



FACULTAD DE EDUCACIÓN DE PALENCIA  
UNIVERSIDAD DE VALLADOLID

**Role-play as a pedagogical resource in CLIL.  
Connecting Language and Science teaching for  
Climate Change awareness**

**El juego de rol como recurso pedagógico en AICLE.  
Conectando la enseñanza de Lengua y Ciencia para la  
concienciación sobre el cambio climático**

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

**AUTOR: Álvaro Gómez Andrés**

**TUTORA: Laura García García**

**Palencia, 20 de junio de 2024**



## **RESUMEN**

El objetivo fundamental de este TFG es investigar el uso del juego de rol como recurso pedagógico en un entorno AICLE, conectando las áreas de Ciencias y Lengua Extranjera. Para ello, se realizará un análisis inicial de la enseñanza en ambas áreas, estableciendo una base teórica sólida. A continuación, se investigará cómo el juego de rol puede ser utilizado eficazmente en este contexto educativo. Esta investigación se plasmará en el diseño y la puesta en práctica de una situación de aprendizaje, que se enfocará en el cumplimiento de los Objetivos de Desarrollo Sostenible (ODS). Tras la implementación, se procederá a analizar los resultados obtenidos para evaluar la efectividad y el impacto del juego de rol en la educación de Ciencias y Lengua Extranjera, llegando a conclusiones que podrían orientar futuras prácticas pedagógicas en entornos similares.

## **PALABRAS CLAVE**

Juego de rol, ACILE, aprendizaje de las ciencias, enseñanza de la lengua extranjera, situación de aprendizaje, Objetivos de Desarrollo Sostenible (ODS)

## **ABSTRACT**

The main objective of this FDP is to research the use of role-play as a pedagogical resource in a CLIL environment, connecting the areas of Science and Foreign Language. To achieve this, an initial analysis of the teaching methods in both areas will be conducted, establishing a solid theoretical foundation. Afterwards, the effectiveness of role-play in this educational context will be explored. This research will be implemented in the design and practice of a learning-situation focused on meeting the Sustainable Development Goals (SDGs). After implementation, the obtained results will be analysed to evaluate the effectiveness and impact of role-play in Science and Foreign Language teaching, drawing conclusions that could guide future pedagogical practices in similar environments.

## **KEY WORDS**

Role-play, CLIL, science learning, foreign language teaching, learning-situation, Sustainable Development Goals (SDGs)

# INDEX

<b>INTRODUCTION.....</b>	<b>4</b>
COMPETENCES OF THE BACHELOR’S DEGREE IN PRIMARY EDUCATION DEVELOPED .....	5
<b>OBJECTIVES .....</b>	<b>7</b>
MAIN OBJECTIVE.....	7
SPECIFIC OBJECTIVES .....	7
<b>THEORETICAL FRAMEWORK .....</b>	<b>8</b>
FOSTERING COGNITION THROUGH SCIENTIFIC INQUIRIES .....	8
ACQUIRING LANGUAGE IN ACTION-ORIENTED APPROACHES .....	11
CONNECTING SCIENCE AND LANGUAGE THROUGH CLIL.....	12
TEACHING FOR CLIMATE CHANGE AWARENESS .....	14
COLLABORATIVE LEARNING IN CLIL ENVIRONMENTS.....	15
THE ROLE-PLAY AS A PEDAGOGICAL RESOURCE IN CLIL.....	17
<b>RESEARCH AND PROPOSAL DESIGN.....</b>	<b>19</b>
CONTEXT.....	19
METHODOLOGY .....	20
FINAL PRODUCT .....	24
LESSONS DESIGNED TO REACH THE FINAL TASK.....	24
<b>RESULTS AND DISCUSSION.....</b>	<b>27</b>
RESULTS .....	27
DISCUSSION .....	32
<b>CONCLUSIONS .....</b>	<b>33</b>
<b>REFERENCES .....</b>	<b>34</b>
LEGAL FRAMEWORK.....	34
THEORETICAL FRAMEWORK .....	35
WEBGRAPHY AND RESOURCES FOR THE UNIT .....	39
<b>APPENDIX.....</b>	<b>41</b>
APPENDIX I: THEORETICAL FRAMEWORK’S FIGURES .....	42
APPENDIX II: MATERIALS FROM THE UNIT DESIGN .....	48
APPENDIX III: RESULTS.....	62
APPENDIX IV: RUBRICS AND CRITERIA FOR FORMATIVE AND SUMMATIVE ASSESSMENTS.....	63

# INTRODUCTION

The document presented here includes the research carried out on the development of a CLIL (Content and Language Integrated Learning) learning-situation that follows the premises of thinking skills and experiential learning, including the scientific method and using English as a vehicular language. The ground for this research is the growing importance of integrating environmental education into the curriculum to foster awareness in potential activists. Moreover, with the integration of Science and Language education through CLIL we can develop cognitive growth and language acquisition simultaneously.

To achieve this, a proposal for classroom intervention will be designed and implemented in the shape of an interdisciplinary learning-situation, following different language acquisition approaches. This learning process, aligned with the premises established in the CEFR (Common European Framework of Reference for Languages), aims to find methods to improve the use of the foreign language as a vehicle language.

Thinking Skills and Personal Capabilities (TS&PC) will be revised to teach students under the premise of integral education, fostering cognitive abilities. This, together with research on the Scientific Method and the Experiential Learning cycle, will enable students to acquire an effective pattern to generate knowledge scientifically. Specifically, the content of climate change and its teaching under the premise of the Sustainable Development Goals (SDGs) will be explored.

CLIL environments will be further specified, particularly those connecting Science and Language, exploring how students develop fluency in a second language through the application of different areas. The role-play methodology will be particularly explored, especially its use in these environments, under the premises of collaborative learning.

With the conclusions drawn, a learning situation will be designed for a group of 6<sup>th</sup>-grade students to participate in a climate change summit, after that we will see the results of their research. The design will start with the final task, placing the rest of the lessons and steps of the Scientific Method to acquire the linguistic, communicative, and STEAM competences needed to produce the expected text. The role-play methodology will be the main approach used to encourage communicative language learning, with the integration of CLIL, as students will assume separate roles. Consequently, with an Experiential Learning base, they will execute and represent a role.

This unit will be put into practice, and results will be drawn, highlighting the intended goals, and analysing the results. We will see evidence of the materials and their application, as well as the conclusions of the research.

## **COMPETENCES OF THE BACHELOR'S DEGREE IN PRIMARY EDUCATION DEVELOPED**

Furthermore, the topic chosen has led to reflection on the competences expected of a teacher. They have been acquired through the basic, compulsory and optative training modules of the bachelor's degree and put into practice during this research. In this investigation, I have been able to demonstrate the high degree of achievement of those and that justifies its choice.

I have deepened in the curricular areas of Primary Education and, particularly, their interdisciplinary relationship, understanding the body of didactic knowledge behind their respective teaching. After having those fundamentals established, I was able to design, plan and evaluate the teaching-learning process connecting Science and Language in a CLIL environment.

During this research, I have collaborated with the different sectors of the educational community and the social environment, being this latter the Faculty of Palencia. Furthermore, I have assumed the educative dimension of the teaching function and promoted democratic education for active citizenship against climate change. Thanks to it, I have valued individual and collective responsibility in achieving a sustainable future.

Regarding ICTs, I have known and applied Information and Communication Technologies in the classrooms such as TikTok or Google Forms. Before, I have selectively discerned audiovisual information that could contribute to learning, civic training and cultural wealth.

Finally, I have reflected on classroom practices to innovate and improve teaching. Especially regarding my involvement in this investigation, I have acquired habits and skills for autonomous and cooperative learning and have been able to promote it among students.

### **Basic training module**

Thanks to the subject of **Learning and Development of the Personality**, I have been able to know and understand the characteristics of primary school students, their development processes and the development of their personality. Therefore, I have created a didactic proposal that gathers their interests and motivates them, having an understanding previously their backgrounds.

Regarding **Processes and Educational Contexts**, I have shown that I know in depth the foundations of the stage of primary school. Thus, I have designed and evaluated different projects and innovations, mastering active methodological strategies and using a diversity of resources. As a result, I committedly to using collaborative learning to promote teamwork.

### **Didactic-disciplinary module**

Within the subject of **Teaching and Learning Experimental Sciences**, I have learned to use scientific knowledge to understand the world. At the same time, I have become capable of developing skills and attitudes that facilitate the exploration of natural facts and phenomena.

With this achievement, I have made the subsequent analysis to interact ethically and responsibly when faced with different problems that arise in the field of Experimental Sciences. Consequently, I have recognized the relevant behaviours to seek a sustainable future. However, previously, I have valued scientific knowledge compared to other forms of knowledge.

Finally, I have been able to adequately transform scientific knowledge into knowing how to teach through the appropriate didactic transposition processes. During it, I have verified the progress of the students and the teaching-learning process with formative and summative assessment.

### **Module of Practicum and Final Degree Project**

Within the subject of **Practicum**, I have known, participated, and reflected on the practical life of the classroom. In it, I have learned to collaborate with the different sectors of the educational community, relating theory and practice.

### **Optional module**

With the subject of **Foreign Language (English)**, I have demonstrated that I know the cognitive, linguistic, and communicative bases of language acquisition. This has made it possible to plan what is going to be taught and evaluated concerning the corresponding foreign language.

By selecting, conceiving, and developing teaching strategies I have proved that I know the types of activities and teaching resources. To do so, I have thoroughly studied the main didactic currents of teaching foreign languages and the curricular development of the area of foreign languages.

As a result, I have evidenced that I can stimulate the development of metalinguistic and metacognitive and cognitive skills for the acquisition of a new language. Hence, I have made its achievement possible through relevant and meaningful tasks that are close to the students.

I have also been exposed to be able to promote both oral language and written production, paying special attention to the use of new technologies. Furthermore, I have displayed that I am capable of progressively developing communicative competence through the integrated practice of the four skills in the foreign language classroom.

# OBJECTIVES

## MAIN OBJECTIVE

The main objective of this work is to develop a pedagogical resource specifically designed for a CLIL (Content and Language Integrated Learning) environment that integrates Science and Language. To do this, a first approach to both areas will be made, followed by the exploration and implementation of a role-playing technique as a key resource.

This will be implemented in the design and application of a learning situation aligned with the Sustainable Development Goals (SDGs) for 6th-grade students in Primary Education, especially considering their interests and promoting collaborative learning and teamwork. Afterwards, results will be analysed, and conclusions will be drawn.

## SPECIFIC OBJECTIVES

To achieve the main objective, the following specific objectives are set:

- To foster interdependence among group members by establishing guidelines to ease effective teamwork.
- To investigate the role-play technique, define its principles and precedents, and evaluate its effectiveness in developing students' communicative skills and confidence in using a foreign language.
- To lay the foundations of planning a learning experience with experiential tasks.
- To raise awareness on climate change with thought-provoking issues, being able to identify the problems and propose solutions.
- To establish the scientific method as a research tool to observe, think and solve problems systematically.
- To create a CLIL learning situation that integrates Science and Language, using English as the vehicular language to generate scientific knowledge.
- To establish the cognitive, linguistic, and communicative bases of language acquisition, ensuring students internalize both content-obligatory and content-compatible language in a CLIL context.
- To set the premises of the SDGs as a pillar in environmental education.

# THEORETICAL FRAMEWORK

This section explores different educational approaches and theories that support the development of pedagogical resources in CLIL (Content and Language Integrated Learning) environments. By integrating content and language learning, the aim is to foster cognitive skills, critical thinking, and collaboration, training students to face current global challenges.

The discussion includes learning theories and cognitive styles, the importance of critical thinking, and experiential learning methods. Additionally, it examines the role of language in cognitive development and the application of the CLIL approach to achieve comprehensive learning. Finally, it emphasizes the importance of education for sustainable development and climate awareness, highlighting the need to form informed and committed citizens dedicated to the conservation of our planet.

## FOSTERING COGNITION THROUGH SCIENTIFIC INQUIRIES

Cognition, according to Simon (1990) refers to the states and processes that occur in the mind and implicate knowing, perception, judgment, and reasoning.

### **Various learning styles for various cognitive abilities**

Gardner (1983) made an important advance stating that intelligence is not a single entity. As a matter of fact, it is a fusion of various cognitive abilities<sup>1</sup>. Therefore, there is not only one general intelligence, but eight distinct kinds of intelligences that each individual possesses, making emphasis on skills and talents.

However, there is also another framework used to see how individuals learn, and which methods they prefer, the learning styles included in Dunn & Dunn (1978)<sup>2</sup>. By understanding preferences in each area, it is possible to create a learning environment that gathers the individual style of each person and helps them learn the most effectively possible.

Both are important tools for teachers to consider when designing learning experiences. Also, when used together, they can lead to valuable insights and they can help mutually, covering their weak points. Here, a table comparing both perspectives to study how people learn is presented (see table 1):

---

<sup>1</sup> See figure 7, Appendix 1

<sup>2</sup> See figure 8, Appendix 1



Table 1: Comparison between the multiple intelligences and the learning styles. Own elaboration.

	<b>Multiple intelligences (Gardner, 1983)</b>	<b>Learning styles (Dunn &amp; Dunn, 1978)</b>
<b>Focus</b>	Intelligence is not a single entity. It is a fusion of various cognitive abilities.	How people process information.
<b>Purpose</b>	Adapting to the strongest bits of intelligence of each individual can make learning easier.	Gathering different learning styles allows teachers to adapt their instructions, which can result in better learning outcomes.

### **Thinking Skills and Personal Capabilities (TS&PC) in the Scientific Method**

Science is the best tool to motivate children. It helps them create hypotheses before testing and constant exposure to challenges will finally lead to the creation of Thinking Skills and Personal Capabilities (TS&PC), established in the Northern Ireland Council for Curriculum, Examinations and Assessment (NICCEA, 1990) and stated by McGuinness: managing information; thinking, problem-solving and decision-making; working with others and self-management.

TS&PC helps to educate citizens with a bigger capacity of adaptation and flexibility and that evaluate and assess options before deciding (McGuinness, 1999; quoted in Gibson, 2017, p. 25).

The Scientific Method is necessary to promote skills in managing information (NICCEA, 1990)<sup>3</sup>. It can have benefits such as gaining problem-solving or decision-making skills, which have a strong relationship with the integral education searched. Furthermore, creativity is not forgotten (Baars, 1986), as students must find unique ways of solving problems, and contributing to rational solutions with their inner world. As a result, empowered individuals anxious of curiosity will be the citizens of the future.

### **Critical thinking**

In science teaching, it is paramount to include “judging in a reflective way what to do or what to believe” (Facione, 2000, p. 61, quoted in Lai, 2011, p. 6). That is critical thinking, and it involves different academic disciplines. Literature primarily includes philosophy and psychology as the main disciplines (Massa, 2014, p. 388) but Stenberg (1986) included the Education Science as well.

---

<sup>3</sup> See figure 9, Appendix 1

The philosophical approach states how could people think in an idealistic situation and, therefore, the idealistic characteristics that a critical thinker should have: to be curious, open-minded and open to different opinions, among others (Facione, 1990). This is supported by the cognitive psychological approach, which adds the reality and how people think under real situations (Sternberg, 1986). In this second field, they define “actions or behaviours critical thinkers can do” (Lai, 2011, p. 7).

Finally, an educational approach is also included, and it can help when it comes to finding authors who know how to teach and assess critical thinking skills. Mainly, Bloom & Krathwohl (1956) classified those skills with a hierarchical taxonomy<sup>4</sup>, from the lower-order skills to the higher-order ones: remember, understand, apply, analyse, evaluate, and create (Griffiths, 2017).

### Learn by doing through the Experiential Learning Cycle (Kolb, 1984)

When planning a learning experience, it is paramount to have a starting point and this one must be the student’s personal experience, followed by a sequence of tasks that allow them to “learn by doing” (Nunan, 2004, p. 12). Kolb (1984) investigated how experiential tasks benefit the learning experience and developed the Experiential Learning Cycle. In it, he stated that learning is the process in which knowledge is built by transforming the experience lived (see figure 1):

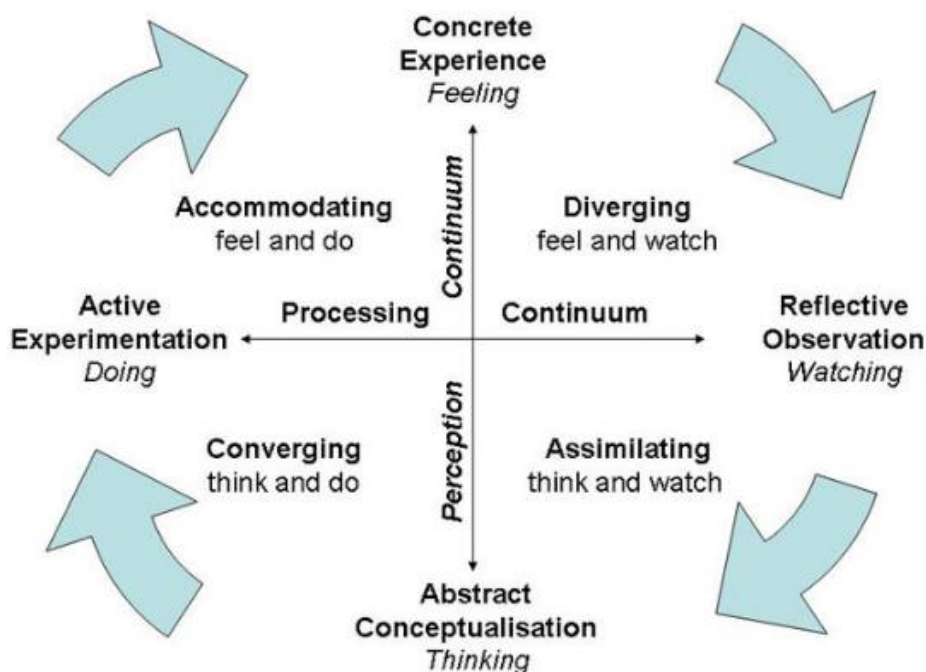


Figure 1: Kolb's Experiential Learning (McLeod, 2024)

<sup>4</sup> See figure 10, Appendix 1

## ACQUIRING LANGUAGE IN ACTION-ORIENTED APPROACHES

A foreign language should be used as a “vehicle for communication rather than as a subject to study” (Council of Europe, 2020, p. 29), as stated in the *Common European Framework of Reference for Languages: Learning, Teaching and Assessment* (CEFR). Following this action-oriented approach, in the process of learning how to communicate, teachers must use real-life situations that allow students to express their opinions. In the process, teachers must be aware of students' interests (potential topics) so that they can feel confident both in written and oral processes (Tomlinson, 2001).

Based on real tasks and collecting scientific information, students become competent in producing messages using a foreign language and become social agents for global change (Byram, 1997). However, understanding always precedes production and a consequent hypothesis was reached with the Natural Approach, that we only “acquire” language when we obtain “comprehensive input” (Krashen & Terrel, 1998, p. 1).

Therefore, initial tasks should be first oriented to understanding skills, both written and oral (Nation, 2003). Progressively, students will become familiar with the terminology established in an initial “word level” and the grammatical structures established in the following “sentence-level” to finally be able to produce a coherent text in the “text level” (*Spanish-English primary integrated curriculum, language and literacy*, 2015).

In addition, language should be promoted in an environment that motivates students to learn and allows them to interact (Bennet, 1997). This, together with how individuals are born with an innate capacity to learn every language because of a common set of rules, the Universal Grammar (Chomsky, 1975), makes learning a language possible. Therefore, he named the mechanism that he thought regulated the structures to learn a language as the “Language Acquisition Device” (LAD)<sup>5</sup>.

With the Social Interaction theory, Bruner (1982) supported information about language teaching besides LAD, arguing that the social environments help to acquire a language and take an important role. The new acronym that emerged was “Language Acquisition Support System” (LASS).

When introducing terminology, the core concepts must first be introduced concretely to then move to an abstract one. Therefore, they will first work with an enactive representation, as this is

---

<sup>5</sup> See figure 11, Appendix 1

the real object, to then move to the iconic representation and end with a symbolic representation such as language (Bruner, 1966).

Moving on to sentences, it is also helpful to chunk sentences and learn syntactic patterns to know how to work at the 'sentence level' using a colour coding like the one for pronunciation and spelling introduced by Gattegno (1972) with *The Silent Way*. Adapting it, it is possible to teach grammar providing minimal verbal instruction and letting students trust the colour codes. In the dual coding theory, Sousa (2008, p. 132), discussed how the brain processes information in a more effective way when it is presented with various channels, as in this case, it is the visual one.

To do it, a grammatical concept is chosen, and colour codes are assigned to each grammar category, presenting a sentence with blanks afterwards. Being a silent teacher, which means providing minimal instruction, students must be able to manipulate the sentence. With this process, visual learners (Dunn & Dunn, 1978) will be more likely to understand the grammatical structures and end up self-assessing their work. During this process, collaborative learning can be perfectly introduced (Johnson & Johnson, 2009).

## **CONNECTING SCIENCE AND LANGUAGE THROUGH CLIL**

For students, it is paramount to have an integral education (Wilber, 2000) where they can be educated holistically, being all aspects interconnected. Continuing with this line of thought, Vygotsky (1986) proposed that the cognitive processes underlying language acquisition and development are inextricably linked. In fact, both are influencing and being influenced by one another throughout the lifespan, making language a “shaping force” (Kuhl, 2000, p. 121). Indeed, language facilitates thinking and enhances reasoning, yet the social environment plays a pivotal role in this process.

The theory of constructivism, as proposed by Vygotsky (1978), also states that it is paramount for a child to interact socially to develop cognition. That is a core statement in CLIL environments, as they are the materialization of how foreign language learning can lead to cognitive development. While inner speech enables self-directed speech, external speech externalises and makes it conscious through verbalization as well as being still self-directed. Internalising concepts and being able to externalise them makes abstract ideas turn into concrete materialisations through language.

As stated in Marsh (1994), Content and Language Integrated Learning refers to situations where students can engage with content knowledge and language acquisition simultaneously. Therefore, while learning content, students develop language proficiency, having a dual aim.

During these lessons, students become capable of expressing their ideas effectively, creating their verbal thought with the fusion of thought and speech (Vygotsky, 1986). Snow, Met, and Genesee (1992) distinguish between two types of language used in CLIL contexts: content-obligatory language, which refers to the specific terminology from the topic taught, and content-compatible language, which gathers more general language skills that support comprehension and communication.

### Coyle's 4Cs of CLIL

When planning, teachers can benefit from using Coyle's 4Cs of CLIL (Coyle, 1999) (see figure 2):

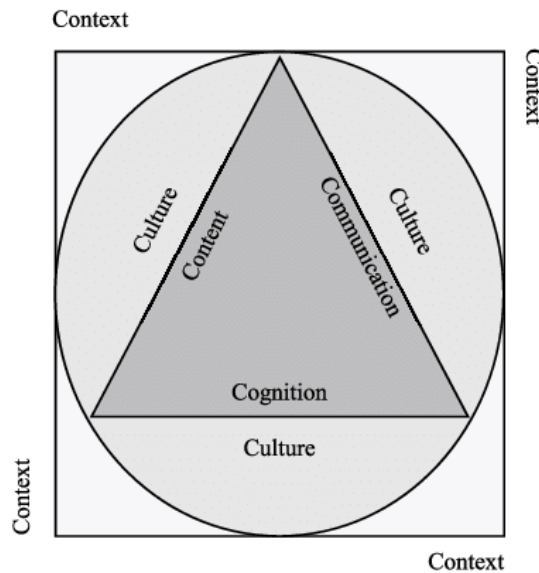


Figure 2: The 4Cs Framework [Image]. Retrieved from Griffiths (2017).

Content gathers knowledge acquired. Following the ideas by Vygotsky, Science topics are a good choice and, therefore, they can be taught using English as a vehicular language. Nevertheless, appropriate challenges and aligns with the curriculum standards should be guaranteed.

Communication advocates for the importance of language used to convey ideas and consequently participate in discussions, debates and presentations related to the topic and using the target language. Consequently, there is a use of English as a Medium of Instruction (EMI) (Schleicher, 2020). When including Science as a content, scientific literacy and language fluency are boosted.

Cognition relies on the TS&PC and, together with the ideas proposed by Vygotsky, students will acquire both cognition and language. Furthermore, developing critical thinking and problem-solving skills in a stimulating context fosters scientific inquiries (Dewey, 1938). While

developing practical experiments, students do analytical tasks and enhance their cognitive abilities.

Culture and citizenship remark on the social implications of the topic. Having different perspectives, it is more likely to develop an “intellectual hospitality” (Appiah, 2018, p. 13) and be open to new ideas. Including Science, all the ethical, environmental, and global perspectives should be addressed to create awareness. When exploring problems of scientific and technological advances, students can reach conclusions about abstract topics like climate change, all by engaging in discussions. Therefore, they can become informed global citizens and even advocate for more ecological lifestyle habits, developing a sense of responsibility.

All things considered, CLIL environments ensure a holistic approach that nurtures proficiency in a foreign language besides content acquisition within a context, provoking thinking on actual issues that affect the world. As a consequence, critical thinking and citizenship skills are ensured, leading to success in becoming a citizen fully informed on the current problematics.

## **TEACHING FOR CLIMATE CHANGE AWARENESS**

### **Sustainable Development Goals**

In society, we have started to become aware of the finiteness of the planet. Consequently, entities such as the UN (2015) have designed objectives to alleviate this problem: the Sustainable Development Goals (SDGs). In educational institutions, teachers and professors are committed to achieving these goals through Education for Sustainable Development (ESD). However, becoming aware of global problems and writing reports on this has its root in the Brundtland Report published by the World Commission on Environment and Development (WCED, 1987), *Our common future*.

They not only refer to sustainability but also delve into an even more serious issue, the viability of our planet (Sachs, 2017). Processes such as the greenhouse effect can put the life of the planet at risk and raising awareness of the finiteness of our planet is fundamental.

It is education that enables their achievement through teaching values, behaviours, and lifestyles (Azoulay, 2016). Proposals should reinvigorate commitments through activities that establish alliances to reach a global community. There, meeting and exchanging ideas must be possible.

## **Eco-centric education**

As Kopnina (2020, p. 9) points out, some researchers like Jickling and Spork (1998) argue that education that tries to advocate for something, even if it is for the wellbeing of the planet, may entail the risk of indoctrination. Therefore, other alternatives to ESD include less dominant models like the “eco-centric education” (Shrivastava, 1994). In this paradigm, there are references such as eco-pedagogy, which has roots in Paulo Freire and Ivan Illich’s critical pedagogy.

Within this approach, students will focus on the value of the living things from the environment, prioritizing their well-being instead of stressing the human benefits of a healthy planet. Therefore, it highlights the worth of nature itself, without its harnessing for humans.

## **COLLABORATIVE LEARNING IN CLIL ENVIRONMENTS**

Vygotsky (1986) also contributed with a framework for individual learning, the Zone of Proximal Development (ZPD). It is “the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem-solving under adult guidance or in collaboration with more capable peers” (Vygotsky, 1978, p. 86)<sup>6</sup>.

For a child to acquire a language and progress through the different stages of speech, they must be guided. In this context, the role of a teacher is that of a guide or facilitator. This way, the classroom becomes "paedo-centric" (Pathak, 1973) with students assuming a central role in the learning process.

The students themselves can also guide their classmates to achieve the proposed goals and that is when collaborative learning occurs. According to the Education Endowment Foundation (EEF, 2021), it occurs when students have a final goal that must be reached with teamwork. It requires a conscientious unit design and intervention during the development that will ensure a fair task distribution and participation in all the challenges.

Within, a large variety of tactics can be found. Peer tutoring motivates students and facilitates autonomous learning. However, the number of members in a team is of paramount importance, as the optimal size of students is between three and five, following EEF (2021).

---

<sup>6</sup> See figure 12, Appendix 1

The number of students can have a significant impact on the level of control and support: having more students can result in a lack of control, while having fewer students, to a lack of peer support.

Furthermore, there is a core aspect, group work. It consists of the “understanding and awareness of what group work is” (Çerkez et al., 2012, p. 112). In this study, they highlighted five important aspects (see table 2):

1. Working together
a. Studying together
b. Researching
c. Presenting a certain topic/subject
2. Interaction
a. Collaboration
b. Cooperation
c. Communication
d. Exchange of ideas
3. Effective method for students' development
a. Socialization
b. Developing problem solving skills
c. Developing cognitive, sensory, emotional skills
d. Self-confidence
4. Team spirit
5. Responsibility

Table 2: Understanding of “group work” [Image]. Retrieved from Çerkez et al. (2012).

Moreover, Demirel (1999, quoted in Çerkez et al., 2012, p. 109) categorises six items that are paramount in collaborative learning: group reward, positive connection, individual assessment, face-to-face interaction, social assessments and equal success opportunities.

As it has roots in social constructivism, it is of particular importance in promoting social interaction for collectively creating knowledge, both scientific and linguistic (Delucchi, 2004). A common objective serves to motivate the group to learn and collaborate to reach it and, as Dillenbourg (1999) asserts, this is a core aspect of actual education.

Therefore, the cognitive aspect of the individual as well as the social interaction must be carefully considered. Within this premise, there is a symbiotic relationship leading to knowledge acquisition (Pass, 2007; Gillen, 2000, quoted in Çerkez et al., 2012, p. 109).

In summary, collaborative learning can offer increased interaction between students and can provide them with more opportunities for speaking and listening practice, which can promote language acquisition (Swain, 2013).



## **THE ROLE-PLAY AS A PEDAGOGICAL RESOURCE IN CLIL**

Allen (1979) argued that drama at school is not different from drama anywhere else. There, an Aristotelian point of view from drama was being used, “Mimesis”, translated by Allen (1979) as “the art of recreation”. Despite this, this ability has been taken for granted and not seen as interesting. Teaching through drama and role-play is both possible and realistic (Clapper, 2010). In both, they are interpreting a paper.

Drama and role-play, however, are different views to promote students’ engagement and each one has its methods to exploit creativity. While in drama there is a scripted scene, role-plays allow freer conversation without the need for a predefined script (Bainbridge, 2007). Therefore, the latter allows students to be themselves.

The role-play methodology encourages communicative language learning, based on the CEFR. Following these premises, English is used as a vehicular language for obtaining scientific knowledge with the use of an action-oriented approach to language learning.

### **Benefits and obstacles**

However, drama not only has benefits for collaborative learning but also should be the centre of the curriculum (Bolton, 1998) and apply to all aspects of learning. Moreover, as a technique, it is useful to develop language skills.

Including some physiological benefits, it can develop imagination and creativity, a sense of achievement and remove inhibitions from shy students. Social benefits include class cohesion, as well as the integration of conventions such as turn-taking strategies. Building empathy and stepping outside their own experiences is also a crucial advantage, as students will be able to see the world through another’s eyes (Weare, 2000).

Despite the benefits it may have, an important drawback is the use of their mother tongue, as it is a monolingual group. However, as Byrne (1988) states, there are several suggestions to avoid this problem, such as the use of activities in their ZPD. Finally, some educational goals for dramatization by Finlay-Johnson, as stated by Bolton (1998) are:

- “Children will be keen to know” (Bolton, 1998, p. 11). As an active methodology, it breaks the monotony of textbooks while introducing surprise and that makes them curious and eager to participate.
- “Children teach and learn from each other” (Bolton, 1998, p. 11). Therefore, heterogenous groups with mentors are formed.

## **Role-play in collaborative learning**

Many similarities between collaborative learning, on the one hand, and role-play, on the other hand, can be found. On the other hand, students share a common goal and consequently work together to reach it, relying on their classmates and recognising their strengths and contributions. Gathering those benefits, the latter takes advantage of them and proposes a new environment for students to interact, negotiate and cooperate to achieve that common goal (Cohen, 2006). This way, students feel free to exchange ideas and that fosters engagement.

The core aspects highlighted by Demirel can also be perfectly integrated. The fusion of both will ensure the involvement and support needed to create knowledge, enhancing the effectiveness of both methodologies.

Role-play provides a practical opportunity to acquire a language by creating scenarios in which interaction becomes easier, as students are more likely to learn (Westrup & Planander, 2013). In those environments, the educative community as well as the social environment can be included. Therefore, if the need for real communication is presented, students will produce a message, being the principles of constructivism accomplished.

All in all, this pedagogical resource, in conjunction with collaborative learning, offers an active engagement, which leads to social interaction and meaningful learning experiences. Being an active process means critically thinking about it and asking questions. When doing it collectively, students will share their own experiences, sharing doubts and be able to solve them in groups, applying critical thinking and problem-solving skills.

# RESEARCH AND PROPOSAL DESIGN

The proposal developed is a learning situation designed and implemented during Practicum II of the Degree in Primary Education, this one developed in a Catholic school in the city of Palencia.

## CONTEXT

Let us set the main characteristics of the context in which we put into practice our research. The school is a single-line institution providing education from 0 to 16 years, covering the following educational stages: 1st and 2nd cycle of Infant Education, Primary Education, and Compulsory Secondary Education. Regarding language, students learn two foreign languages: English, introduced in Infant Education, and German, introduced in 5<sup>th</sup> grade.

As we previously mentioned, the group was a 6<sup>th</sup>-grade class with 26 students. It is important to bear in mind the students sit in designated pairs, facing the blackboard, accommodating a student with a hearing impairment who needs to sit in the front row.

The unit developed is named “A climate change summit”. It took place from 27<sup>th</sup> of April 2024 to 24<sup>th</sup> of May 2024 with seven lessons. In it, each group, composed of between four and five members, became the leaders of countries, and negotiated different proposals:

- **United States of America:** The group inquired about their preferred fast-food restaurant and documented their dining destination for the upcoming excursion. In subsequent lessons, they examined the implications of fast-food consumption.
- **People’s Republic of China:** They oversaw what to carry on the suitcases, but they thought what could happen if there was no space and, in future lessons, they investigated eco-friendly methods. During the process, they met some companies like Shein.
- **Federative Republic of Brazil:** It was their responsibility to compile a list of items to be carried and it was fortuitous that they were all derived from trees. In subsequent lessons, they examined the causes of deforestation with a focus on the Amazon rainforest.
- **Republic of Senegal:** The team continued to compile a list of items, but now including plastics. Later, the students gained an understanding of the types of plastics and the prevalence of littering in public spaces, that led to the unfortunate situation in Senegal.
- **Iceland:** They were looking for devices that they may require the residence to have and, gaining perspective, they analysed how much energy they use.
- **Bolivarian Republic of Venezuela:** This group identified suitable means of transport, becoming aware of the impact of fossil fuels, as Venezuela is a significant producer.

## METHODOLOGY

We must differentiate between the methodology used during the research and the methodologies and techniques applied to the development and implementation of the learning-situation.

### **Research methodology**

Regarding our research, data will be collected through observations, student reflections and assessments of language and content learning. This data will be analysed to determine the effectiveness of role-play in achieving the learning objectives and promoting engagement with the SDGs in a CLIL environment.

#### **1. Data collection**

##### **Observations:**

Observations will be conducted using a structured protocol to ensure consistency and objectivity. The protocol will include specific criteria such as student engagement, interaction, participation in role-play activities, and use of the English language. The teacher will take notes during each lesson, focusing on student behaviour, group dynamics, and any important events related to the learning process. Students will be provided with specific prompts that encourage them to think about their learning experiences, the challenges they faced, and how they overcame them.

##### **Assessment:**

- **Formative assessment.** Continuing formative assessments will be used to monitor student progress and provide feedback.
- **Summative assessment.** At the end of the learning situation, a summative assessment will evaluate students' overall achievement in both language and content areas.
- **Rubrics and criteria<sup>7</sup>.** Detailed rubrics will be developed for both formative and summative assessments, outlining clear criteria for evaluating student performance in language use, content understanding, and engagement with the SDGs.

#### **2. Data analysis**

Qualitative data from observations and reflections will be analysed according to different topics (student engagement, language use, content understanding, and attitudes towards the SDGs).

---

<sup>7</sup> See Appendix IV

## Learning situation methodology

Regarding the development and implementation of our learning situation, different methods and techniques were used, following Coyle's 4Cs<sup>8</sup>:

### *Connecting Science and Language teaching for Climate Change Awareness*

#### ○ Cognition

During this project, cognition, and various learning styles<sup>9</sup>, together with the promotion of multiple intelligences<sup>10</sup> will be fostered. Students will be able to stay motivated and use their TS&PC<sup>11</sup> while following the steps of the Scientific Method. In the process of learning how to do<sup>12</sup>, critical thinking will be promoted while the Experiential Learning Cycle<sup>13</sup> is followed.

#### ○ Communication

Continuing with the premises of how language should be a vehicle for communication<sup>14</sup>, as stated in the CEFR, students will engage with a real-life and motivating situation, which will lead to engagement. As the first tasks are designed for understanding skills to obtain comprehensive input, students will progressively “climb” on the different levels to finally reach the “text level”.

#### ○ Content and Citizenship

With the outlines established by the UN in the Brundtland Report, *Our Common Future*<sup>15</sup>, the world became aware of global problems. Consequently, SDGs were created. The following ones are promoted in this learning situation:

- Goal 7: Affordable and clean energy
- Goal 11: Sustainable cities and communities
- Goal 12: Responsible consumption and production
- Goal 13: Climate action
- Goal 17: Partnerships for the goals

---

<sup>8</sup> (Coyle, 1999)

<sup>9</sup> (Dunn & Dunn, 1978)

<sup>10</sup> (Gardner, 1983)

<sup>11</sup> (NICCEA, 1990)

<sup>12</sup> (Nunan, 2004)

<sup>13</sup> (Kolb, 1984)

<sup>14</sup> (Council of

Europe, 2020, p.

29)

<sup>15</sup> (WCED, 1987)

### *Role-play as a pedagogical resource in CLIL*

As we saw in the theoretical framework, role-play is used to encourage communicative language learning by engaging students in realistic scenarios in which they feel the need to use their foreign language to achieve a common goal<sup>16</sup>. With the simulation of a climate change summit, roles are designed so that all students can feel involved. Acting them out, not only will they gain practice on scientific concepts but also work on a collaborative learning basis.

This methodology is chosen due to its principles of social interaction aligned with social constructivist theories<sup>17</sup>, which will enable interaction, negotiation and collaboration. The simulation of those real environments provides dynamization and a motive to introduce Kolb's Experiential Learning Theory, which underscores the value of learning through direct experience.

Implementing role-play can present challenges such as managing classroom dynamics and ensuring all students are equally engaged. To address these, careful planning and clear guidelines are essential. Additionally, the teacher must facilitate the activity to ensure productive discussions and provide support as needed.

---

<sup>16</sup> (EEF, 2021)

<sup>17</sup> (Vygotsky,1986)

## LEARNING OBJECTIVES AND OUTCOMES

Table 3: Correlation between the learning objectives and the learning outcomes. Own elaboration.

	<b>Learning objectives</b>	<b>Learning outcomes</b>
<b>Interdisciplinary learning</b>	<ul style="list-style-type: none"> <li>• Develop social and civic skills</li> <li>• Promote the knowledge and active commitment to the principles established in the SDGs</li> </ul>	<ul style="list-style-type: none"> <li>• Work collaboratively with team members, respecting and valuing other opinions and accepting diverse perspectives</li> <li>• Take actions to protect the environment, demonstrating a strong understanding of environmental issues</li> <li>• Actively participate in activities related to the SDGs, showing commitment to achieve the ideas established in them</li> </ul>
<b>Science learning</b>	<ul style="list-style-type: none"> <li>• Introduce the Scientific method as a scientific way of collecting information, introducing thinking routines</li> <li>• Develop statistical and analysis abilities</li> </ul>	<ul style="list-style-type: none"> <li>• Use questions to collect data</li> <li>• Follow the steps of a problem</li> <li>• Organise data in the table and collect information about choices</li> <li>• Investigate the problem and its solution</li> <li>• Create hypothesis</li> <li>• Establish a scale to interpret frequency adverbs</li> </ul>
<b>Language learning (literacy)</b>	<ul style="list-style-type: none"> <li>• Introduce different types of texts, promoting the communication with real purposes after a comprehensive input</li> <li>• Promote the oral and written expression</li> </ul>	<ul style="list-style-type: none"> <li>• Make appropriate questions to gather specific data</li> <li>• Survey the educational community about their questions, explaining choices</li> <li>• Compare two examples using adjectives in the comparative degree</li> <li>• Create a text with coherence, recording a TikTok with it</li> <li>• Make recommendations about ecological habits</li> <li>• Explain the percentage of interviewees who made those choices</li> </ul>

## **FINAL PRODUCT<sup>18</sup>**

In the seventh lesson, students organised and hosted the venue for a climate change summit. With questions made by students from the bachelor's degree in Primary Education, the 6<sup>th</sup> graders constructed a coherent text and discussed several problems. Each student explained the results of their survey conducted to plan the end-of-year trip.

They then handed a brief presentation of the information and research they had conducted, which supported their subsequent decisions. Following this, they presented a comparison using adjectives, with one example illustrating the problem and another illustrating a solution.

Next, they discussed their findings on how often certain actions are performed, using adverbs of frequency to explain the results. Finally, reporters sought for advice on best practices.

## **LESSONS DESIGNED TO REACH THE FINAL TASK**

### **Lesson 1: Our end-of-year trip<sup>19</sup> (Step of the Scientific method: Ask a question)**

In the first lesson, the booklet was introduced along with the initial challenge: a triggering question. The end-of-year trip was presented as a reality, requiring the students to start organizing it. To do this, they began by dividing tasks. As they needed specific terminology for organizing the trip we introduced it through a guessing game, allowing students to work at the word level to later obtain comprehensive input.

Next, they participated in the main activity, which involved using the triggering question to interview their classmates about trip-related decisions, such as what objects to take and which restaurants to visit. This allowed them to communicate with a real purpose, providing a concrete experience where they lived a new learning scenario, in line with Experiential Learning.

Once they obtained that data, they had to analyse it, moving on to reflective observation. They interpreted the answers as percentages (%) and degrees, capturing the data in a pie chart. To do this, they needed to understand the degrees of a circle (360°) and plot the corresponding number of degrees for each student's response. For this, they applied notions of geometry, statistics, and arithmetic. To do it, instructional text was used so they could understand how to draw an angle and interpret a protractor.

---

<sup>18</sup> See figures 13, 14, 15, 16 and 17, Appendix II

<sup>19</sup> See figures 18, 19 and 20, Appendix II



## **Lessons 2 and 3<sup>20</sup>. Step of the Scientific method: Do background research**

In the second lesson, they started with the background investigation, beginning to do abstract conceptualisations on the Experiential Learning Cycle. Firstly, group roles were introduced. To motivate them, they received a message from the leaders of some countries saying that they had found potential in the trip they were organizing. They needed them to collect more data to hold a climate change summit. Likewise, they received a contract in which they promised that they would do it and swore the charges (group roles). To accept it, they signed.

Thus, these world leaders told each group what problems were happening in their country, having to practice their reading skills to later apply TS&PC to demonstrate that they understood the text: managing information skills.

Then, they had to sequence the steps of the problem according to what they had read. With this, they worked on the syntactic structure of a phrase at a sentence level. This was introduced with the “colour code” for language and morphology, adapted from<sup>21</sup>. Flashcards were introduced as part of the iconic representation<sup>22</sup>.

They continued going into detail in the text, since each group had a leading activity: **compare**. For this purpose, one quantity was introduced, such as air quality, toxicity of plastics or energy efficiency. This was done by encoding this quality in the form of an adjective. Thus ‘ecological’ was the adjective that measured the environmental impact of the car and ranged from being less ecological than the rest (B) to being more ecological than the rest (0). A mediator is designed.

In the third lesson, they continued with their background research in order, this time, to try to establish some solutions to the problems that had arisen. At first, they were approached with more ecological alternatives (slow fashion instead of fast fashion or slow food instead of fast food, among others). They compared habits using antonyms and content-obligatory language<sup>23</sup>.

Then, they had to ask questions. When doing this internet search, it was necessary to know what information to look for to get exactly the information they needed. So, the choice of question had to be rigorous and well formulated. Afterwards, they could proceed to research and obtain reliable data, learning to compare different sources of information. In this way, managing information and decision-making skills were worked on.

---

<sup>20</sup> See figures 21, 22, 23, 24, 25 and 26, Appendix 11

<sup>21</sup> (Gattegno, 1972)  
<sup>22</sup> (Brunner, 1966)

<sup>23</sup> (Snow, Met, and Genesee, 1992)

## **Lessons 4 and 5: Our poll<sup>24</sup>**

- Step of the Scientific method: Construct a hypothesis

Afterwards, they moved on to the fourth lesson where they constructed a hypothesis. So, given that their experiment was going to consist of a poll about how often they performed certain routines, they had to make certain estimates. For example, if they believed that the respondents would always go by car. Students then created an analysis chart to later check their hypothesis.

- Step of the Scientific method: Test with an experiment

Consequently, they started the next step: test with an experiment. Therefore, they asked questions on their issues and asked the community using a Google Form. With it, they started the active experimentation on the Experiential Learning Cycle.

- Step of the Scientific method: Analyse data and draw conclusions

During the fifth lesson, they moved on to the next. Thus, the result of the survey was a bar chart that they had to interpret. Therefore, they had to establish a scale to be able to interpret the numbers, seeing which adverbs indicate more frequency and which are less. There, they checked their hypothesis.

For example, the majority response may be: “They always travel by car.” Thus, they had to make the value judgment again and recommend whether they should do that action with that frequency or not. Moreover, they could recommend them an alternative, such as in this case: “They should travel by bike”. Thus, they had to apply critical thinking skills. As students were asked to make a judgement to classify actions as morally right and wrong, it is part of the decision-making skills.

## **Lesson 6: The TikTok (Step of the Scientific Method: Communicate results)**

During the sixth lesson, they already entered the last phase of the scientific method: communicating results. To do this, it was decided to do a TikTok in this session and a climate change summit in the next. Thus, they began to define the sketch and collect all the data gathered in the previous lessons. With all this information they built the text. Once finished, they recorded the TikTok.

---

<sup>24</sup> See figures 27  
and 28, Appendix

# RESULTS AND DISCUSSION

This section presents the outcomes of the project and provides an analysis of its impact on students. The results are discussed in terms of student engagement, skill acquisition, adaptation to individual needs, and the effectiveness of several project products.

## RESULTS

With the project, they had an important role in the classroom, and this has resulted in a starting point for some of those inhibited students to start raising their voices. The shyest ones found themselves a role in which they could express their ideas and were the most attached ones to their identifiers (see figure 3). It fostered interpersonal intelligence.



*Figure 3: Identifiers. Own elaboration.*

### **Engagement and participation**

The students were engaged with the project from the outset, as the tasks were based on real-life situations and allowed them to express their genuine opinions on actual topics. Furthermore, as I was aware of their interests and potential topics that could be treated in this learning situation, they also felt confident.

The distribution of tasks was appropriate, as students were assigned specific responsibilities and felt a sense of belonging to the learning community. When faced with uncertainties, they could rely on their colleagues, fostering an exceptional team spirit<sup>25</sup>. The number of teams distributed between four and five members has not resulted in a lack of control or peer support.

---

<sup>25</sup> (Çerkez et al., 2012, p. 112)

## **Skills acquisition**

During the process, students were able to comprehend the code before producing a message. This resulted in the acquisition of a preliminary understanding, a comprehensive input. Once the participants became familiar with the terminology, which was established at the word level, they proceeded to work at the sentence level and, finally, at the text level.

The students have acquired a wide range of skills, including both written and oral abilities. As a result, they have been able to master a multitude of aspects of the foreign language and apply their knowledge in a variety of contexts. All in all, working with this methodology helped to promote linguistic intelligence.

Moreover, they have collectively generated knowledge and provided mutual support in the process. Furthermore, under the principles of Dillenbourg<sup>26</sup>, they have been able to obtain collective rewards for their collaborative efforts and have been able to evaluate themselves socially. These cards<sup>27</sup> were building their trip and defining the destination, as well as some resources they were going to have.

## **Adaptation to needs**

Furthermore, all students have been provided with the opportunity to succeed. To facilitate this, levels of expectation have been designed, with one of these specifically designed for all students to achieve. This joined with a variety of learning styles for various cognitive abilities, resulted in a high adaptation to student's needs. The student with special needs due to the hearing impairment was reinforced.

## **Products**

### ***Booklet***

The booklet has helped them to order their ideas in a previous stage and create their self-directed speech, which made them internalise the concepts and create cognition. Therefore, it was crucial that, before externalising concepts, they had them incarnated and this was a great tool to reach that. It provoked reflection on concepts and the creation of thought, and that led to a consequent production of text. They learned the content-obligatory language and, using content-compatible language from prior learning, they were able to produce the text.

---

<sup>26</sup> (Dillenbourg, 1999)

<sup>27</sup> See figure 29, Appendix 2

As the booklet (see figure 4) was used as a scaffold to mediate learning, it was given more importance within the low-order skills under the taxonomy proposed, particularly remembering, understanding and applying. For example, they used it to compare two examples using adjectives.



*Figure 4: First lesson. Own elaboration.*

### ***Poll***

Here, each group of experts developed questions on their respective issues to be able to conduct the survey, being it a high-order skill. As it was a question about the frequency of the action, the answers were going to be adverbs of frequency. Thus, they coded correctly the adverbs in numbers from 0 (never) to 6 (always), understanding what ‘translation to language’ each number meant.

Subsequently, the questions were entered into Google Forms, an application that automated the process. As the initial lesson had already introduced the process of translating the results of a survey, the subsequent lesson could build upon this foundation, thus enabling the procedure to become fully automated.

Once the survey instrument had been prepared, the researchers proceeded to survey the educational community (see figure 5), administering the survey to each class once all members of that class had responded. Consequently, they were able to pose questions in English, fully comprehending the queries, as they had been formulated by themselves. If a colleague lacked familiarity with the terminology, this committee of experts was able to explain.



*Figure 5: Polling the educational community. Own elaboration.*

Finally, the findings of the survey were collectively analysed and interpreted. To do it, they conducted a frequency analysis of the number of individuals who acted on the question. Once the translation has been completed, the precise location of the adverb within the phrase can be identified using the colour code.

### ***TikTok***

To record it, they needed to keep in mind the structure of a text, taking into account the introduction, the knot and the closure. As part of the informative text, they included the scientific data as well as the results of the survey to make their video scientifically valid. If they are going to make recommendations, they need to be scientifically based. This is the only way to gain validity in the scientific community.

While doing so, they were setting the structure of an information text, being it a high-order skill. To do so, they had to organise information into clear and logical sections, listing key facts and organising information into clear and logical paragraphs.

Moreover, they used the persuasive text to make recommendations about healthy and unhealthy habits. Therefore, they used descriptive adjectives that could make the text more attractive. With it, they learned how to explore the environment and identify, observe and categorize elements from it, developing their naturalistic intelligence.

To promote social and peer assessment, they exchanged sketches with other classmates. Therefore, they gained autonomy and groups with more needs could be helped. Working as a team they tried a different learning style regarding teamwork.

### *Climate change summit*

In this instance, the students demonstrated their ability to explain the steps of the problem in a clear and logical sequence. The words were accompanied by symbolic representations<sup>28</sup>, which served to associate the signifier with the meaning. Furthermore, by adhering to the colour code, they demonstrated their comprehension of the fundamental syntactic structure employed in the English language, with a common and universal set of rules<sup>29</sup>.

This task seeks to create a critical capacity in students, as they must begin to make discernments that are typical of the formal thinking stage. Thus, they have been preparing for Compulsory Secondary Education. After having developed their inner speech, they have been able to create an external speech that externalises their thoughts, turning abstract ideas into concrete materialisations such as language.

The ability to communicate has been proven invaluable in projects where English is the principal language of communication. Primarily, this has been beneficial at the summit, as they have been in contact with some foreign language teachers. There, communication was necessarily conducted in English and, therefore, with a real purpose (see figure 6):



*Figure 6: Climate change summit. Own elaboration.*

---

<sup>28</sup> (Brunner, 1966)

<sup>29</sup> (Chomsky, 1975)

## DISCUSSION

The project has relevance to real life and fits with the students' interests, this is crucial in keeping them motivated and involved. The system we followed ensured full skill development by efficiently combining social, linguistic, and cognitive factors. All students progressed thanks to the differentiated teaching, highlighting the value of flexible teaching methods.

The project promoted a cooperative and encouraging learning atmosphere in addition to improving students' language and cognitive abilities. This strategy emphasises how important it is to incorporate student-centred techniques and real-world scenarios into educational situations.

However, we must stress the time-consuming nature of producing a booklet for each team. The number of resources designed can be excessively time-consuming. Perhaps it would have been more efficient to reduce the working time, even though the results are positive.

It is also important to mention that the teamwork was effective as result of a lot of work. It is always advisable to be prepared to deal with coexistence problems in the classroom, although, as we have seen, the advantages outweigh the disadvantages. Therefore, there must be techniques to control the tone of voice and manage behaviour.

In general, it is not a class that is very used to teamwork. Therefore, with this research, it became possible for them to acquire some work routines, that will be beneficial for Compulsory Secondary Education. They have learned to focus on their tasks and distribute them so that everyone can be productive. So, they have discovered the greatest advantage of teamwork, the optimization of time.

Likewise, it is a challenge to control a class in which each person is working on a task. General explanations must be very concise and sufficiently oriented so that each team can share the task. However, that is where the role of the team of equals and established roles came in. The students were able to help each other.

It would be interesting to continue this line of research in the project towards other areas. Once having established the principles of role-play, designing a CLIL learning situation about dramatization would be interesting to see how the students could function in this environment with more structured characters. It could help them to achieve the objectives set.



# CONCLUSIONS

Designing a learning sequence described with the previous analysis, it was possible to programme interventions that brought together the pedagogical resources of role-play and environmental education. Concluding, this approach facilitates the acquisition of knowledge in a meaningful way, as it incorporates emotional, motivational, and cognitive implications.

Particularly, the climate change summit has undoubtedly been beneficial for the participants, providing them with the opportunity to engage in situations where English is the primary language of communication. The role-play methodology has facilitated the achievement of this objective, as it has enabled the participants to overcome their inhibitions and engage in the activity without feeling embarrassed.

The introduction of the Scientific method, as a result of research into working with scientific inquiries, has enabled students to apply a series of steps to achieve scientifically valid results and goals. Furthermore, the students have developed their critical reasoning and thinking abilities, which have prepared them for the transition to Compulsory Secondary Education.

In terms of literacy, the students have been able to work on a text level, following the structure of the text. To do this, they have previously worked on a sentence level, following a colour code to help them identify the grammatical category of each sentence and its syntactic function. Likewise, before introducing this, work was done at the word level to introduce the terminology.

Thanks to the CLIL approach, it has been possible to connect these areas. This union has proved to be very beneficial to achieve fluency in the use of English as a vehicular language while training in Science topics such as Environmental Education, and learning TS&PC.

Finally, it is important to recognize the points to consider for the implementation of this research, such as the material design task and equipment control. However, it would be very beneficial to continue this line of research based on drama.

# REFERENCES

## LEGAL FRAMEWORK

### Internacional references

Azoulay, A. (2016). Foreword. In Global Education Monitoring Report 2016: *Education for all, learning for the future* [Foreword to the Report]. UNESCO.

<https://unesdoc.unesco.org/ark:/48223/pf0000246230>

Council of Europe. (2020). *Common European Framework of Reference for Languages: Learning, teaching, assessment – Companion volume*. Council of Europe Publishing: Strasbourg.

Northern Ireland Council for Curriculum, Examinations and Assessment (NICCEA). (1990).

*The Northern Ireland curriculum: A guide for teachers*.

<https://ccea.org.uk/document/924>

United Nations. (2015). Transforming our world: the 2030 Agenda for Sustainable Development [Resolution]. A/RES/70/1. <https://sdgs.un.org/2030agenda>

World Commission on Environment and Development. (1987). *Our common future*. Oxford University Press.

### National references

Ministerio de Educación, Cultura y Deportes, Subdirección General de Documentación y Publicaciones. (2015). *Spanish-English primary integrated curriculum, language and literacy*.

*Organic Law 3/2020*, of 29 December, which amends *Organic Law 2/2006*, of 3 May, on Education.

*Royal Decree 157/2022*, of 1 March, which establishes the organisation and minimum teachings of Primary Education.

## Regional references

*DECREE 38/2022*, of 29 September, establishing the organisation and curriculum of primary education in the Community of Castile and Leon.

*ORDER EDU/423/2024*, of 9 May, by which the evaluation and promotion in Primary Education in the Community of Castile and Leon is developed.

## THEORETICAL FRAMEWORK

Allen, J. (1979). *Drama in Schools: Its Theory and Practice*. Heinemann Educational Book London, p. 119.

Appiah, K. A. (2018). *Cosmopolitanism: Ethics in a world of strangers*. Penguin Books.

Baars, B. J. (1986). *On consciousness: Resurrection of the Cartesian dualist*. Oxford University Press.

Bainbridge, J. (2007). *Using drama in the classroom* (Chapter 2: Drama and Role-Play: What's the Difference?). Abingdon, Oxon: Routledge.

Bennett, S. (1997). *Vocabulary development: A handbook for reading teachers*. Scholastic Teaching Resources.

Bloom, B.S., & Krathwohl, D. R. (1956). *Taxonomy of Educational Objectives: The Classification of Educational Goals, by a committee of college and university examiners. Handbook I: Cognitive Domain* (1<sup>st</sup> edition). Longmans, Green.

Bolton, G. (1998). *Acting in Classroom Drama: A Critical Analysis*.

[https://openlibrary.org/books/OL9626856M/Acting\\_in\\_Classroom\\_Dramafr](https://openlibrary.org/books/OL9626856M/Acting_in_Classroom_Dramafr)

Bruner, J. (1982). *The formats of Language Acquisition*. The American Journal of Semiotics, 1(3), 1-16.

Bruner, J. S. (1966). *Toward a theory of instruction* (1st ed.). Belknap Press of Harvard University Press. (Reprinted 1967 by American Psychological Association)

Byram, M. (1997). *Teaching culture: An introduction to intercultural education in foreign language teaching*. Clevedon, UK: Multilingual Matters.

- Byrne, D. (1988). *Focus in The Classroom*. Modern English Publications.
- Çerkez, Y., Altınay, F., & Bashirova, E. (2012). *Drama and Role Playing in Teaching Practice: The Role of Group Works*. *Journal of Education and Learning*, 1(2), 109-120.  
<https://doi.org/10.5539/jel.v1n2p109>
- Chomsky, N. (1975). *Reflections on Language*. New York: Pantheon Books.
- Clapper, T. C. (2010). *Role Play and Simulation: Returning to Teaching for Understanding*.
- Cohen, L. (2006). *Drama for learning: Developing thinking, communication and collaboration* (Chapter 2: Drama and the Curriculum). Abingdon, Oxon: Routledge.
- Coyle, D. (1999). Theory and planning for effective classrooms: supporting students in content and language integrated learning contexts. In J. Masih (Ed.), *Learning through a Foreign Language* (pp. 46-62). CILT.
- Delucchi, M. (2004). *Assessing the impact of group projects on examination performance in social statistics*. *Teaching in Higher Education*, 12, 447-460.  
<http://dx.doi.org/10.1080/096392898331252>
- Dewey, J. (1938). *Experience and education*. Kappa Delta Pi.
- Dillenbourg, P. (1999). What do you mean by collaborative learning? In P. Dillenbourg (Ed.), *Collaborative-learning: Cognitive and Computational Approaches* (pp.1-19). Oxford: Elsevier.
- Dunn, R., & Dunn, K. (1978). *Learning styles: A suggested model for educators*. *Educational Leadership*, 35(4), 238-244. [Reprinted 1993, *Educational Leadership*, 50(9), 7-11].
- Facione, P. A. (1990). *Critical thinking: A statement of expert consensus for purposes of educational assessment and instruction*. Millbrae, CA: The California Academic Press.
- Gardner, H. (1983). *Frames of Mind: The Theory of Multiple Intelligences*. Basic Books.
- Gattegno, C. (1972). *Teaching foreign languages in schools: The Silent Way*. Educational Theory Centre.

- Gibson, F. (2017). *The potential for thinking skills and personal capabilities to enhance pupil project/topic work. The STeP Journal: Student Teacher Perspectives*, 4 (3), 25-28.  
<https://insight.cumbria.ac.uk/id/eprint/3251>
- Griffiths, M. (2017). Accounting for Linguistic and Cognitive Demands in CLIL Course Design. *Journal Of Policy Studies*, 57, 141-149. <http://hdl.handle.net/10236/00027506>
- Johnson, D. W., & Johnson, R. T. (2009). *Five powerful techniques for cooperative learning* (4th ed.). Allyn & Bacon.
- Khan, S. K. (2018). *Mathematics Proficiency of Primary School Students in Trinidad and Tobago* [Doctoral Thesis]. Columbia University.
- Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development* (Vol. 1). Englewood Cliffs, NJ: Prentice-Hall
- Kopinina, H. (2020). *Education for the future? Critical evaluation of education for sustainable development goals*. *The Journal of Environmental Education*, 51(4), 280–291.  
<https://doi.org/10.1080/00958964.2019.1710444>
- Krashen, S. D., & Terrell, T. D. (1998). *The natural approach: Language Acquisition in the Classroom*. Bloodaxe Books.
- Kuhl, P. K. (2000). *Early language learning and literacy*. MIT Press.
- Lai, E. R. (2011). *Critical Thinking: A Literature Review Research Report*. London: Parsons Publishing.
- Lidz, J., & Gagliardi, A. (2015). *How Nature Meets Nurture: Universal Grammar and Statistical Learning*. *Annual Review Of Linguistics*, 1(1), 333-353.  
<https://doi.org/10.1146/annurev-linguist-030514-125236>
- Marsh, D. (1994). *Bilingual Education & Content and Language Integrated Learning*. Paris: International Association for Cross-cultural Communication, Language Teaching in the Member States of the European Union (Lingua).

- Massa, S. (2014). *The Development of Critical Thinking in Primary School: The Role of Teachers' Beliefs*. *Procedia - Social and Behavioral Sciences*, 141, 387-392.  
<https://doi.org/10.1016/j.sbspro.2014.05.068>
- Nation, I. S. P. (2003). *Learning vocabulary in language learning*. Heinle & Heinle Publishers.
- Nunan, D. (2012). *Learner-Centered English Language Education: The selected works of David Nunan*.  
[https://www.academia.edu/26654918/Nunan\\_david\\_learner\\_centered\\_english\\_language\\_education](https://www.academia.edu/26654918/Nunan_david_learner_centered_english_language_education)
- Pathak, S. P. (1973). *The teaching of history: The paedo-centric approach*. Kanishka Publishers, Distributors.
- Sachs, J. D. (2017). *The Age of Sustainable Development*. *International Journal of Social Economics*, 44(12), 2500-2502. <https://doi.org/10.1108/IJSE-08-2016-0224>
- Schleicher, A. (2020). *PISA 2018 Results: Where Mathematics and Science Teaching Needs Improvement (Volume I)*. OECD Publishing. <https://doi.org/10.1787/5f07c754-en>
- Shrivastava, P. (1994). *Greening business education: Toward an ecocentric pedagogy*. *Journal of Management Inquiry*, 3(3), 235–243. <https://doi.org/10.1177/105649269433003>
- Simon, H. A. (1990). In R. S. Cohen & E. G. Sutcliffe (Eds.), *Knowing, doing, and being* (pp. 31-43). MIT Press.
- Snow, M. A., Met, M. & Genesee, F. (1992) A conceptual framework for the integration of language and content instruction. In P. A. Richard–Amato & M.A. Snow (Ed.), *The multicultural classroom: Readings for content–area teachers* (pp. 27–38), New York: Longman.
- Sousa, D. A. (2008). *How the brain learns* (3rd ed.). Corwin.
- Sternberg, R. J. (1986). *Critical thinking: Its nature, measurement, and improvement*. Washington, DC: National Institute of Education.
- Swain, M. (2013). *The output hypothesis and beyond: Talking about language learning*. *Language Teaching*, 46(3), 461-479.

- Tomlinson, C. A. (2001). *How to differentiate instruction in mixed-ability classrooms*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.
- Vygotsky, L. S. (1986). *Thought and language*. Cambridge, MA: The MIT Press.
- Weare, R. (2000). *Building empathy through role-play*. *Educational Leadership*, 57(7), 64-67.
- Westrup, M. B., & Planander, C. (2013). *The role-playing classroom: Fostering student engagement and learning*. *Educational Psychology Review*, 25(1), 75-90.
- Wilber, K. (2000). *Integral psychology: A role for transformation*. Shambhala Publications.
- Xie, M., & Xu, X. (2022). *Construction of a College Physical Education Teaching Model Using Multiple Intelligences Theory*. *Scientific Programming*, 2022, 1-10.  
<https://doi.org/10.1155/2022/1837512>

## WEBGRAPHY AND RESOURCES FOR THE UNIT

- Cowen, A. & Science Buddies. (2021). *Steps of the scientific method*. Science Buddies.  
<https://www.sciencebuddies.org/image-credit?id=5084>
- Education Endowment Foundation. (2021). *Collaborative learning approaches*.  
<https://educationendowmentfoundation.org.uk/education-evidence/teaching-learning-toolkit/collaborative-learning-approaches#nav-what-is-it>
- Google Commerce Ltd. (2024). *Forms App* (1.0.17) [Mobile application]. Google Play.  
<https://play.google.com/store/apps/details?id=com.bd.forms.app&hl=es>
- Kos, B. (2017). *How to study, learn and master things faster than people with the highest IQ*. Blaz Kos. <https://www.blazkos.com/how-to-study-and-learn/>
- McLeod, S. (2024, 2 February). *Kolb's Learning Styles and Experiential Learning Cycle*. Simply Psychology. <https://www.simplypsychology.org/learning-kolb.html>
- TikTok Pte. Ltd. (2015). *TikTok* (31.1.3) [Mobile application]. Google Play.  
<https://play.google.com/store/apps/details?id=com.zhiliaoapp.musically&hl=es>

# INDEX OF FIGURES

Figure 1: Kolb's Experiential Learning .....	10
Figure 2: The 4Cs Framework. ....	13
Figure 3: Identifiers.....	27
Figure 4: First lesson.....	29
Figure 5: Polling the educational community .....	30
Figure 6: Climate change summit .....	31
Figure 7: Composition of multiple intelligences theory.....	42
Figure 8: Learning styles preferences . ....	43
Figure 9: Steps of the Scientific Method.....	44
Figure 10: Bloom's Taxonomy .....	45
Figure 11: Inside the language acquisition device. ....	46
Figure 12: Zone of Proximal Development.....	47
Figure 13: Example I of the final task. Ask a question. ....	48
Figure 14: Example II of the final task. Steps of the problem .....	48
Figure 15: Example III of the final task. Comparison.....	49
Figure 16: Example IV of the final task. Google Forms .....	49
Figure 17: Example V of the final task. Recommendations.....	50
Figure 18: Cover of one booklet. ....	51
Figure 19: Step of the Scientific Method. Ask a question.....	52
Figure 20: Mediator designed to use the protractor .....	53
Figure 21: Mediator designed for the group roles.....	54
Figure 22: Contract. ....	55
Figure 23: Steps of the problem. ....	56
Figure 24: Mediator designed to compare I. ....	57
Figure 25: Mediator designed to compare II.....	58
Figure 26: Comparing. ....	59
Figure 27: Mediator designed to ask questions.....	60
Figure 28: Our poll.....	61
Figure 29: Cards.....	62



# INDEX OF TABLES

Table 1: Comparison between the multiple intelligences and the learning styles.....	9
Table 2: Understanding of “group work”.....	16
Table 3: Correlation between the learning objectives and the learning outcomes. ....	23
Table 4: Interdisciplinary learning. Rubrics and criteria.....	63
Table 5: Science learning. Rubrics and criteria.....	64
Table 6 Literacy learning. Rubrics and criteria.....	65

# APPENDIX

## APPENDIX I: THEORETICAL FRAMEWORK'S FIGURES

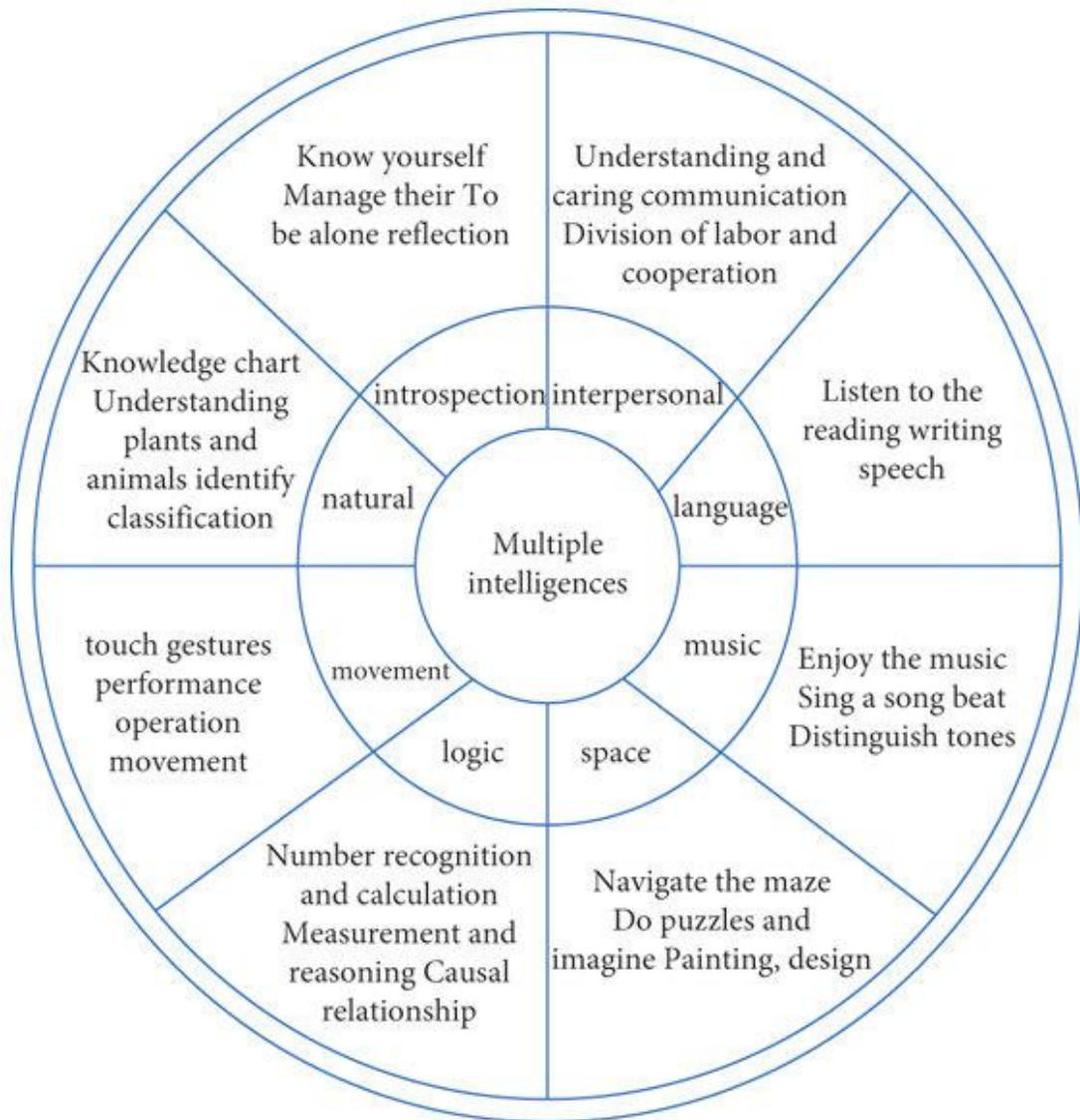


Figure 7: Composition of multiple intelligences theory [Image]. Retrieved from Xie & Xu (2022).

## Learning Styles Preferences (based on Dunn & Dunn, 1993)

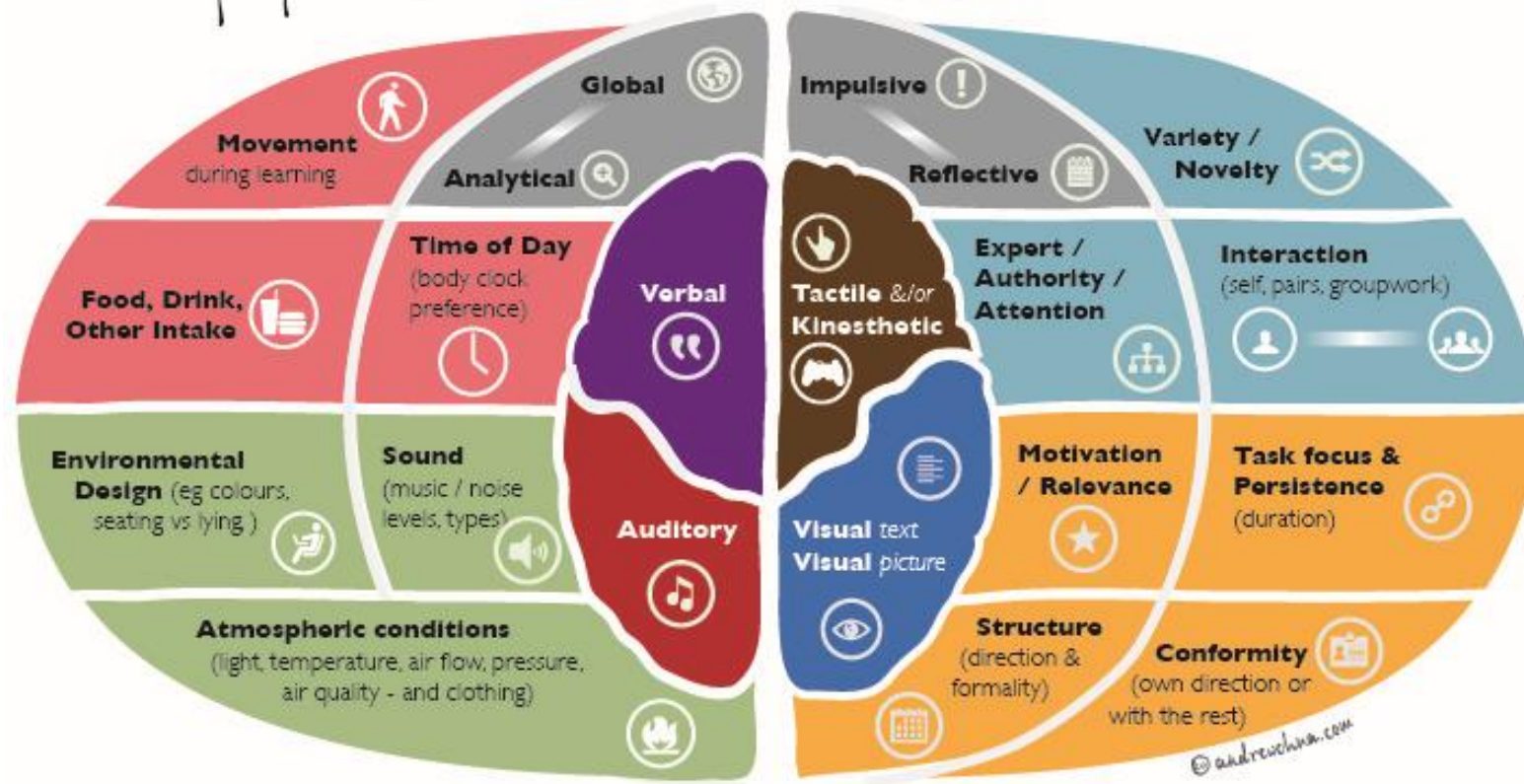


Figure 8: Learning styles preferences [Image]. Retrieved from Kos (2017).

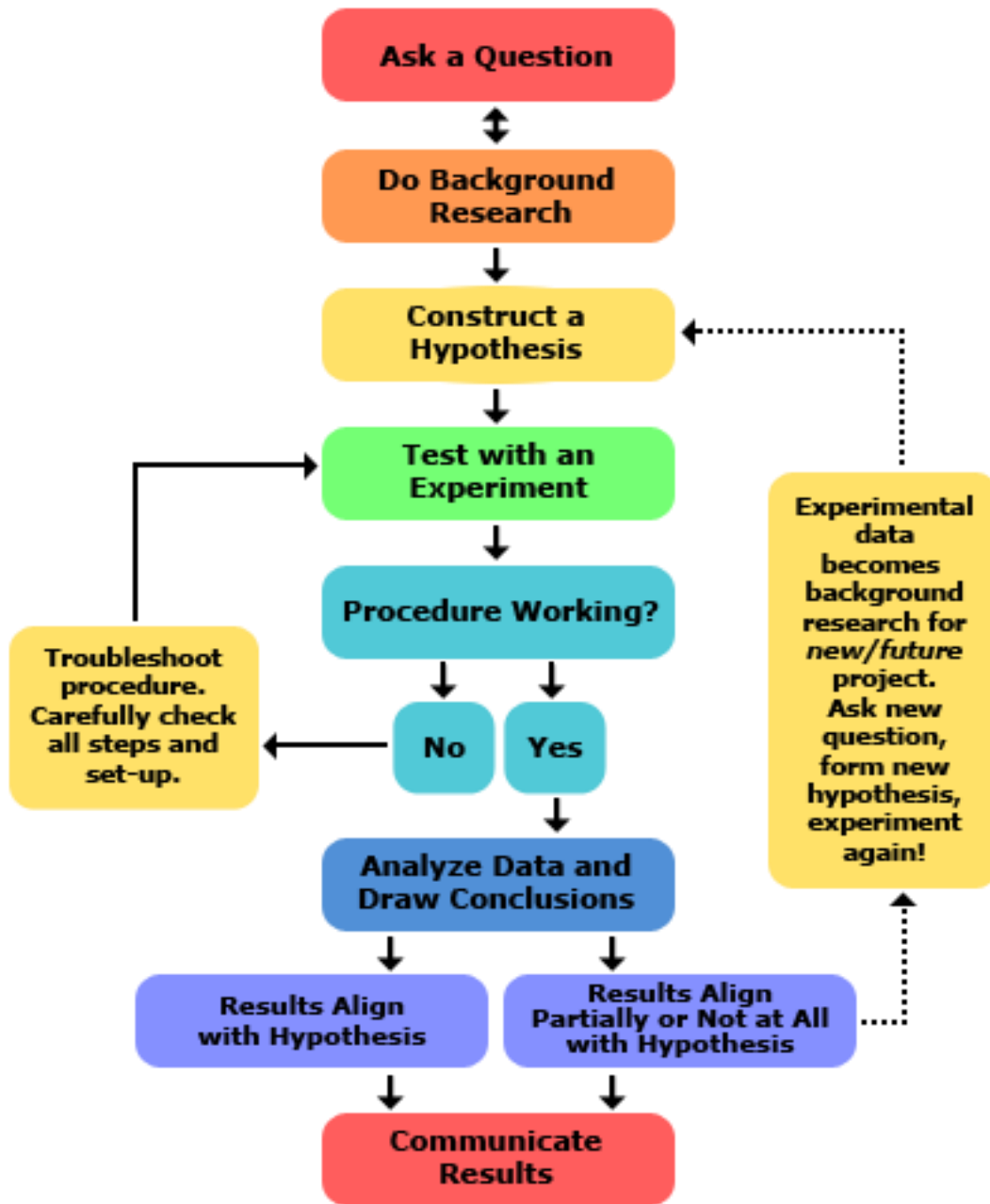
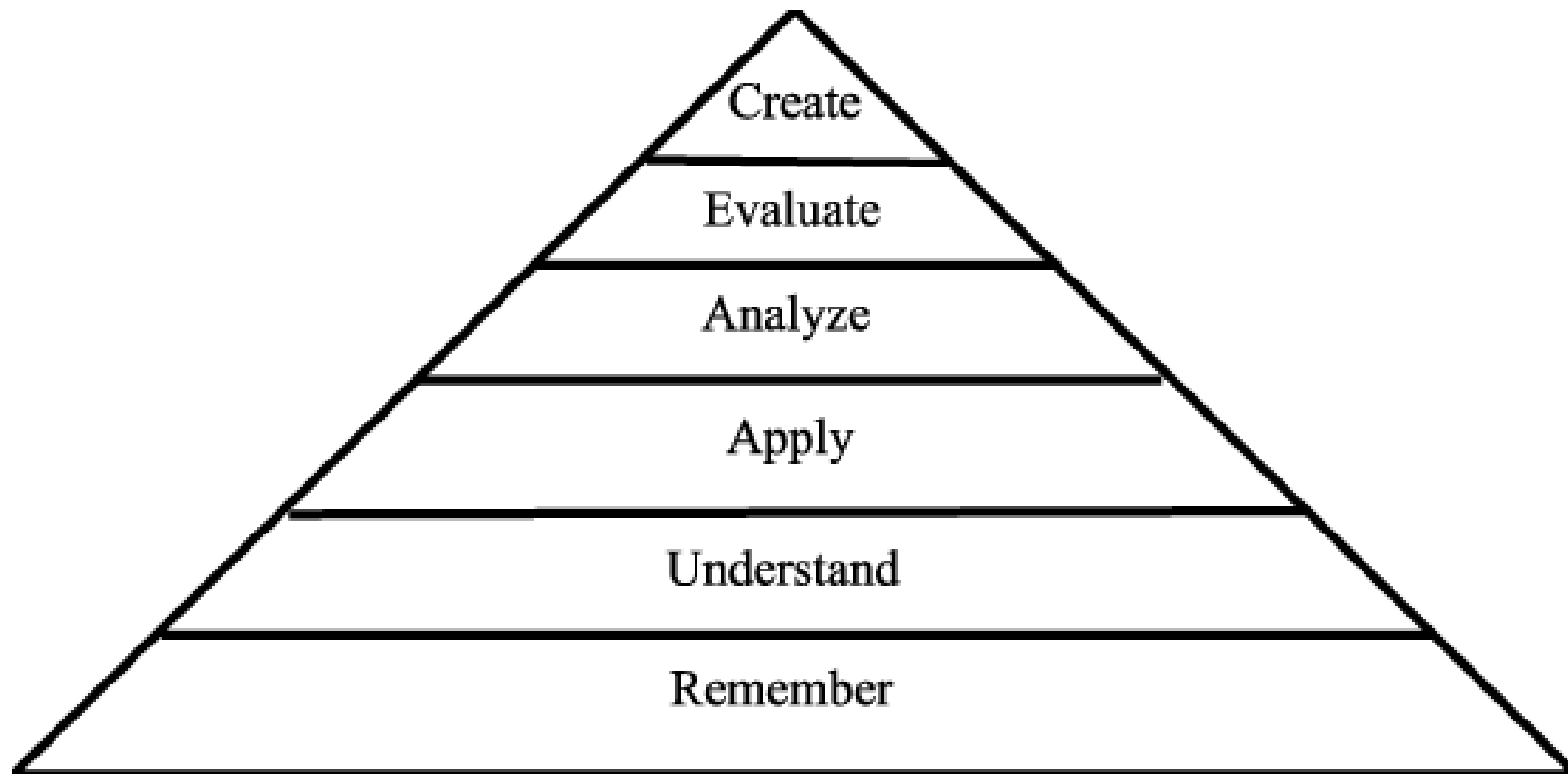


Figure 9: Steps of the Scientific Method [Image]. Retrieved from Cowen & Science Buddies (2021).



*Figure 10: Bloom's Taxonomy [Image]. Retrieved from Griffiths (2017).*

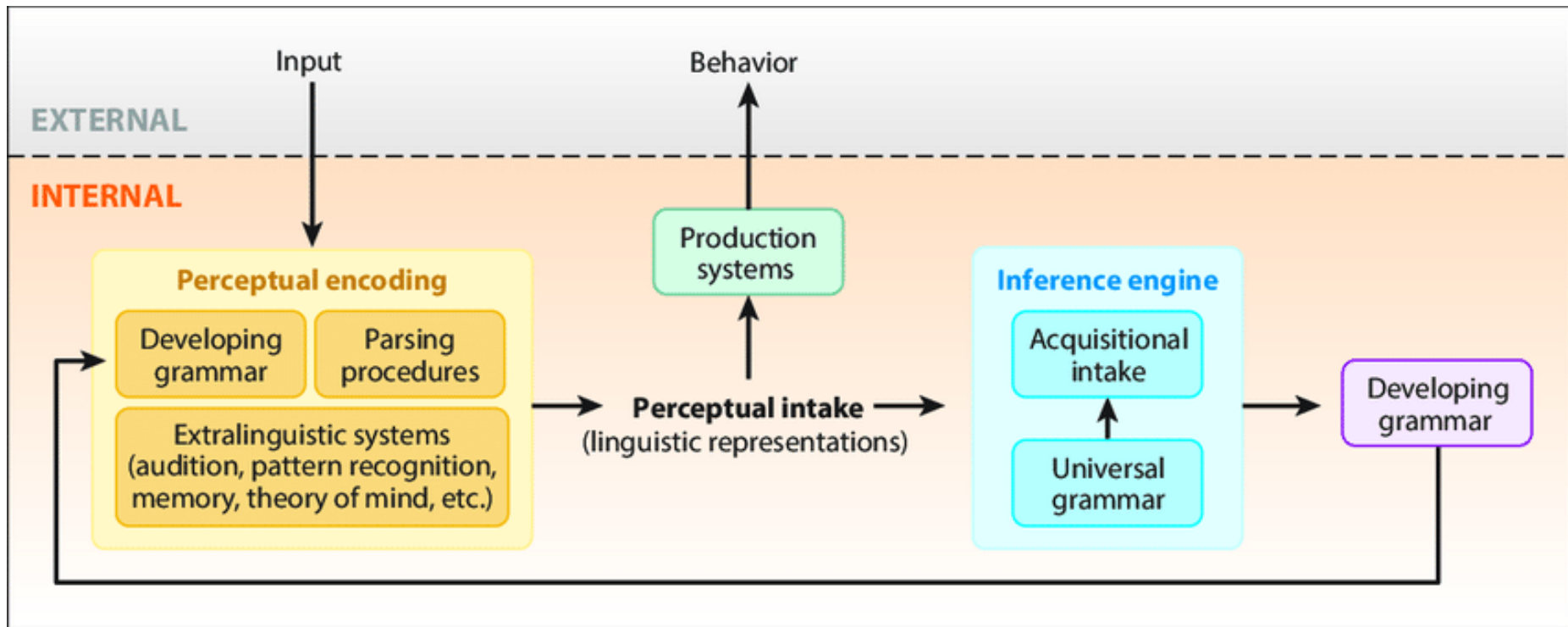


Figure 11: Inside the language acquisition device [Image]. Retrieved from Lidz & Gagliardi (2015).

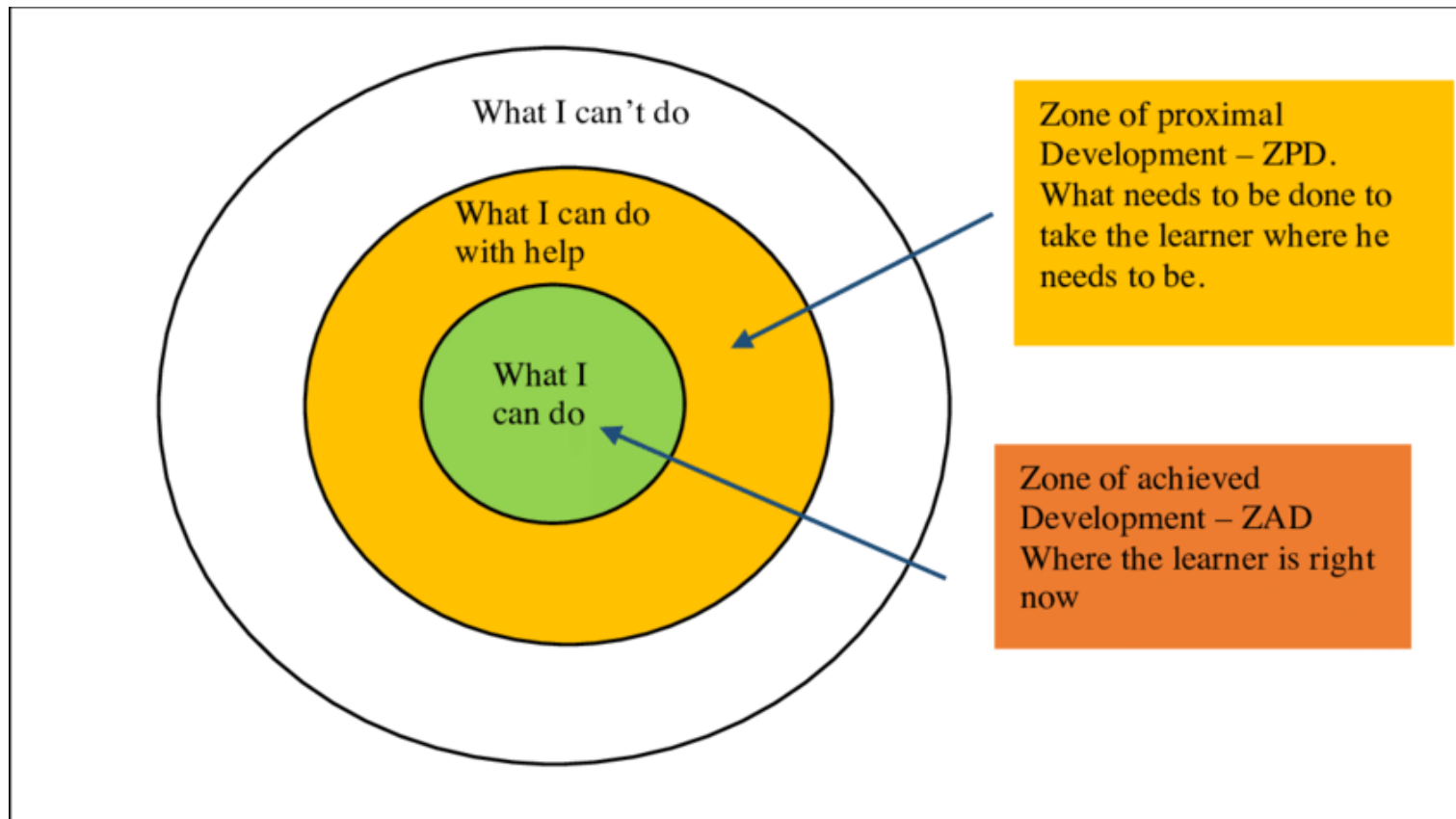


Figure 12: Zone of Proximal Development [Image]. Retrieved from Khan (2018).

## APPENDIX II: MATERIALS FROM THE UNIT DESIGN

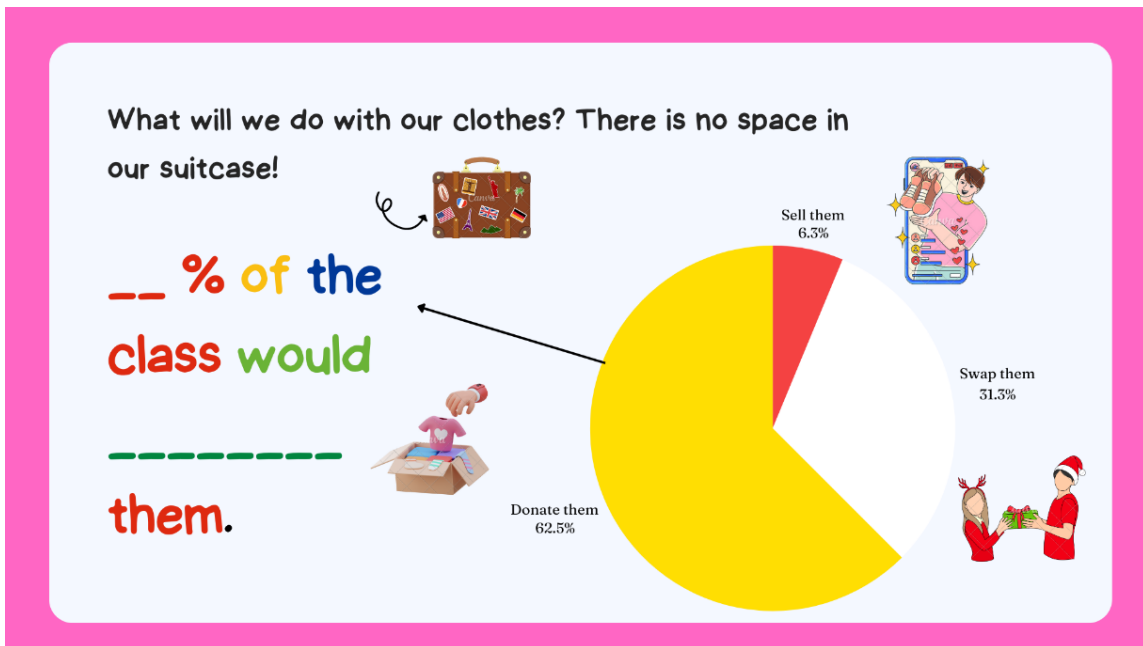


Figure 13: Example I of the final task. Ask a question. Own elaboration.

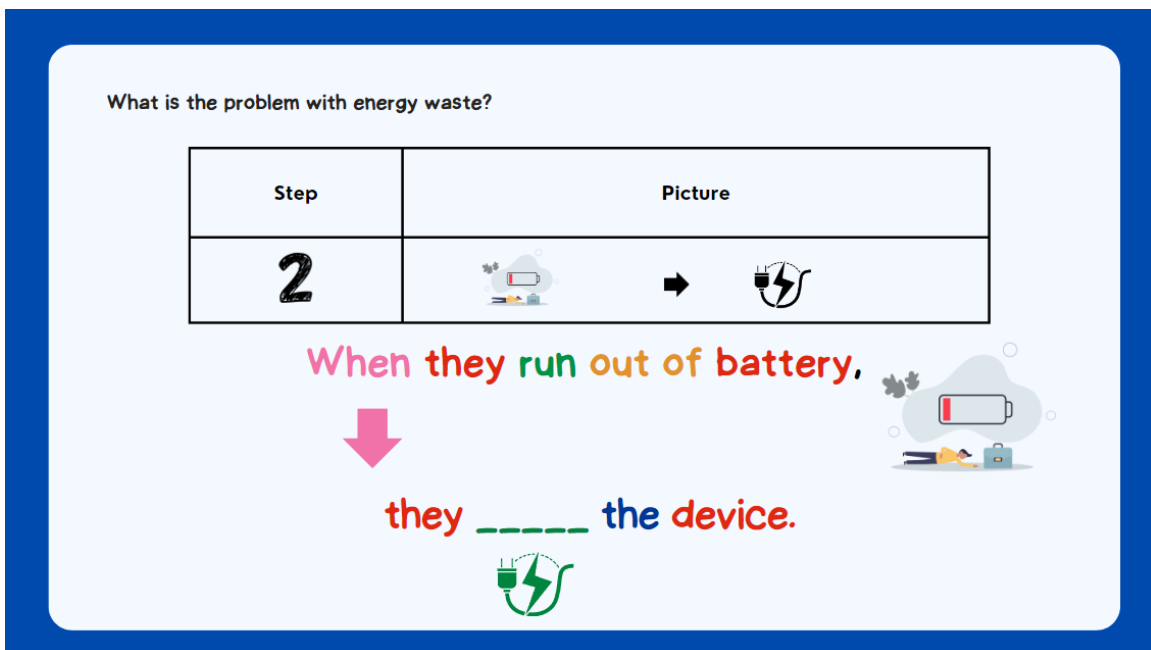


Figure 14: Example II of the final task. Steps of the problem. Own elaboration.





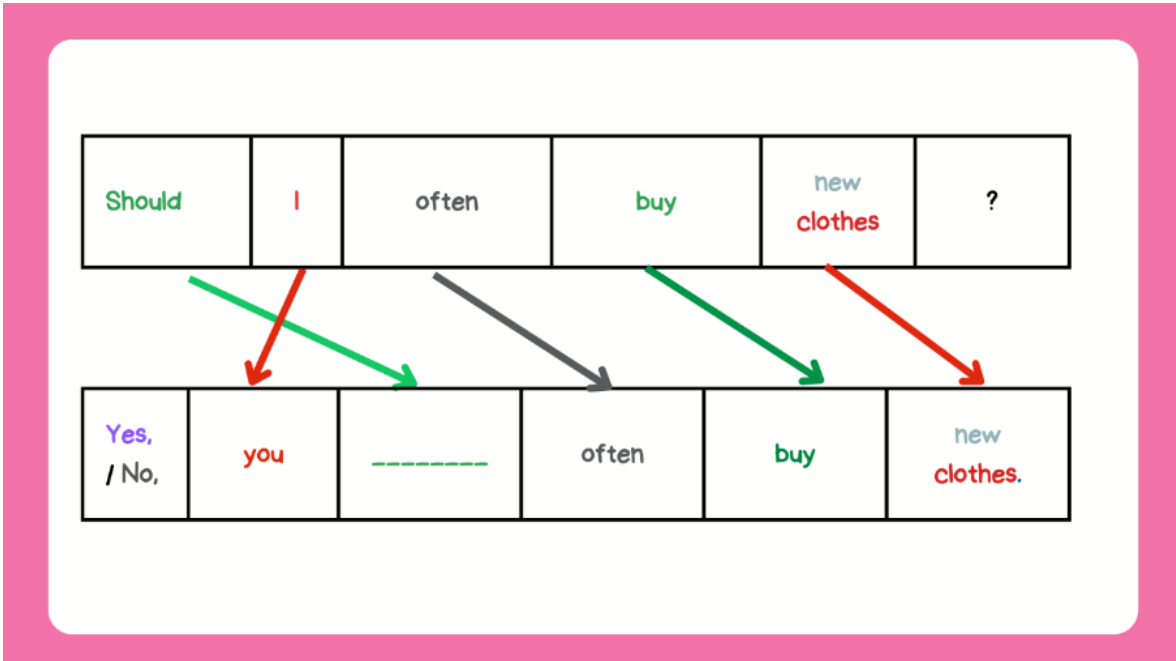


Figure 17: Example V of the final task. Recommendations. Own elaboration.

# PLASTIC WASTE & LITTERING

A trip proposal to



Name \_\_\_\_\_















Figure 18: Cover of one booklet. Own elaboration.

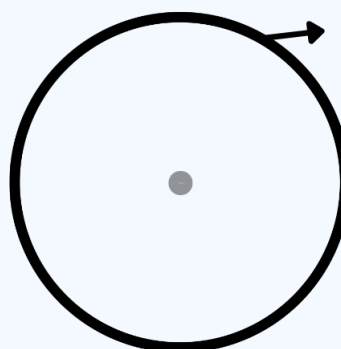
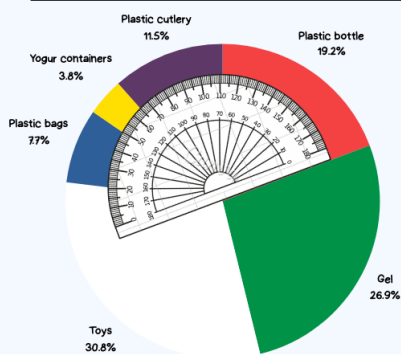
# Lesson 1

What is the most important plastic in our trip?

**3** What is the most important plastic in our trip? Ask!



Who thinks that ..... is the most important thing in our trip?	Students	Degrees (°)	%
  <b>Plastic bottle</b> PET	5	(360°/26 students = 13.84°) 5 students x 13.84° per student = 69.2°	(5 students / 26 students - the total-) x 100 = 0,19 x 100 = 19 %
  <b>Gel</b> HDPE			
  <b>Toys</b> PVC			
  <b>Plastic bags</b> LDPE			
  <b>Yogurt cups</b> PP			
  <b>Plastic cutlery</b> PS			
<b>Total of students</b>	<b>26</b>	<b>360°</b>	<b>100 %</b>



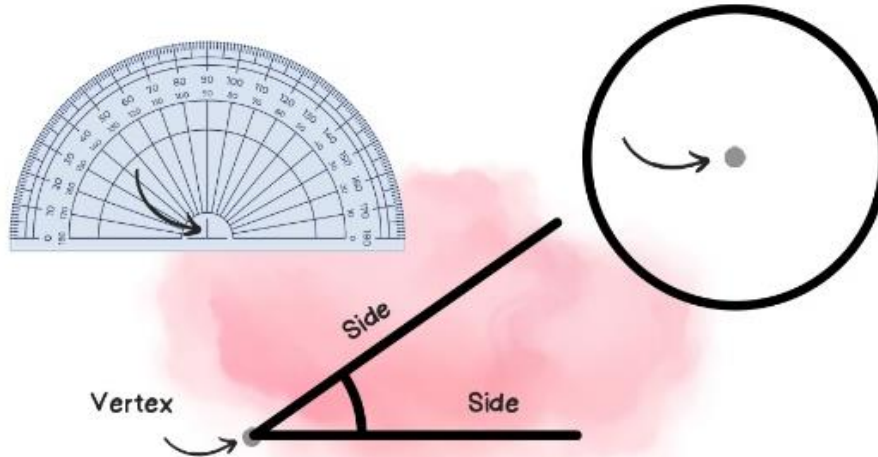
\_\_\_ % of the class think that \_\_\_\_\_ is the most important thing.

Figure 19: Step of the Scientific Method. Ask a question. Own elaboration.

# HOW TO USE THE PROTRACTOR

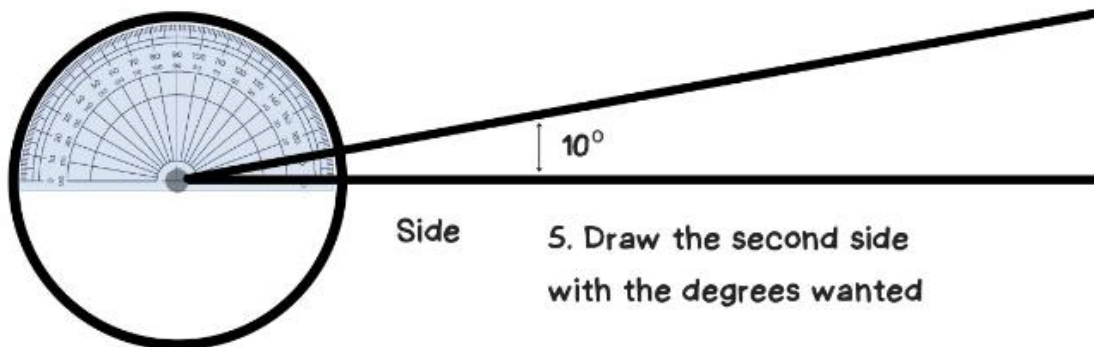
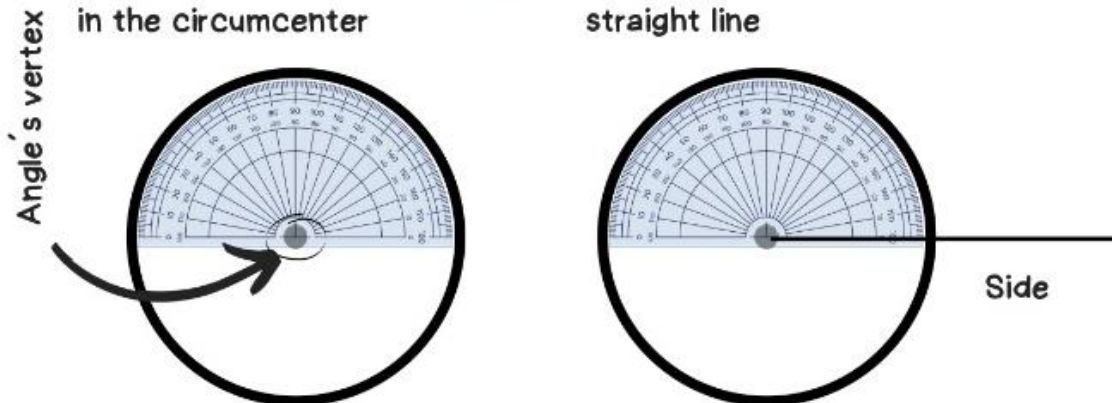
1. Locate the origin hole of the protractor.

2. Locate the circumcenter of the circumference.



3. Put the origin hole in the circumcenter

4. Draw the first side, a straight line



5. Draw the second side with the degrees wanted

Figure 20: Mediator designed to use the protractor. Own elaboration.

# Parliament roles



## PRESIDENT AND VICE-PRESIDENT



Be responsible that every member has everything needed to work, knows what to do and has positive emotions.

## SPEAKER



Communicate group decisions to other classmates or the teachers.

## INSPECTOR



Investigate, take notes of the information the group needs and records decisions.

## INTERNATIONAL MEDIATOR



Mediate if there is any discussion and manage time so that tasks are finished on time.

Figure 21: Mediator designed for the group roles. Own elaboration

## Lesson 2

What problems does plastic waste have?

Dear students, we loved your trip proposals and we would like to give the hand-made results you collected.

We are organising a climate change summit and we would like you to collect some data for us.

Can you do it?

Yes, we, \_\_\_\_\_ (full name) and \_\_\_\_\_ (full name), can and we will be responsible that every member has everything needed to work, knows what to do and has positive emotions.

\_\_\_\_\_  
President's and vicepresident's signature in Palencia, on Monday 6th of May 2024

Yes, I, \_\_\_\_\_ (full name), can and I will communicate group decisions to other classmates or the teachers.

\_\_\_\_\_  
Speaker's signature in Palencia, on Monday 6th of May 2024

Yes, I, \_\_\_\_\_ (full name), can and I will investigate, take notes of the information the group needs and record decisions.

\_\_\_\_\_  
Inspector's signature in Palencia, on Monday 6th of May 2024

Yes, I, \_\_\_\_\_ (full name), can and I will mediate if there is any discussion and manage time so that tasks are finished on time.

\_\_\_\_\_  
International mediator's signature in Palencia, on Monday 6th of May 2024

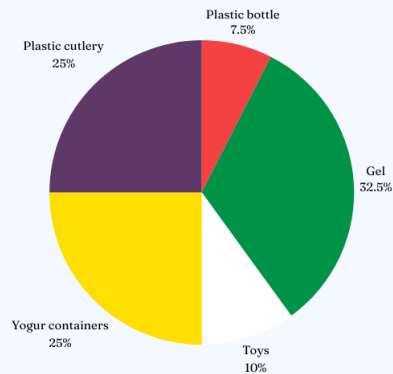


Figure 22: Contract. Own elaboration.

## Lesson 2

What problems does plastic waste have?

As Senegal is a poor country, we don't have recycling bins. As a consequence, citizens leave the rubbish in the rubbish tips.

Animals like cows or goats go there and eat some plastics. Other times, plastics reach the sea and fishes eat them. Then, we eat those animals and become ill because they have plastics in their bodies.

Rich countries go to Senegal to leave their rubbish and that makes the problem worse.









**1** Follow the steps of the problem!



Figure 23: Steps of the problem. Own elaboration.



# HOW TO COMPARE

	<b>Bag</b> 	<b>Bottle</b> 
<b><u>Big</u></b>	30 L 	2 L 
<b><u>Recyclable</u></b>	 	 

A bottle 	is	more recyclable	than	a bag. 
A bag 	is	bigger	than	a bottle. 
A bottle 	is	less big	than	a bag. 
A bag 	is	less recyclable	than	a bottle. 

1st noun

2nd noun

With the comparative degree of an adjective, we can compare two or more things.

Figure 24: Mediator designed to compare I. Own elaboration.





Rule	⊕	↑ than ↓	↓ than ↑
If the adjective has one syllable:	<b>Metal</b> is <b>hard</b> . _____	<b>Metal</b> is <b>harder</b> than <b>wood</b> .	<b>Wood</b> is less <b>hard</b> than <b>metal</b> .
If the adjective has one syllable and it ends in consonant + vowel + consonant:	<b>A bag</b> is <b>big</b> . _____	<b>A bag</b> is <b>bigger</b> than <b>a bottle</b> .	<b>A bottle</b> is less <b>big</b> than <b>a bag</b> .
If the adjective has one syllable and ends in -e:	<b>A house</b> is <b>large</b> . _____	<b>A house</b> is <b>larger</b> than <b>a box</b> .	<b>A box</b> is less <b>large</b> than <b>a house</b> .
If the adjective has two syllables and ends in -y:	<b>A salad</b> is <b>healthy</b> . _____	<b>A salad</b> is <b>healthier</b> than <b>a hamburger</b> .	<b>A hamburger</b> is less <b>healthy</b> than <b>a salad</b> .
If it doesn't follow the previous rules:	<b>A bottle</b> is <b>recyclable</b> . _____	<b>A bottle</b> is <b>more</b> <b>recyclable</b> than <b>a bag</b> .	<b>A bag</b> is less <b>recyclable</b> than <b>a bottle</b> .

Figure 25: Mediator designed to compare II. Own elaboration.

## Lesson 2







What problems does plastic waste have?

### 2 Let's compare both plastics!

	Plastic bag  	Water bottle  
<u>Big</u>	30 L	1 L



A plastic bag is bigger than a water bottle.

	Plastic bag 	Water bottle 
<u>Recyclable</u>	  PVC	  PET









— Recyclable +



A \_\_\_\_\_ is \_\_\_\_\_ than a \_\_\_\_\_.

Figure 26: Comparing. Own elaboration.

# HOW TO BE A REPORTER

1. What 	does	the climate change	cause	?
2. Where 	does	the waste	go	?
3. Who 	do	you	invite	?
4. When 	do	they	go	?
5. How 	do	I	help	?
6. Why 	do	the students	join	?


1. The climate change	causes	deforestation. 
2. The waste	goes	to the recycling bin. 
3. I	invite	you. 
4. They	go	today. 
5. You	help	with love. 
6. The students	join	because they want. 

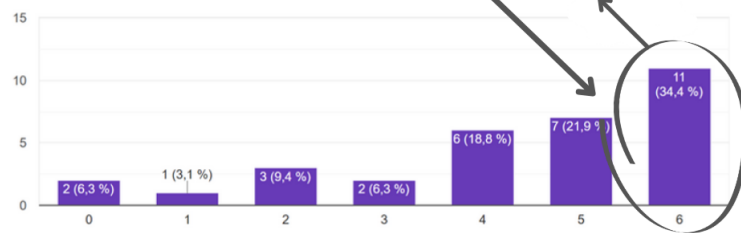
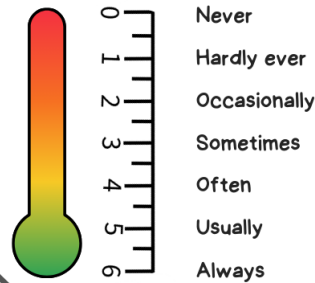
Figure 27: Mediator designed to ask questions. Own elaboration.

# Lesson 5

## Our poll

How often do they recycle plastic ?

They ----- recycle plastic.



Should I recycle plastic ?

Yes, No, you ----- recycle plastic.

Figure 28: Our poll. Own elaboration,

**APPENDIX III: RESULTS**



Figure 29: Cards. Own elaboration

## APPENDIX IV: RUBRICS AND CRITERIA FOR FORMATIVE AND SUMMATIVE ASSESSMENTS

*Table 4: Interdisciplinary learning. Rubrics and criteria. Own elaboration.*

Criteria	4 Points	3 Points	2 Points	1 Point
Teamwork	Works collaboratively with team members, actively listens to others' opinions, and values diverse perspectives.	Works well with team members, listens to others' opinions, and values diverse perspectives most of the time.	Occasionally works well with team members, listens to others' opinions, and values diverse perspectives.	Rarely works well with team members, does not listen to others' opinions, and does not value diverse perspectives.
Environmental awareness	Demonstrates a strong understanding of environmental issues and consistently takes actions to protect the environment.	Shows understanding of environmental issues and takes actions to protect the environment most of the time.	Shows some understanding of environmental issues and occasionally takes actions to protect the environment.	Shows little understanding of environmental issues and rarely takes actions to protect the environment.
Commitment to SDGs	Actively participates in activities related to Sustainable Development Goals (SDGs) and consistently demonstrates commitment to achieving them.	Participates in activities related to SDGs and demonstrates commitment to achieving them most of the time.	Occasionally participates in activities related to SDGs and demonstrates commitment to achieving them.	Rarely participates in activities related to SDGs and does not demonstrate commitment to achieving them.

Table 5: Science learning. Rubrics and criteria. Own elaboration.

<b>Expectations</b>	<b>4 points</b>	<b>3 points</b>	<b>2 points</b>	<b>1 point</b>
Use of Questions	Student consistently uses relevant and thoughtful questions to collect data and investigate the problem.	Student mostly uses relevant questions to collect data and investigate the problem.	Student uses some relevant questions to collect data and investigate the problem.	Student does not use relevant questions to collect data and investigate the problem.
Following Problem Steps	Student consistently follows all the steps of the problem-solving process.	Student mostly follows the steps of the problem-solving process.	Student follows some of the steps of the problem-solving process.	Student does not follow the steps of the problem-solving process.
Organizing Data	Student consistently organizes data in a clear and logical manner using tables or other appropriate methods.	Student mostly organizes data in a clear and logical manner using tables or other appropriate methods.	Student organizes data in a somewhat clear and logical manner using tables or other appropriate methods.	Student does not organize data in a clear and logical manner using tables or other appropriate methods.
Investigating the Problem	Student consistently investigates the problem and its solution by gathering relevant information and drawing logical conclusions.	Student mostly investigates the problem and its solution by gathering relevant information and drawing logical conclusions.	Student investigates the problem and its solution by gathering some relevant information, but conclusions may not be fully logical.	Student does not effectively investigate the problem and its solution.
Creating Hypothesis	Student consistently creates a well-formed hypothesis that is relevant to the problem and supported by evidence.	Student mostly creates a well-formed hypothesis that is relevant to the problem and supported by evidence.	Student creates a hypothesis that is somewhat relevant to the problem, but may lack evidence or clarity.	Student does not create a relevant or supported hypothesis.
Scale Interpretation	Student consistently establishes a scale to interpret frequency adverbs that is clear, logical, and appropriate for the data collected.	Student mostly establishes a scale to interpret frequency adverbs that is clear, logical, and appropriate for the data collected.	Student establishes a scale to interpret frequency adverbs that is somewhat clear and logical but may have some inconsistencies or inaccuracies.	Student does not effectively establish a scale to interpret frequency adverbs.



Table 6: Literacy learning. Rubrics and criteria. Own elaboration

<b>Expectations</b>	<b>4 points</b>	<b>3 points</b>	<b>2 points</b>	<b>1 point</b>
Creation of Questions	Questions are well-designed, using a mix of open and closed-ended formats, offering multiple choices to maximize data collection.	Questions are clear and well-suited to gather specific data on the objective.	Questions are somewhat relevant but may not capture specific data points.	Questions are unclear or not focused on data collection.
Survey	Survey is strategically designed and implemented with a representative sample. Explanation of choices encourages participation.	Survey is well-designed and implemented with the educational community. Explanation of choices is clear and concise.	Survey design is basic but implemented with the educational community. Explanation of choices is lacking.	Survey design is weak or not implemented.
Comparison using adjectives	Comparison is insightful and uses vivid comparative adjectives to showcase the strengths and weaknesses of each example.	Comparison is clear and uses appropriate comparative adjectives to highlight differences between examples.	Comparison is attempted but may use weak adjectives or lack clear differentiation between examples.	Comparison lacks clarity or uses incorrect grammar.
Creation of a text	Text is exceptionally prepared, highly engaging, and perfectly timed for the TikTok format. Script seamlessly complements the video content.	Text is clear, concise, and engaging, designed for the TikTok. Script effectively utilizes text overlay alongside the video.	Text has some coherence but may be confusing or not engaging for a TikTok audience.	Text lacks coherence or is not suitable for a TikTok format.
Healthy lifestyle habits	Recommendations are insightful, persuasive, and provide specific, actionable tips that motivate viewers to adopt sustainable practices.	Recommendations are clear, concise, and offer practical steps for adopting ecological habits.	Recommendations are somewhat clear but may not be specific or actionable.	Recommendations are vague or lack focus on practical application.
Explanation of the choices	Accurately calculates and explains the percentage of interviewees who chose responses in the survey. Uses clear and concise language.	Calculates and explains the percentage of interviewees who chose each option. Data presentation may lack clarity.	Attempts to explain percentages, but calculations may be inaccurate or unclear.	Does not explain percentages or presents data incorrectly.