="list-style-type: none"> - To discuss the wide range of natural and artificial elements that absorb using the correct terms and non-verbal communication in order to be understood and responded to by the rest of classmates. - To read and interpret images so as to complete the final task. 	<p>Students will be able to...</p> <p>Science</p> <ul style="list-style-type: none"> - Recognize natural and artificial elements in their contexts that are able to absorb. - Categorise different absorbent elements into the diverse types of absorption there are. <p>Literacy</p> <ul style="list-style-type: none"> - Produce understandable sentences and a correct non-verbal communication that justifies the similarities and differences among different elements and their way of absorbing. - Describe the type of absorption some structures have. 	<p>NATURAL AND ARTIFICIAL STRUCTURES THAT ABSORB</p>	<p>All of the students must be able to...</p> <ul style="list-style-type: none"> • Divide between the natural and artificial elements that absorb and place them in the correct location of the task. • Recognise and understand the ideas transmitted during the debate and paraphrase them if they have any doubt. <p>Most of the students will be able to...</p> <ul style="list-style-type: none"> • Assign a type of absorption to each element shown in the task although they are not able to explain it. • Participate in the debate by contributing with clear ideas even though they may need teacher's or their classmates' help for transmitting their ideas. <p>Some of the students could be able to....</p> <ul style="list-style-type: none"> • Describe two or three different types of absorption that exist using the correct terms for them and using non-verbal
---	---	---	--	--

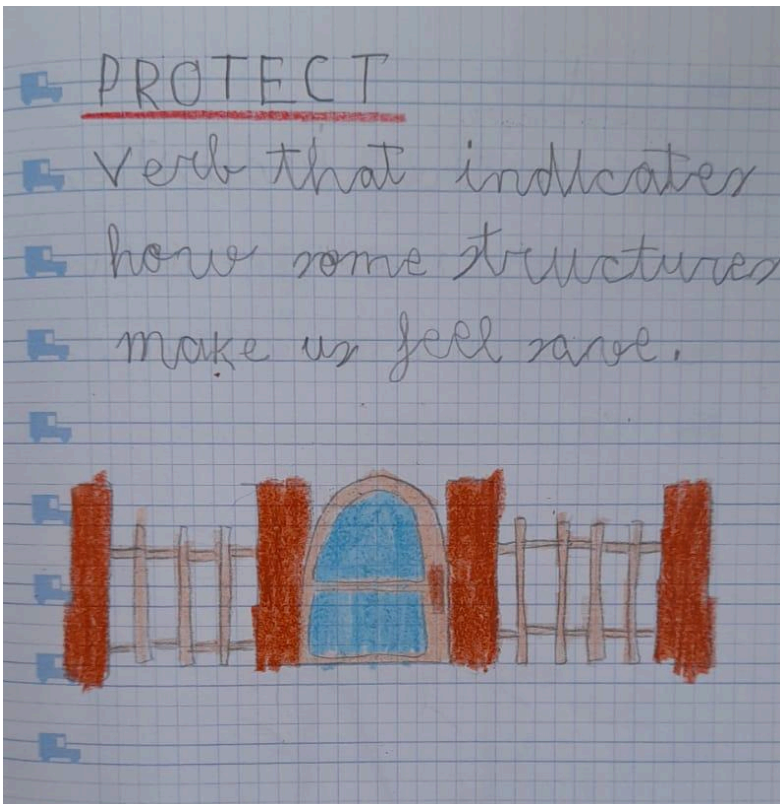
				<p>communication in order to help their classmates to understand him/her</p> <ul style="list-style-type: none"> Argue with their classmates about the process bees follow so as to absorb pollen and get attached to it and how then it is transformed into honey -after watching the video.
6	<p>Science</p> <ul style="list-style-type: none"> Create a bee in order to simulate how the pollen gets attached to them, specially to the legs. Compare a bee's ability to absorb and its ways of digesting the nectar and transform it later into pollen and the human ability to absorb and our digestive function. <p>Literacy</p> <ul style="list-style-type: none"> Formulate an instructional text among all the team members to create the bee. Examine and compare their bee with another team's bee using 	<p>Students will be able to...</p> <p>Science</p> <ul style="list-style-type: none"> Hypothesise the time that passes from the moment bees get the pollen to the moment the honey is ready. Examine the bees' type of absorption and the processes after it. <p>Literacy</p> <ul style="list-style-type: none"> Memorise and reproduce the steps given first by the teacher and later by one classmate. Construct simple sentences using 	<p>CREATION OF A BEE AND EXPERIMENT WITH THE WAYS BY WHICH IT OBTAINS THE POLLEN</p>	<ul style="list-style-type: none">

	comparatives.	comparatives in them.		
7	<p>Science</p> <ul style="list-style-type: none"> - Interpret pictures correctly so as to link them with the most accurate term that defines them. - Classify the terms seen throughout the Didactical Unit according to whether they are structure names, uses of structures or how to move structures. <p>Literacy</p> <ul style="list-style-type: none"> - Identify the most relevant terms in a text in order to choose the correct answer. - Distinguish the writing and pronunciation of all the different terms when reading or listening to them. 	<p>Students will be able to...</p> <p>Science</p> <ul style="list-style-type: none"> - Figure out the correct answer by understanding the meaning of all the possible replies and discarding the least accurate. - Classify different terms according to the use they are given and to their meanings. <p>Literacy</p> <ul style="list-style-type: none"> - Complete sentences by placing the right terms in the precise position taking into account the type of word it is. - Read and interpret sentences or texts just by understanding the terms and by being helped by the illustrations given. 	<p>PLICKERS MULTIPLE CHOICE TASK</p>	<p>All of the students must be able to...</p> <ul style="list-style-type: none"> ● Check if their answer is correct or not after the correspondent explanation given by the teacher. ● Select an answer by relying on visual support. <p>Most of the students will be able to...</p> <ul style="list-style-type: none"> ● Identify the correct answer by dismissing other possible answers. ● Interpret the pictures given by comparing them to the ones that have been used during the Didactical Unit. <p>Some of the students could be able to....</p> <ul style="list-style-type: none"> ● Explain the reasons why they have chosen one answer or other by justifying their decisions made. ● Apply their contextual learning to isolated

				texts, pictures or sentences.
--	--	--	--	-------------------------------

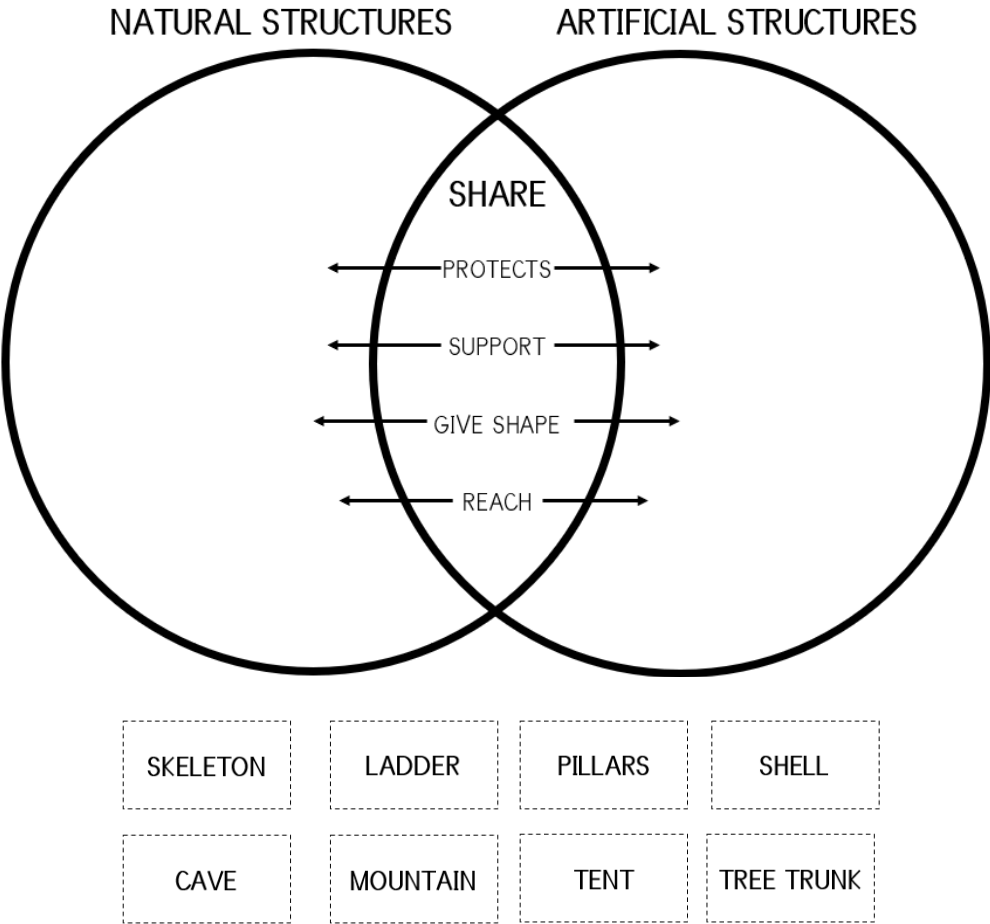
**APPENDIX 2 -EXAMPLES OF TASKS THAT CAN BE USED IN THE PROPOSAL-
PICTIONARY EXAMPLE DONE BY YEAR 2 STUDENTS**





EXAMPLE OF ORGANISATION AND COMPARISON TASK

TEAM MEMBERS NAMES



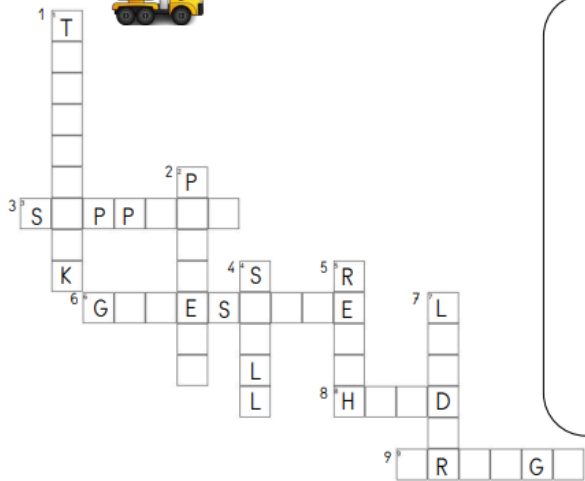
EXAMPLES OF TASKS USED FOR ASSESSMENT FOR LEARNING

Name _____

1. Complete the following crossword.



STRUCTURES AND ITS USES



- SUPPORT
- TREE TRUNK
- BRIDGE
- LADDER
- PROTECT
- GIVE SHAPE
- SHELL
- HOLD
- REACH

HORIZONTAL

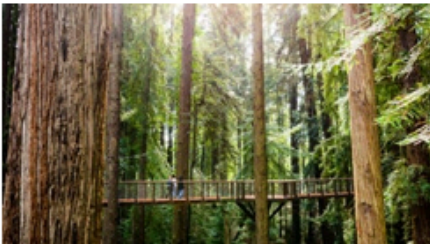
- 3. Verb that indicates the action of holding a high weight
- 6. Verb that indicates the action of giving a form to an object
- 8. Verb that indicates the action of keeping an object/ structure
- 9. It is an artificial structure made by humans to connect different places and let humans reach places easily

VERTICAL

- 1. It is a natural structure that supports the tree top. It is usually brown
- 2. Verb that indicates the action of keeping safe
- 4. It is a natural structure that protects the body of certain animals, such as, for example, the body of the snail
- 5. Verb that indicates the action of going to a high place
- 7. It is an artificial structure that lets people reach objects that are very high

Name _____ Date _____

1. Listen and tick the correct sentences.



- ☐ A bridge is a natural structure
- ☐ A bridge helps people reach far places
- ☐ The tree trunk isn't a natural structure



- ☐ A ladder is an artificial structure
- ☐ The ladder isn't holding the man
- ☐ The boxes aren't natural structures