

Master's Dissertation/
Trabajo Fin de Máster

**“GHOSTBUSTERS; A
GAMIFICTION INTEGRATED
PROPOSAL FOR BILINGUAL
EDUCATION”**

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ABSTRACT

Currently, numerous studies are demonstrating the benefits of the implementation of gamification in the classroom, significantly improving student motivation, which translates into better results. However, only a few integrated gamified proposals are also bilingual. This didactic proposal aims to show the enormous potential of integrating gamification techniques and dynamics in an integrated bilingual teaching project. Besides, using gamification and "gamifiction" as main sources of motivation and generators of curiosity and expectations, it is possible to foster some students' with less disposition and interest in bilingual education, as it entails a higher level of difficulty and effort.

Therefore, this bilingual proposal consisting of several integrated areas is presented for 5th of Primary Education, which through the narrative of the movie "Ghostbusters", the achievement of various missions and challenges and many unexpected events, keep students involved and enthusiastic about their learning process.

RESUMEN

Actualmente numerosos estudios están demostrando los beneficios de la implementación de la gamificación en el aula, mejorando de forma significativa la motivación del alumnado, lo que se traduce en mejores resultados. No obstante, existen pocas propuestas integradas gamificadas y que además, sean bilingües. La presente propuesta didáctica pretende mostrar el enorme potencial que puede suponer integrar las técnicas y dinámicas de la gamificación en un proyecto integrado de enseñanza bilingüe. Además, usando la gamificación y la "gamificción" como fuentes principales de motivación y generadores de curiosidad y expectativas, se focaliza en llegar a cierto alumnado con menos disposición e interés en la enseñanza bilingüe, por suponerles un nivel mayor de dificultad y esfuerzo.

Se presenta por tanto, una propuesta bilingüe integrada por varias áreas, para 5º de Educación Primaria, que mediante la narrativa de la película "Ghostbusters", la consecución de diversas misiones y retos y muchos eventos inesperados, mantiene a los estudiantes emocionados e involucrados en su proceso de aprendizaje.

Key words: gamification, gamifiction, competences, CLIL, bilingual

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1. INTRODUCTION

Society is continually changing and in consequence so are its necessities. Education has the responsibility of answering these new requirements on the formation of the students where the important thing is not just knowledge but also developing skills and abilities. Teachers should not teach as fifty years ago, because children neither are like before, nor are they motivated like before.

In general, children's motivation is lower and getting them to endeavour is a challenging, in some cases. On the other hand, children's motivation in Physical Education is quite high because, for the majority of them, it is the most fun area in their curriculum. So, in this case, why do not we try to integrate this subject with others in order to let students learn differently?

The modifications in society are leading to a compulsory transformation in the teaching-learning processes from multiple perspectives, producing numerous fields of educational innovation such as neuroeducation, information and communication technologies or classroom management (flipped classroom), among others. Likewise, in response to these needs of the globalized world, bilingualism was born, and it is making its way into more and more schools in Spain; although not always the hoped for results.

Therefore, this project is a possible answer to the general demotivation of students in the school and in bilingual schools specifically. For that purpose, it presents the fusion, in the same bilingual didactic proposal, of some current educational innovations such as, "gamification" and moreover, "gamification" as well as some active methodologies stemming from neuroeducation, such as cooperative learning. In addition, it had been taken into account the different methodological orientations given by the legislative framework, both in terms of CLIL methodology and in general methodology. It has the ultimate objective of encouraging children to learn, even those who demonstrate more difficulties and apathy.

It is designed for 5th grade of Primary School integrated by several subjects such as Sciences (Natural and Social) and Physical Education, with the collaboration of English, Arts and Crafts, Spanish language and Maths. All of it animated in the "Ghostbusters" film (the argument of which will be the guiding thread of this project), through the situations that happen, the main characters, the challenges that they should overcome, etc.

First of all, the theoretical approach will give the framework support on which the proposal is based. The second section justifies the didactical project and explains the context where it takes place. Sections 4, 5 and 6 cover the objectives of the dissertation and also the

curricular objectives- and language objectives-, competences and contents that students will be able to achieve at the end of the process. Afterwards, the timing of the lessons and the methodology used are detailed. Then, the materials and resources that are needed are explained. Following that, there is an explanation of the relation of this dissertation to educational values - transversality- and to other subjects- interdisciplinary. At which point, the assessment of the learning process - how to, when to, and what to assess- is covered. Nearer the end, the lessons of the three subjects are developed. Finally, the conclusions are drawn. In addition, all the sources consulted during the accomplishment of this proposal are listed in the references section. In the annexes, there is extra information, tables about curricular elements, and didactic materials elaborated for the development of this project so that readers can obtain a very concrete idea about the activities developed.

2. THEORETICAL APPROACH

Nowadays, we have access to endless information with a simple search on the internet, that is why memorization has lost the importance that it had in the past. Current education considers not only “know”, also “know to do” and “know to be”. Educational regulations tend to wager for developing competencies instead of memorization. “A competency is more than just knowledge and skills. It involves the ability to meet complex demands, by drawing on and mobilizing psychosocial resources (including skills and attitudes) in a particular context.” (OCDE, 2005). Some specialists (Pérez López, Isaac J. & Navarro Mateos, 2019) speak about the necessity of developing the "soft skills". The Collins English Dictionary defines the term "soft skills" as "desirable qualities for certain forms of employment that do not depend on acquired knowledge: they include common sense, the ability to deal with people, and a positive flexible attitude”.

According to the LOMCE (Ley Orgánica 8/2013, de 9 de diciembre, para la Mejora de la Calidad Educativa, 2013), there are seven key competencies which involve the integral learning of students in Compulsory Education: 1. Competence in Linguistic Communication (CLC); 2. Mathematical competence and basic competences in science and technology (CMST); 3. Digital competence (DG); 4. Learning to learn (L2L); 5. Social and civic competences (SCC); 6. Sense of initiative and entrepreneurship (SIE); 7. Cultural awareness

and expression. (CAE). They can be developed both in the formal educational context, through the curriculum, as well as in non-formal and informal.

Since competency-based learning is characterized by its transversality, its dynamism and its integral nature, the process of teaching-learning competence must be approached from all areas of knowledge, where several teachers work together in very close collaboration.

In Spain, the tendency in education goes towards integrated units, where several areas are involved, instead of teaching in isolated pockets without connexion between them. This fact is very enriching because students learn the relationship between contents in a different way and their learning is more significant due to the fact they can use and apply the knowledge in diverse fields, activities, tasks and ways. Moreover, in the case of a bilingual proposal, where even further the coordination between teachers is most important.

This proposal is based on a popular trend in education, which is gamification and moreover, had been taken into account the different methodological orientations given by the legislative framework, both in terms of CLIL methodology and in general methodology, that will be explained in the following sections.

2.1.Gamification and gamification

"Centros del profesorado" (CEP's) are wholly committed to foster and use gamification in our teaching process, which is apparent by the number of training courses that they offer to teach staff. On Social Media, teachers frequently share and express their satisfaction with the application of this technique. But what is exactly gamification? And why teachers use it?

‘In education, motivation, emotion and the ability to be able to surprise students are important keys for starting learning and anchoring it’ (Sebastiani & Campos-Rius, 2019). For (Cassasus, 2007) the emotional climates of the classroom make a difference in terms of student learning achievements, even more than the technique used.

Games usually help to create a pleasant and enjoyable atmosphere in our classes. Playing is equivalent to learning. Through playing, humans and animals learn new things about the environment around them. The repetition of an action is considered fun, and by means of these repetitions children and animals make mistakes which give them the opportunity to start again and learn how to do it better next time. Playing is a way to learn - the main instinctive form of learning in children. Huizinga (2007) defends that play is primary to and a necessary (though not sufficient) condition of the generation of culture These are the basics elements an activity must have to be considered a game:

- Play is free – it is in fact freedom. It should not be an obligation.
- Play is not "ordinary" or "real" life. People who play are aware that it is not their real lives.
- Play is distinct from "ordinary" life both in location and duration.
- Play demands absolute respect to the rules of the game.
- Play should have no material interest, and no profit should be gained from it. People play because of the feeling of pleasure.

The origin of the term “gamification” comes from the Anglo-Saxon term “games” and from the world of videogames (Marín & Hierro, 2013) due to its great success. Lee & Hammer (2011) underline this fact through the evidence of that “28 million people harvest their crops in Farmville on a daily basis (Shane, 2010) and over five million people play World of Warcraft for more than 40 hours per week (Penenberg, 2013)”. Gamification identifies the elements that make videogames so attractive to apply in other fields to get results. Gamification uses mechanics, dynamics, and aspects from the games in a different environment, such as narration, immediate feedback, the freedom to try and be wrong, overcoming a challenge...

“La gamificación es una técnica, un método y una estrategia a la vez. Parte del conocimiento de los elementos que hacen atractivos a los juegos e identifica, dentro de una actividad, tarea o mensaje determinado, en un entorno de NO-juego, aquellos aspectos susceptibles de ser convertidos en juego o dinámicas lúdicas. Todo ello para conseguir una vinculación especial con los usuarios, incentivar un cambio de comportamiento o transmitir un mensaje o contenido. Es decir, crear una experiencia significativa y motivadora”. (Marín & Hierro, 2013)

Gamification is “using game-based mechanics, aesthetics and game thinking to engage people, motivate action, promote learning and solve problems” (Kapp, 2013, p. 125). Educators ‘gamificate’ to motivate students to learn better and to care more about school. Some authors explain that: “The main advantages of the gamification are related to the activity that the game designs generate in the neuronal circuits linked to the motivation, the response to uncertainty, the cooperative learning, and the improvements in the executive attention with impact in the memory”. (Nabar et al., 2018)

It is stated that “engagement occurs when the brain is rewarded, it must evoke positive emotions in a person. When learners are engaged with learning they become active information-consumers who take the initiative and push forwards their development” (Uskov, Howlett, & Lakhmi, 2016, p. 294). Lack of engagement is one of the biggest problems in

traditional schools where students are often unmotivated. There is a significant difference between traditional school methods and gamification where students experience play and are the protagonists of their process.

In this proposal, I will give one more step towards what Isaac Pérez López calls “gamifiction”. This professor from Granada University has developed several projects by means of this methodology, such as:

- “La Amenaza de los Sedentaris” (Pérez, I., Rivera, E. & Delgado, 2017), developed in the subject "Physical activity and health", included in Professional Training Course in Physical Activity Sciences and sport.
- The “\$in TIME” Gamification Project: Using a Mobile App to Improve Cardiorespiratory Fitness Levels of College Students (Perez-Lopez, 2019).
- Feelings of Physical Education College students towards a gamification proposal: “Game of thrones: the anger of the dragons” (Pérez López et al., 2019).

Gamifiction consists of “aprovechar los principios y principales elementos motivadores de los juegos en la adaptación de una referencia fílmica (serie de televisión o película) al ámbito de la Educación para construir experiencias de aprendizaje memorables” (Pérez López, 2017). According to Pérez López and Navarro Mateos (2019), there are six fundamental aspects (Time, Aesthetics, Frames, Roles and characters, Inter-Actions and Feelings and emotions) when designing gamification experiences, which they call “TETRIS”, because in Spanish they would be: Tiempo, Estética, Tramas, Roles y personajes, Inter-Acciones y Sentimientos y emociones.

- **Time:** Learning takes time, and meaningful learning needs more time. We must avoid rushing. Before starting, it is advisable to introduce some intrigue to wake up the interest of students. See the motivational video of the project in this link:
https://www.youtube.com/watch?v=bJHMe0nwX_s
- **Aesthetics:** It refers to using the theme in every way, in vocabulary, taking advantage of the characters, their phrases, objects - impregnate the educational process of the chosen story.
- **Frames:** The main plot of the movie or series will give us the common thread, that is, the narrative, and the challenge that students must face. But we must identify other secondary events to use as emergent learning or embedded learning (Pedraz, 2017)
- **Roles and characters:** Students could have different roles and characters or not. Or maybe diverse groups could exist in the class with the same characters. The teacher

could help in the narrative and be a character also, or perhaps they could receive information by means of an avatar performed with an application.

- **Inter-actions:** they are the basis of the plot through which situations similar to the series or film are experienced, in a way adapted to our classes. Moments of the movie or series are recreated or symbolised through educational activities. It is about enacting the movie metaphorically. To have more educational significance, it is of interest that it relates to "learning challenges."
- **Feelings and emotions:** They are essential. Teachers try to make feel their students the feeling of the characters feel in films. It is highly recommended that feelings and emotions relevant from the formative perspective, such as decision-making capacity, emotion management, conflict resolution, etc.

Continuing with the game mechanic, we should bear in mind the types of players (students) we have in class. In other words, how our students like to approach playing games. The Bartle Test of Psychology (Kumar, Herger, & Friis Dam, 2020) breaks up the way people play games into four simple categories: the Achiever, the Explorer, the Socializer, and the Killer (See the Figure 1: Bartle's player type).



Figure 1: Bartle's player type (Kumar, Herger, & Friis Dam, 2020)

We would be able to attract the majority of students with the same strategy and use some different dynamics or strategy to the other categories if we know what category the majority of our students are.

- **The Achiever:** Achievers are all about points and status. They want to be able to show their friends how they are progressing. They like to collect badges and put them on

display. Bartle estimates that roughly 10% of people are players of the Achiever type. Incorporating points and badges can help achievers enjoy a gamified experience.

- **The Explorer:** Explorers want to see new things and discover new secrets. They are not as bothered about points or prizes. For them, discovery is the prize. Explorers really enjoy the surprise, and around 10% of players fit into this category. These are the players who will feel at walls in a game in order to access a secret passage; their satisfaction on doing so is what makes them tick, not bragging to their friends about their discovery. Explorer player types want to see new things and experience new outcomes.
- **The Socializer:** The vast majority of players are Socializers. That's almost 80% of people who play games. Socializers experience fun in their games through their interaction with other players. Socializers are happy to collaborate in order to achieve bigger and better things than they could on their own. Whatever the deal is, the point with Socializers is that joining forces makes sense to them. This is the last place we will find fierce competition, but it doesn't mean Socializers are passive milksops who lack ambition.
- **The Killer:** Killers are similar to Achievers in the way that they get a thrill from gaining points and winning status too. What sets them apart from Achievers is that the Killers want to see other people lose. They are highly competitive, and winning is what motivates them. They want to be the best at the game - and it should come as little surprise that the only way for that to be true is if they beat everyone else. You may expect this personality type to be common, but Bartle's research suggests that only a small number of players are Killers – less than 1% to be precise.

However, we can not stereotype. The thought patterns of the students can be a combination of more than one, although one of them frequently predominates. Nobody is solely one type of player. Knowing them and understanding their context and environment is all-important. The same happens with learning styles. Pizarro de Zulliger (2003) explains the different existing kinds and styles of learning according to various authors, and how students feel motivation with diverse sorts of activities. It is because of these reasons that teachers should offer a vast range of activities of diverse natures to try to involve all our students. In other words, if we always do the same, the same students will be engaged and encouraged, and the same will feel disinterested and unsuccessful.

Last, but not least we should take into consideration the “flow” or “estado del flujo” (Teixes, 2015, p. 28). This autor considers the concept of flow as “el estado mental en el cual la persona está completamente inmersa en la actividad que está desarrollando, centrando la atención, implicándose de manera completa y disfrutando en su práctica. El flujo supone un estado de completa absorción en la tarea” (Teixes, 2015).

Each individual presents and reaches a different state of flow that depends on their characteristics, abilities, skills and their level of competitiveness, so, when a gamification system is developed, it is important to pay attention to them.

Csikszentmihályi points out eight factors that make it possible for individuals to be in this state of mind (Csikszentmihályi, 2012, pp. 82-83):

- Make it a workable task.
- Concentration.
- Clear objectives.
- Feedback.
- Involvement effortlessly.
- Control over the actions.
- The disappearance of self-awareness.
- Loss of sense of time.

Therefore, the activity has to be adjusted to the level of the objectives and the characteristics of the individuals to avoid demotivation or boredom due to difficulty deficits or, conversely, the discouraging of the individual by excess.

2.2.Cooperative learning

According to the Dictionary of the Royal Spanish Academy of Language, "to cooperate is to work alongside another or others to achieve an end" and learn is “to acquire knowledge of something by means of study or experience”. In this way, a first approach to the concept of cooperative learning would lead us to define it as a situation where we work with others to gain knowledge.

Velázquez (2018) explains the three minimum requirements to be able to talk about cooperative learning, coinciding with several authors:

- the existence of a task that must be resolved by working in a group and that should generate learning.
- the need for individual responsibility, that is to say, each member contribution is necessary to be able to reach the group objective.

- sufficient availability of cognitive resources and social skills within the group to allow the group activity to progress.

Slavin (2014) claims that :

Motivational perspectives on cooperative learning presume that task motivation is the most important part of the process, believing that the other processes are driven by motivation. Therefore, these scholars focus primarily on the reward or goal structures under which students operate. From a motivationalist perspective, cooperative incentive structures create a situation in which the only way group members can attain their own personal goals is if the group is successful. Therefore, to meet their personal goals, group members must both help their groupmates to do whatever enables the group to succeed, and, perhaps even more importantly, to encourage their groupmates to exert maximum efforts. (Slavin, 2014, p. 786)

In other words, rewarding groups based on group performance (or the sum of individual performances) creates an interpersonal reward structure in which group members will give or withhold social reinforcers (e.g., praise, encouragement) in response to groupmates' task-related efforts (Slavin, 1983). Traditional classroom organization drive the competitive grading of the classroom. However, by having students work together toward a common goal, they may be motivated to reinforce one another for academic efforts. Some of the techniques used during this didactical proposal will be the next ones:

The Jigsaw or Aronson puzzle

The jigsaw classroom is a research-based cooperative learning technique invented and developed in the early 1970s by Elliot Aronson and his students at the University of Texas and the University of California (Aronson, Stephan, Sikes, Blaney, & Snapp, 1978). Since 1971, thousands of classrooms have used jigsaw with great success.

Cooperative learning increases student achievement if it incorporates two key elements, according to Slavin: Group goals and individual accountability. That is, groups are rewarded based on the individual learning of all group members, not on a single group product. Through this technique, the students act as tutors of their own classmates' learning while being tutored by them. It produces a positive interdependence when working together, since objectives of the participants are linked and that each one can achieve their goals if the others achieve their own. Students do not depend excessively on the teacher, but they are the

builders of their own learning. Therefore, it aims to structure the interactions between students through work teams and ensure that students depend on each other to achieve their objectives. The advantages that Aronson detected (García et al., 2019) when applying this technique were:

- It generates a very intense interaction between students because it forces them to listen to each other with attention.
- Great improvement in all students, especially in whose marginalized students.
- Significantly increases self-esteem.
- Reduce hostilities, tensions and prejudices
- Improve academic performance
- Decrease competitiveness
- It helps them see their classmates as a source of learning.

2.3.Flipped classroom

All teachers claim that they have not enough time to develop the curriculum. And, even more, if we use gamification and gamifiction in our lessons, the time it is more necessary because some dynamics and situations of the game require quite a quantity of time. A way to gain time is using the “Flipped classroom”. Flipped Classroom is a pedagogical model that transfers the work of specific learning processes outside the classroom and uses the time in the classroom to work the aspects in which the help and experience of the teacher is necessary (Santiago, 2019). Students receive instructions by indirect means. They assimilate the subject through these materials outside of lesson, and within the class the student performs activities to improve and fix that learning. The teacher is the guide that support and consolidate that theoretical learning. The main advantage is that students who understand or assimilate faster, can start this second phase before, those who need some more time can watch the video as many times as they need, earning the latter in self-confidence and avoiding the former a class of repetitions that lead to boredom and lack of motivation.

As for the advantages, it should be noted the following ones (Santiago, 2019):

It allows teachers to devote more time to attend to diversity. It takes into account the different rhythms and powers of each student.

- It is an opportunity for teachers to share information and knowledge, with students, families and the community.

- It provides students with the possibility of re-accessing the best content generated or provided by their teachers.
- Create a collaborative learning environment in the classroom.
- It involves families from the beginning of the learning process.

3. JUSTIFICATION OF THIS DIDACTICAL PROPOSAL

Some people say that bilingualism does not work in Spain. They do not take into consideration that the success of bilingualism depends on a vast range of factors, such as the teacher training, his/her level in L2 and CLIL methodology, the collaborative work between the bilingual team and the support of the management team of the school.

On the other hand, there are proven benefits and excellent student results where gamification (and gamifiction) has been implemented. Furthermore, children enjoy the process of learning at the same time.

So, why do teachers not combine both approaches to improve the social concept of bilingualism? Both share an essential principle: making the students the main protagonists of their learning through an open and active methodology. Francisco Mora says "El cerebro sólo aprende si hay emoción" (Educación 3.0, 2019). In this didactic proposal, students are always engaged in the story, through an exciting film and topic that is attractive to them such as "Ghostbusters". Even, those students who are not usually very willing to learn English can feel the impulse to participate and partake in the project. Gamification and CLIL are two approaches that match extremely well and together have incredible educational potential.

Another three essential points to link both currents are the ICT (Information and Commucation Technology), cooperative learning and the importance of the process. They are not fundamental pillars in CLIL, but the first two are tools that go hand in hand with CLIL and are widely used in order to enhance both motivations and results. Regarding the importance of the process, in CLIL and gamifiction teachers prioritise the process in itself because it is during the process when the learning is taking place. On the contrary, in the traditional school, the most important priority is the marks of the students (although next week they do not remember anything).

One vital point in gamification and gamifiction is the strong belief of the teachers in what they are doing. Beatriz Cerdán, the creator of the "Goonies project" for 4th grade of Primary,

explained in the Course "Jornadas de Buenas Prácticas sobre Gamificación" (called "Gamificatq20" in Social Media), organized by the Centro del Profesorado from Antequera (CEP Antequera, 2020) that the teacher must be the first person who enjoys and experiments the gamification. In another case, it will not work. The teacher should take on a role in the story: dress up, "go the extra mile", etc. For example, she even spoke with the Mayor to agree on a meeting with him and her students, to make sense of her project. In gamification the limit is the teachers' creativity.

As our aim is the engagement and captivation of students, the chosen movie should be exciting. The first objective is to grab their attention and spark motivation. So, I chose the film "Ghostbusters". Although it is not a trendy film at the moment, it will be very soon, because a new version will be released in cinemas in the coming months. And, having surveyed children on the chosen year, it has been the most voted with an enormous difference. I am referring to the reboot to the franchise in 2016, which starred Melissa McCarthy, Kristen Wiig, Kate McKinnon and Leslie Jones but also featured cameos from all the members of the 1984 film cast.

4. CONTEXTUALIZATION

It would take place in a group of 25 children in the 5th year of Primary Public School, located in Málaga. This school has been developing the bilingual program for many years. Therefore, my students have received bilingual classes and English classes since they were three years old. Consequently, their familiarity with English is quite wide. The population in the zone is heterogeneous; although the majority of them possess medium and high studies. Families, in general, show interest in the education of their children and language learning is a priority for them.

5. OBJECTIVES

5.1. Dissertation Objectives

General

Merging an integrated didactic bilingual proposal with gamification increases the participation and motivation of students and consequently, their results are improved.

Specifics.

- a) Create a didactic model that fosters the motivation of the students regarding bilingualism.
- b) Facilitate the takeparting of all kind of students.

5.2. Subjects Objectives

This proposal has the following objectives, according to the Primary Curriculum (Orden de 17 de marzo de 2015, por la que se desarrolla el currículo correspondiente a la Educación Primaria en Andalucía, 2015): See the Annex III to complete the information.

5.2.1. *Natural Science*

O.CN.1. Utilizar el método científico para planificar y realizar proyectos (...)

O.CN.2. Analizar y seleccionar información (...) comprobando su evolución a través de la planificación y la realización de proyectos, experimentos y experiencias cotidianas

O.CN.5. Conocer y valorar el patrimonio de Andalucía (...)

O.CN.6. Participar en grupos de trabajo poniendo en práctica valores y actitudes propias del pensamiento científico (...)

O.CN.7. Comprender la importancia del progreso científico (...)

O.CN.8. Utilizar las tecnologías de la información y la comunicación (...)

5.2.2. *Social Science*

O.CS.1. Desarrollar hábitos que favorezcan o potencien el uso de estrategias para el trabajo individual y de grupo de forma cooperativa (...).

O.CS.2. Iniciarse en el conocimiento y puesta en práctica de las estrategias para la información y la comunicación (...).

O.CS.5. Conocer y valorar el patrimonio natural y cultural de Andalucía y España (...)

O.CS.9. Descubrir y construir la propia identidad histórica, social y cultural a través de hechos relevantes de la historia de Andalucía y España (..)

O.CS.10. Despertar la curiosidad y el interés por aprender y conocer las formas de vida (...)

5.2.3. Physical Education

O.EF.1. Conocer su propio cuerpo y la relación del mismo y sus posibilidades motrices (...)

O.EF.2. Reconocer y utilizar sus capacidades físicas, habilidades motrices (...)

O.EF.3. Utilizar la imaginación, creatividad y la expresividad corporal (...)

O.EF.4. Adquirir hábitos de ejercicio físico orientados a una correcta ejecución motriz (...)

O.EF.5. Desarrollar actitudes y hábitos de tipo cooperativo y social (...)

5.3.Linguistic Objectives

5.3.1. Linguistic Objectives: Natural Science

Students will:

- be able to exchange ideas with the teacher and the classmates (BICS)
- be able to use the present tense to speak about general situations- experiments and universal truths (BICS and CALP)
- be able to use of some linguistic resources in their productions following a given model (BICS and CALP)
- be able to understand and use the modal verbs (tips to reduce energy consumption): should/must/have to (BICS and CALP)
- be able to write sentences related to energies (BICS and CALP)
- be able to recognize and use specific vocabulary associated with the unit (CALP)
- be able to take part in simple discussions, contributing with ideas and opinions (BICS and CALP)

5.3.2. Linguistic Objectives: Social Science

Students will:

- be able to read, understand and use adverbs of time (BICS)
- be able to use the past tense to speak about historical events (BICS and CALPS)
- be able to understand the passive voice (BICS)
- be able to ask and answer questions about the cultural and historical heritage of Andalusia (BICS and CALPS)

- be able to write sentences expressing logical relations of time (BICS and CALP)
- be able to recognize and use specific vocabulary associated with the unit (CALP)
- be able to take part in dialogues contributing to ideas and opinions (BICS and CALP)

5.3.3. *Linguistic Objectives: Physical Education*

Students will:

- be able to understand the explanation of games (BICS)
- be able to read and understand given instructions (BICS)
- be able to recognize and use specific vocabulary associated with the unit (CALP)
- be able to take part in explanations related with physical games (BICS and CALP)

6. COMPETENCES

As we stated before, this didactic proposal tries to cover all the key competences. Through the table 1: Key Competences 1, it is very easy to understand how it is possible:

KEY COMPETENCES	HOW DO WE DEVELOP IT?
1. Competence in Linguistic Communication. (CLC)	In “Lengua Castellana y Literatura” The students will work the narration of stories related to ghost and fiction. Thought this topic, they learn concepts such as subject and predicate, nouns, etc.
2. Mathematical competence and basic competences in science and technology (CMST)	They have to calculate and solve problems related to The Ghostbusters and ghost, or maybe with the history of Andalusia Besides, in Natural Science they will do some experiments, that are an approach to practical science.
3. Digital competence (DG)	They should use technology to look for information. They select the relevant information at home (flipped classroom), as well as in some lessons in the class. Moreover, they have to use some tools like Powerpoint or Genially to complete their final task in Social Sciences.

5. Learning to learn (L2L)	They are the players and protagonists of the process, in this case, "The Ghostbusters", so they have to decide the strategies to face a task and built their own learning. They receive continuous feedback from the "game" and have very clear the expectations that we have from them (they know the rubric and the behaviours that get points and not). In other words, they are aware of what the teacher expects from them.
6. Social and civic competences (SCC)	Obviously, this competence is developed in each cooperative activity in their groups, through cooperative learning, with pencils in the centre, the jigsaw or puzzle techniques, etc.
7. Sense of initiative and entrepreneurship (SIE)	In lots of activities and tasks, they should have initiative, develop their capacity of action and face some problems, individually, in pairs or in groups.
8. Cultural awareness and expression. (CAE)	By means the social science project where they discover relevant information from the main Andalusian cities they will know some culture expressions and traditions Andalusia. Besides, in Physical education class, they will learn a choreography, which one they have to dance and respect as a way of expression.

Table 1: Key Competences

7. CONTENTS

Taking into consideration the Curriculum of Primary Education (Orden de 17 de marzo de 2015, por la que se desarrolla el currículo correspondiente a la Educación Primaria en Andalucía, 2015), the contents of this proposal are the following ones: See annex III.

8. TIMING

This project will take a month and a half (six weeks approximately). The lessons, are distributed in the following way, according to the table 2:

 Special Events	 Natural Science lessons
 Social Science lessons	 Physical Education lessons

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25
26	27	28	29	30
31	1	2	3	4

Table 2: Timing 1

8.1. Sciences lessons timing

	NATURAL SCIENCE		SOCIAL SCIENCE
1	Sign a commitment and form the groups. Flipped classroom (Types of energies)		
2.	Mission 1: Introduce the characters Challenge Abbey Yates about types of energies (Initial assessment). Jigsaw classroom “Energy corner”	3	Patty Tollan challenge: Kahoot! About Andalusia. Flipped classroom: “Ten top places to visit in Málaga”
4.	Scaffolding about energies. “Pencils in the centre” about mechanical energy. Experiment: thermal energy	5.	Mission 2: Catch the first ghost: Aldridge mansion. Where is the Mansion? Clues

6.	Mission 2: Catch the first ghost: Aldridge mansion. Plickers about types of energies “Cooperative reading” about transformation, storage, transfer and transportation of energy.	7.	Granada video and pencils in the centre. To explain final task: Final video about Andalusian provinces and cities.
8.	“Ghostbusters” card game. Experiment “Spinning snake” To explain final task: lapbook. Flipped classroom. Watch the videos: “Energy sources” and “renewable sources” at home.	9.	Mission 3: The ghost in the tunnel. Kahoot! About all subjects. Flipped classroom: Research about Cordoba.
10.	Mission 4: Get the new equipment 1-2-4 structure about renewable and non-renewable sources to get the proton glove.	11.	Córdoba with QR codes to get laser gun. Flipped classroom: Research about Seville.
12.	Unexpected events: Ghost in the theatre Concert "Rock sneaks into school"	13.	Portfolio: Seville questions. Work team in their final product.
14.	Unexpected event: The ghost escapes into the city. Brainstorm: How to reduce energy consumption? Risks of use of energy: acid rain, radiation. Flipped classroom Time to work in teams.	15.	Meeting with the School Headteacher Mission 5 : Where is Rowan? 1-2- 4 structure about Huelva (listening for information) Clues to discover Rowan.
16.	1-2-4 structure about risks of use of energy. Time to work in groups.	17.	Historical events in chronological order on a timeline.
18.	Access to electricity: reflection. Time to work in groups in their	19.	Time to work in groups in their project.

	lapbook.		
20.	Time to work in groups in their lapbook.	21.	Time to work in groups in their final product.
22.	Mission 6: Invasion of ghosts upon the city; final task. Presentation of their lapbook.	23.	Mission 6: Invasion of ghosts upon the city; final task. Final video about Andalusian provinces and cities.

Table 3: Science timing

8.2. Physical education timing

LESSION 1	Initial Assessment. MISSION KEVIN BECKMAN	
LESSION 2	Endurance and strenght	Mini-cooperative challenge to get some materials to do an experiment.
LESSION 3	General training in a park	Unexpected events: Ghost in the theatre
LESSON 4	Speed and endurance	Mini-cooperative challenge to get some materials to do another experiment in Science.
LESSON 5	Speed and strenght	
LESSON 6	Speed	
LESSON 7	Training	
LESSON 8	Training	Look for flashcards with historical events.
LESSON 9	Speed training	Final task team 1 and 4
LESSON 10	Strenght training	Final task team 2 and 4
LESSON 11	Endurance training	Final task team 3 and 4
LESSON 12	Final assessment	

Table 4: Physical Education timing

9. METHODOLOGY

Firstly, the article number 9 about Pedagogical Methods in “Orden de 28 de junio de 2011, por la que se regula la enseñanza bilingüe en los centros docentes de la Comunidad Autónoma de Andalucía” explains that: “ (...) los centros bilingües se dotarán de un modelo metodológico, curricular y organizativo que contenga los principios del aprendizaje integrado de contenidos y lengua extranjera”. Likewise, in Instrucciones de 15 de mayo de 2019, de la Dirección General de Ordenación y Evaluación Educativa sobre la organización y funcionamiento de la enseñanza bilingüe para el curso 2019/2020, the fifth instruction is “Enfoque metodológico AICLE y PEL” where it is stated: “los centros bilingües autorizados como tales deberán impartir la enseñanza bilingüe desde el enfoque de Aprendizaje Integrado de Contenidos y Lengua Extranjera (AICLE), haciendo uso de sus propios materiales o de los elaborados por la Consejería de Educación (...)”. In both educational regulations, the compulsory use of CLIL in Spanish bilingual education is reflected. Consequently, this didactic proposal is based on AICLE (in Spanish) or CLIL (in English- Content and Language Integrated Learning). It consists of a “planned pedagogic integration of contextualized content, cognition, communication and culture into teaching and learning practice” (Coyle, Hood, & Marsh, 2010)

Coyle refers to this as the 4 C's framework (Fig. 2): (Coyle, 2006) content (subject matter), communication (language learning and using), cognition (learning and thinking processes), and culture (intercultural understanding and global citizenship).

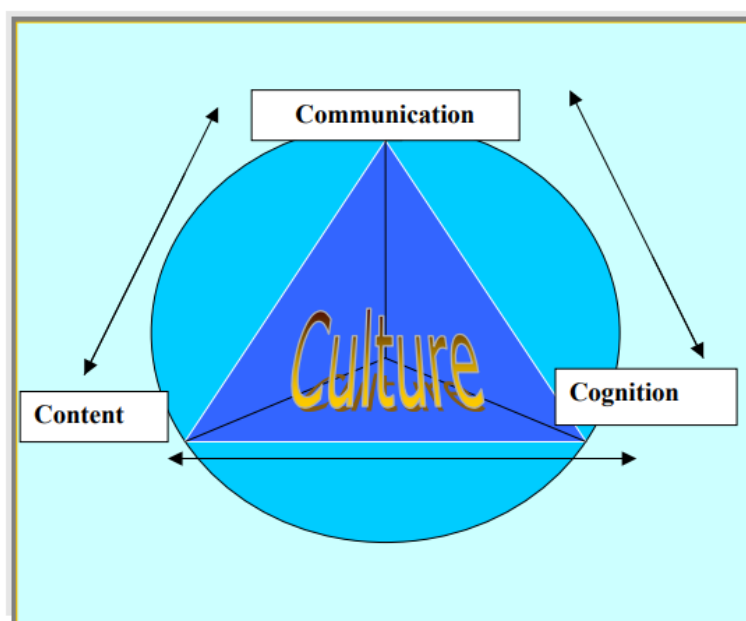


Figure 2: 4 C's framework (Coyle, 2006)

This didactic proposal respects the 4Cs framework suggested by Coyle as it is demonstrated in the following table (Table 5: Adaptation of 4Cs Planning grid):

- **Communication:** With CLIL, students study together and work in groups, talking to each other as well as to the teacher, using as much of the new language as they can.
- **Cognition:** Thinking skills such as recalling, repeating and listing, and of understanding are categorised in Bloom's Taxonomy (revised by Anderson and Krathwohl in 2001) as Lower Order Thinking Skills (LOTS). The CLIL approach attempts to encourage students to investigate and evaluate new information, leading them towards more abstract, complex and analytical questioning; that is to say, towards Higher Order Thinking Skills (HOTS). (See Figure 3: Bloom- Anderson Taxonomy).

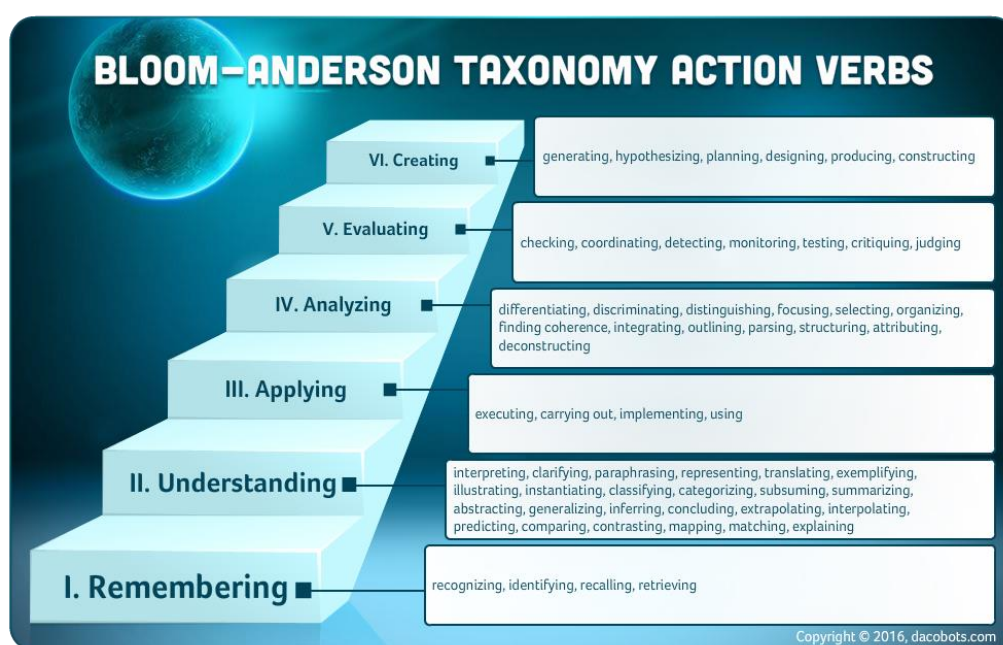


Figure 3: Bloom- Anderson Taxonomy (Dacobots.com, 2016)

- **Culture:** Exposure to alternative perspectives and shared understandings, which deepen awareness of otherness and self. CLIL involves contexts and content which enrich the learners' understanding of their own culture and those of others, strengthens intercultural understanding and promotes global citizenship.
- **Content:** Progression in knowledge, skills, and understanding related to specific elements of a defined curriculum. CLIL Teachers develop lessons around what the students already know. In this way, students build their content knowledge like building a wall.

Adaptation of 4Cs Planning Grid by Coyle, 2005

CONTENT	COGNITION	CULTURE	COMMUNICATION
Teaching aims: Natural Science: - Energy and types of energies. - Renewable and non-renewable sources. - Advantages and risks. - Responsible consumption. - Female scientists. Social Science: - Middle ages: Romans, German tribes, Visigoths, Ál- Andalus. - Christian Kingdoms. - Cultural and historical heritage Physical education: - Contents of Science - Physical capacities	Thinking skills: It is possible to see the cognitive skill used in each activity within the lesson explanation (section 14: STEP-BY-STEP PLANNING) Class activities - Group work - Individual work Scaffolding: - Visual support with flashcards and gestures. - The teacher takes into consideration the initial assessment. - They start by using LOTS to get demanded to use HOTS progressively. - Teach the same contents	Connect to topic: - cultural and historical knowledge of Andalusia. - the reality of energy sources (advantages and risks). Other cultural elements: - Responsible consumption of energies promoting active citizenship. - Reflection on the reality of otherness and self (situation in other countries concerning electricity)	Content language: (keywords, phrases, etc.) Natural Science: Chemical energy, heat or thermal energy, coal, sling, burner, etc. - Passive voice: “It is transported”, “it is produced”. - Adjectives: hot, fast, far... - Present tense: generate(s), produce(s), change(s); turn(s) off, close (s) - Modal verbs (tips to reduce energy consumption): should/must/have to Social Science: - Passive voice: “It was built”, “was converted”. “was

	differently. - The teacher gives students a simplified version of a lesson, assignment, or reading, and then gradually increases the complexity, difficulty, or sophistication over time.		conquered” - Adjectives: stunning, unforgettable, impressive - Past tense: conquered, founded, ordered. Physical education: - Present tense: tag, run, launch, throw - Specific vocabulary: warm-up, cool down, endurance, flexibility, speed, strength, muscles, etc.
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Table 5: Adaptation of 4Cs Planning grid (Coyle, 2005)

Nevertheless, when teachers are planning a CLIL lesson, there are two more C's (see figure 4: The 5 C's) to think about: Competences and Community (CLIL for Children, 2018):

- **Competences:** 'Can-do' statements describe the outcomes of a lesson. CLIL teachers think about the can-do statements they want their students to be able to make after the lesson, either about lesson content and skills - or about new language .
- **Community:** CLIL teachers help students to relate what they learn to the world around them. Students see that what they learn is not just a school subject, but something that relates to 'the real world'. The CLIL teacher therefore needs to think about: What is the relevance of this lesson to the student's daily life and surroundings?



Figure 4: The 5C's (Attard Montalto et al., 2016)

“CLIL should be rich learning environments for children, which challenge them while supporting their active, engaged involvement in learning through meaningful tasks and materials specially designed or adapted” (CLIL for Children, 2018, p.43)

There more diverse learning strategies, activities and materials teachers use, the more rewarding the learning will be and we arrive to more students (depending on their learning style). During the project, we use different methodological strategies of CLIL, such as:

- ✚ Repetition of keywords: like mechanical energy, thermal energy, nuclear energy, renewable and non renewable sources...

- ✚ Rephrasing and restating: when we are watching a video in the class, the teacher pauses the video, and asks questions and children answer. The purpose is to understand the topic and to rephrase or to restate it when children don't manage to build a sentence to answer.
- ✚ Gestures and body language: miming, representing and simulating. For example, in Physical Education the game about "Guess the mystery word"; but also during the clarifications of the contents.
- ✚ TPR (Total Physical Response): using their body while they do a cognitive exercise (select the transformation process in Physical Education: combustion, digestion).
- ✚ Demonstration: the teacher demonstrates how to play a game (in Physical Education, for example, it will be a usual strategy to explain games), so that children can understand what they need to do.
- ✚ Visualisation: the teacher uses, for example, a poster or flashcards to show content and language.
- ✚ Project work: students build a final product: lapbook or video.
- ✚ Searching on the Internet for information: for example, in order to complete their portfolio, do the final task or watch the video in the Padlet.
- ✚ Anticipating opportunities for spontaneous teacher-student talk: children are asked to talk about their previous knowledge about the topic.
- ✚ Bridging, contextualising, schema building, re-presenting text (written or oral): the teacher shows a concept-map with key-words before children read a text or watch a video. The opposite situation is also very productive: children make a concept-map after reading a text or seeing a video. We will take advantage of that working in collaboration with the English teacher, who gives support and helps with the vocabulary.

Sometimes, teachers create their own material that suits their objectives. Before creating new material, teachers should deliberate and decide the kind of material they need; if it is for listening, reading, speaking or writing. The new material "must also combine at least 2 of the following integrated CLIL principles: content, communication, cognition and culture" (CLIL for Children, 2018, p.46).

Concerning cooperative learning, that we will use to reduce the competitive factor and increase the help between classmates, during the entire proposal, we can observe different techniques, that I will cite in each case, such as the following ones:

❖ **Jigsaw or puzzle (Aronson, 1978).**

To implement this technique, the group is divided into teams, and each of its components is assigned and is responsible for a different part of the task to be carried out so that the completion of the entire topic will be conditioned by mutual cooperation. The steps of this technique are the following (García et al., 2019, p.53):

- Teams (puzzle groups) are organized to work an academic material that has been split or divided into as many sections as members have the team.
- Each team member will study or learn one of those pieces or sections.
- The different members of the different puzzle teams that will deal with the same sections meet in expert groups to discuss them.
- Students return to their initial teams (puzzle groups), and teach their section to their classmates.

❖ **Pencils in the centre**

In their teams, they take turns to read some questions and answer them orally. In this moment, it's time to listen and speak, so they put their pencils in the middle of the table. They cannot write the answer in their worksheets. Once they have finished talking and everyone knows what they have to do, it is time to hold their pencils and start writing. Now, it is time to write and they can not talk to their classmates (Weis, 2016). This methodology is used in Science class.

❖ **Collective marker**

1. All participants act individually or in small groups performing a task entrusted by the teacher.
2. Individuals or groups score based on a series of previously determined criteria, and each person or group is responsible for controlling their score.
3. The points obtained by each person or by the groups are added to the collective class marker.
4. Rewards can be established if the class achieves a certain number of points.

❖ **1, 2, 4 structure** (Cooper, Tenbrink, & Shostak, 2011)

We will do an adaptation because our groups are formed by five people instead of four:

1. When the teacher says “Think-time” students must remain silent, forming their own answers individually.
2. At the signal “Share” students turn to their classmates - in partners or trios- and exchange answers, spending some minutes to explain their thinking and resolve differences, if there are any.
3. After individual silent thinking and partner - or trio- sharing, the group compare and discuss responses together before convening the whole class for discussion.

10. MATERIALS AND RESOURCES

The materials used in Natural and Social Sciences appear in each lesson. In physical education, we use standard equipment in these areas, such as skipping ropes, chronometers, medicine balls, mats, etc. As well as flashcards related to the project.

The portfolio (see the annexe I), largely created by myself in its majority, for this specific project, is useful material for students and for myself. The Padlet (<https://es.padlet.com/laurasanteotero/4vjb9azm486n>) is also didactic material created to help students and improve the teaching-learning process, in both the classroom and through the flipped classroom.

11. TRANSVERSALITY

Schools should pay special attention to some specific skills, even if these skills are not part of the curriculum We refer to fundamental values and principles that individuals must develop in order to be part of the creation a better world. The goal 4.7 of "Agenda 2030 para el Desarrollo Sostenible de las Naciones Unidas" includes:

Garantizar que todo el alumnado adquiera los conocimientos teóricos y prácticos necesarios para promover el desarrollo sostenible, entre otras cosas mediante la educación para el desarrollo sostenible y la adopción de estilos de vida sostenibles, los derechos humanos, la igualdad de género, la promoción de una cultura de paz y no violencia, la ciudadanía mundial y la valoración de la diversidad cultural y de la contribución de la cultura al desarrollo sostenible. (UNESCO, 2015).

This proposal led to the following:

- **Education for equality:** through this project, we are highlighting the capacity of women in a field in which throughout history, it seems that they have had no place: science. However, there are numerous outstanding women in this area, who have been silenced. It is evident that this proposal has a clear purpose of achieving equality and revaluation of female scientists.
- **Environmental education:** There is an essential point in the proposal which is to reduce the energy consumption and reflect on the risks of its use, like acid rain, radioactivity, resource depletion...
- **Education for the (energy) consumption:** consists of using energies responsibly and trying to reduce energy waste. They have to critically analyze the way in which human use.
- **Health Education:** considering physical education is included in the didactic proposal along with the development of physical abilities, as well as students learning how to improve their health and the environment. Health education is important part of this project.
- **Peace Education:** Different opinions and conflict will always be present during lessons. Nevertheless, they have to learn how to work in teams using dialogue to solve their problems and to reach an agreement or solution.

12. INTERDISCIPLINARY

As already mentioned above, this project is not only a proposal in one area, it is a cohesive and connected effort in several areas, where each of them offers a special contribution into a whole unit. Although it would not be possible to specify all lessons for every subject in this proposal, they could be developed as follows:

- **Arts and crafts:** This subject presents Jillian Holtzman at the beginning. Students will be able to let their imagination run wild and be creative inventing some invention. Moreover, they can create the “Ghostbusters car” within this project, whereby they use mechanical energy to move their car. (See annexe IV)
- **English:** The teacher of this subject facilitates the watching of the Ghostbusters film in class. During the project, the teacher helps the children with videos in English about the main Andalusian cities, presenting and explaining any new vocabulary. It will be a support for the linguistic objectives- very connected with this subject objectives. In

addition, the Ghostbusters song is an excellent way to introduce and teach new vocabulary.

- **Spanish Language:** This subject could be used to develop any content. Students can learn how to narrate mystery and scary stories. Also, the ghosts can be “language mistakes”, and children should try to catch them. For example, they read a text about The Ghostbusters and have to “catch” – realize that - some mistakes in the text or classify the words depending on their grammatical category (nouns, adjectives, prepositions, adverbs.). They can invent ads (a type of text) of their inventions created in Arts and Crafts.
- **Maths:** Erin Gilbert is the face of this subject. Scientists (and Ghostbusters) need to calculate the quantities of energy that are appropriate for each experiment, or maybe the power of energy, in our case, to catch ghosts. We can also relate it to parts of the history of Andalusia, like Romans. Even, they can calculate fractions or % of the waste of energy. (See examples in annexe IV)

13. ASSESSMENT

Assess is much more than “put a score”. The more common definition is usually understood like “The process of determining to what extent the educational objectives are actually being realized” (Tyler, 1950, p. 69).

According to Orden de Evaluación (Orden de 4 de noviembre de 2015, por la que se establece la ordenación de la evaluación del proceso de aprendizaje del alumnado de Educación Primaria en la Comunidad Autónoma de Andalucía., 2015), the evaluation must be continuous, global, will have a formative character and will lead to a constant improvement of the teaching-learning process. Moreover, the article 4 states that “deberá utilizar diferentes procedimientos, técnicas e instrumentos ajustados a los criterios de evaluación, así como a las características específicas del alumnado”.

Consequently, as teachers, we know how helpful and practical the assessment is. We must see evaluation as an essential tool to improve our work and, hence, the learning process and the results. A patient and effective reflection about all elements included in the teaching-learning process is crucial.

Se precisa saber qué estrategias se van a utilizar para recoger información durante su puesta en práctica, y qué actividades van a ser aprovechadas con el objetivo de evaluar en el desarrollo de la unidad didáctica los aprendizajes conseguidos por los estudiantes. Como el propio

acrónimo indica, en CLIL se deben evaluar tanto los contenidos como el lenguaje. La evaluación se orientará a los dos polos del proceso de enseñanza-aprendizaje: el que aprende (las capacidades que un niño o niña ha desarrollado) y el que enseña (la función del educador, la planificación efectuada, las relaciones establecidas, los recursos utilizados, etc.). También se evaluará la propia unidad didáctica (si han sido adecuados cada uno de sus elementos). (Llul, Fernández, Johnson, & Peñafiel, 2016).

The evaluation includes not only tests but also a continuous assessment on the part of the teacher, who analyses both personal stakeholders (students and teachers), and other aspects, such as the school, the classroom, the syllabus, textbooks and other materials, teaching aids, etc. It also comprises the methodology used (that is to say, the teacher is also evaluated), self-evaluation, and peer-evaluation. In sum, information about the whole teaching and learning process with all the elements it involves.

13.1. When to assess?

Teachers usually distinguish four moments to assess the teaching-learning process:

- **Diagnostic assessment:** Before starting with the teaching and learning process, it is used as a tool of predictive. It is serviceable to checking students' progress in learning specific elements of the course or to detect difficulty in some areas, thus becoming a useful help for teaching.
- **Initial assessment:** It takes place at the beginning of the process. The objective is to know about the initial level of students, what knowledge they have learned previously. This initial evaluation is useful because of helping teachers to:
 - Locating individual differences: this is the basis for attention to diversity.
 - Detecting some lacunae: this information is crucial for the teacher to proceed with the development of the syllabus, by making any necessary adjustments. Maybe we should teach some previous concepts before others because there are contents that were not acquired in a specific moment in the past and they are necessary.
 - Do an appropriate scaffolding: because teachers can start from the level of knowledge of students.
- **Formative or continuous assessment:** takes place during and within the teaching and learning process. The objective is revising and, if necessary, modifying some

aspects of the syllabus or the teaching materials so as to help the students in their difficulties.

- **Summative assessment:** At the end of the process comes the time to check what the student has learned. It has a grading purpose.

13.2. How to assess?

The evaluation tools are diverse to be able to attend different types of skills and concepts. If we always use the same tool, the assessment will be a weak and incomplete task, where there will be some “lacunae” and some skills that never will be taken into consideration. Moreover, teachers must use different tools, according to the before-mentioned Orden de 4 de Noviembre de 2015.

On the other hand, as teachers of non-linguistic areas (ANL), we should think about the statement of the seventh instruction:

El profesorado de ANL y MPNL tendrá en cuenta en su evaluación los descriptores del nivel de competencia lingüística alcanzado por el alumnado de acuerdo con el MCERL, si bien priorizará el desarrollo de los objetivos propios del área, materia o módulo profesional sobre la producción lingüística, que no deberá influir negativamente en la valoración final del área. (Instrucciones de 15 de mayo de 2019, de la Dirección General de Ordenación y Evaluación Educativa sobre la organización y funcionamiento de la enseñanza bilingüe para el curso 2019/2020, 2019)

Taking all that into consideration, this proposal will be evaluated as follows (See Annexe III for more information: 3.3. Assessment criteria/Learning standards/key competences/ Techniques and instruments):

- **Natural and Social Sciences**
 - Rubric about assessment criteria: 70%
 - Portfolio (formative and final assesment): 10%
 - Final task (final assesment): 10 %
 - Extra activities: 10% .
- **Physical Education:**
 - Rubric about assessment criteria: 90%
 - Extra points: 10%

14. STEP-BY-STEP PLANNING

As we will use the story line from the film “Ghostbusters”, following the thread of the film, we observe these essential situations in this proposal:

- Mission 1: Introduce the characters
- Mission 2: Catch the first ghost: Aldridge mansion
- Mission 3: The ghost in the tunnel.
- Mission 4: Get the new equipment
- Unexpected event: : Ghost in the musical theatre.
- Unexpected event: The ghost escapes into the city.
- Feedback: Meeting with Headteacher.
- Mission 5: Where is Rowan?
- Mission 6: Invasion of ghosts upon the city.

MISSION 1: INTRODUCE THE CHARACTERS (INITIAL ASSESSMENT)

CHALLENGE	CHARACTERS	ACTIVITIES
1: Natural Science	Abbey Yates is professor from Kenneth P. Higgins Institute	Complete the portfolio (page 4 of the portfolio)
2: Maths	Erin Gilbert is a professor from Columbia University specializing in theoretical particle physics.	Calculation test
3: Arts and English	Jilliam Holtzman is an engineer.	Create an invention: design, explain its function and how it works.
4: Physical Education	Kevin Beckman is the receptionist.	Physical capacity circuit
5: Social Science	Patty Tolan is an employee of the MTA in New York, who knows perfectly this city.	Kahoot! About Andalusia

Table 8: Characters challenges

TITLE: GHOSTBUSTERS PROJECT		GROUP/YEAR: 5° Primary School		
LESSON	STAGES- PROCEDURE	COGNITIVE SKILLS	MATERIALS REOURCES NEEDED	GROUP ORGANIZATION
	Motivation Motivational video a week before: When they arrive in the classroom, there will be a video about the “Ghostbusters” on the digital board, to awaken in students a sense of wonder and mystery. https://www.youtube.com/watch?v=bJHMe0nwX_s	2. Understand	Digital Board Video	All the class
1	Initial assessment - Sign a commitment to participate as a “Ghostbuster” and accept the mission to catch the ghost of Andalusia. - Form the heterogeneous teams “randomly”. (Teacher should try groups are balanced and well-adjusted). Each group will choose a name for their team, which they keep until the end of the unit. - Flipped classroom: at home, they have to watch video number one in Paddlet, which is about energy and types of		Classdojo Computers and	All the class

	energy: https://padlet.com/laurasanteotero/4vjb9azm486n and answer the questions that appear (See in the Annex II) that I previously did with the application Edpuzzle. With this app, we can see if students have watched the video or not and their answers.	2. Identify, understand, interpret	Wifi	Individually at home
2	Mission 1: Introduce the characters: In the film, there are five main characters. Each one of them is related to an area involved in the project. Students should overcome a challenge in these areas (that is, the initial assessment of each subject): Abbey Yates (Natural Science), Erin Gilbert (Maths), Jillian Holtzman (Arts and Crafts), Patty Tolan (Social Science), Kevin Beckman (Physical Education). Natural Science People who watched the video “What is energy?” gain 5 points of energy for their group. We add the energy points through ClassDojo. - Abbey Yates challenge: They have to complete individually page 3 of the portfolio (to find out how much they know about energies). If they answer correctly, at least at three questions, they overcome the challenge, and the teacher will give the Abbey Yates sticker to paste on page 2	1. identify, 2. understand, 2. interpret	PC with Wifi Portfolio Pencil, rubber...	Individually

	of the portfolio. - Using the Jigsaw classroom (Aronson, 1970), each group member goes to an “Energy corner”. There, the five members from different teams have an Android tablet, where they can watch a video about their assigned energy: thermal, chemical, nuclear, electrical or light energy. All of them are in the Padlet. They can also read -to more information- a website called: https://www.eschooltoday.com/energy/kinds-of-energy/what-is-electrical-energy.html (available in the Padlet). We will study mechanical energy and other energies in the next class. They should learn and take notes about this type of energy and later return and explain the energy to the rest of their group. The teacher encourages others in the group to ask questions to clarify. They should complete the portfolio (pages 4 and 5) when the lesson has finished.	2. Understand 2. Understand 3. Interpret, explain	Android tablets’ Padlet Portfolio Pencil, rubber...	Groups of five Groups of five
3	Social Science - Patty Tolan challenge: Patty knows New York very well. Do our students know Andalusia? Let’s check. We carry out the initial assessment about Andalusia by means of Kahoot! (See the annex II). Each team answers the questions with an	1.Remember 2. Identify	Digital board Android tablets’	Groups of five

	Android Tablet. Some questions will be obvious so that they can succeed in the challenge. However, we want to find out how much they know. We are looking to know the starting point students are at. If the groups answer correctly at least 5 out of ten questions, they will overcome the challenge, and the teacher will give the Patty Tolan sticker to paste on page 2 of the portfolio. - Flipped classroom: We inform them that they have to watch the video “Ten top places to visit in Málaga” (included in the Paddlet) at home and cover question number 2 (Top ten) in the portfolio for next day.	2. Understand, identify	Pc with Internet	Individually
4	Natural Science: - Scaffolding: We review types of energy with an oral summary done through the teacher questions and the answers of the students. The teacher does an outline on the board with the support of flashcards. - Viewing the video about mechanical energy (in Padlet) and by means of “Pencil in the centre” (see the Methodology section), they have to speak about what mechanical energy is, including kinetic and potential energy. Later they complete their portfolio (page 5).	2. Identify, understand, describe	Board Flashcards Padlet Portfolio Pencil, rubber...	The whole classroom Groups of five

	- Experiment: We do an experiment with the supplies they have got in Physical Education: Thermal energy transfer. (See pages 6 and 7 portfolio). - For the next class, they can fill in the last space in the table, about other energies. We aim to encourage their curiosity, looking for some more types of energy, such as gravitational or sound energy (5 extra energy points if they do it).	4. Analyse, experiment 2. Understand, describe	Supplies of the experiment Pencil, rubber...	The whole classroom and individually Individually
5	Mission 2. Catch the first ghost: Aldridge mansion This mission has three parts: - Physical education endurance challenge. - Social Science: Guess where the Aldridge mansion is. - Natural Science: final test about types of energies. Social Science First of all, they have to guess where the Aldridge mansion is. For that, they should: - If they have watched the video and answered question about “Top ten”, they gain 5 extra energy points per person. (See page 8 of the portfolio). - They have to write the main visiting points of Málaga on the map -on page 9 of the portfolio.	3. Select,	Classdojo Portfolio	Groups of five

	- Questions number 3, 4, and 5 in the portfolio are given to the students at this moment. They should answer correctly to get the next clue. - Clue: (3,3). They have the Cartesian coordinates where the Mansion is, according to their map. (The place is “Gibralfaro”). - If they visit important places in Andalusian cities throughout the project and send an email with evidence - a photo of themselves at the place with the “Ghostbusters” symbol - they will gain ten extra energy points to highlight and recognize their effort and interest in our history and cultural heritage in a life experience way, instead of only through books and information. - We inform groups who already know where the mansion is that the challenge is about types of energies so that they can review and clear up their doubts with their classmates. Groups who do not know at this stage should go on investigating to find out until next lesson.	judge, value.	Pencil, rubber...	
6	Natural Science - “Cooperative reading” about transformation, storage, transfer and transportation of energy. (See the Portfolio page	2. Read, understand,	Portfolio reading	

	11, annex I). We give one card to each member of each group. The student holding card one reads the first short extract of text aloud. Then she/he asks a question about the text beginning “I wonder...Student 2 and 3 explain what the paragraph is about in their own words. Student 4 predicts what the next paragraph will be about. Student 5 summarises all of the text so far. Once all 5 members of the group have completed their task, they read the rest of the parts in the same way. When they finish, we share the ideas of the text. They have to explain what each part of the text is about in their portfolio. - We check the learning about types of energies with Plickers (Formative assessment: see annex II). It is the final part of the challenge of Aldrich ghost. They need at least 200 points to defeat the Aldrich ghost. Each correct answer gives them 1 point (25x10=250), but they have extra points if they have overcome the Physical Education part (endurance test). Now, it is the moment to apply the knowledge learned.	summarizes explain 3.Question 1.Remember 2. Understand, recognize	Pencil, rubber... Digital Board Plickers Cards	Groups of five Whole classroom Individually
7.	Social Science - We watch the video about Granada (see Padlet). - Using the “pencils in the centre” technique, they speak about	1. Remember. 2. Identify,	Digital Board	All the class

	the questionnaire (see the portfolio in Annex I). Later, they will be able to write the answers. We check the answers. If they have answered correctly, 5 extra energy points are gained by each group. - We explain the final task of the area. Students have to prepare a tourism video about culture, history, gastronomy and nature. We use the random option of ClassDojo to let them choose the province to work in. They have to read, select information and draft their work. Originality and creativity will be considered. They should send by e-mail some pictures to use during this video, to use with the application Chromavid.	explain, describe	Portfolio Pencil, rubber... ClassDojo	Groups of five All the class
8	Natural Science - Experiment: We do an experiment with the supplies they have got in Physical Education: spinning snake. If they prepare an experiment about energies, they get 5 extra energy points for themselves and their group. - We learn how to play the “Ghostbusters” card game (see in Annex V- own design using “http://www.hearthcards.net/”). We explain the final task of the subject Students have to make a lapbook about energies. Like in Social Sciences,	4. Analyse, experiment 2. Understand Relate	Supplies of the experiment Portfolio Card game (annex V)	Whole classroom Individually Groups of five

	originality and creativity give them extra points. We provide them with the rubric of the evaluation. - Flipped classroom: Watch the videos: “Energy sources” and “Sources of Energy” at home.	2. Understand 3. Interpret 4. Distinguish	PC with Internet	Individually
9	• Mission 3: The ghost in the tunnel. Going to a park to do circuit training, in the underground, we find a strange man- Rowan North- who is rambling on about a "fourth cataclysm". (He is really our accomplice). Later, they discover a ghost. (We have spoken previously with the security people at the metro to be able to put up a poster on a wall). Social Science When they come back to the school the next day, there is a video with the same ghost on the digital board. To defeat it, they should answer some questions about of all subjects through Kahoot! (See Annex II, section 2.3.).Students have already seen some contents – and others not yet. Each correct answer gives them one energy point. They should add 50 points between all groups to fight against the ghost in the tunnel. It is a challenging mission that, probably, they will not pass, like in the film the Ghostbusters do not defeat the ghost of the tunnel. Flipped classroom: They should research about Cordoba and its	1.Remember. 2. Understand	Digital Board Kahoot! Android Tablets	Whole classroom Groups of five Individually

	relevant history and cultural heritage. (5 extra energy points).			
10	- Mission 4: Get the new equipment They must prepare themselves and get much more powerful and effective equipment to fight against ghosts: laser gun, a grenade, and a proton glove. - Laser gun: Challenge in Social Sciences. - Grenade: Challenge in Physical education. - Proton glove: Challenge in Natural Sciences. Natural Sciences They will try to get the proton glove to fight against the ghosts. - Using the 1-2-4 structure, they have to complete page 16 of the portfolio (Annex I) with their initial ideas about energy sources (renewable and non-renewable). - Later, we watch again- the whole class- the videos about that in the Padlet. - In groups, they try to complete the table (see portfolio) - Scaffolding and checking the final answers. If they do it correctly, they gain the proton glove. Reviewing the information with an oral summary done through the teacher questions and the answers of the students. The teacher does an outline on the board with the support of flashcards.	3. Interpret 4. Analyse 5. Value, judge	Digital Board Padlet Flashcards	Individually Pairs- trios Groups of five Whole class Groups of five

11	Social Science In this lesson, they can gain a laser gun for the class. Pictures of relevant places in Cordoba are located on the walls of the gym. Moreover, there are QR codes. They should scan the code and read the information to link with the correct picture (page 17 and 18 of the portfolio). Also, they should take notes about the historical part on the same page. If all groups are able to relate the pictures with the QR code, the laser gun will be theirs. Flipped classroom: They should watch the video in the Padlet and research about Seville and its relevant history and cultural heritage. (5 extra energy points).	2. Identify, relate. 4. Investigate	Android tables QR codes Portfolio	Groups of five
12.	Unexpected event: Ghost in the theatre During the concert "Rock sneaks into school" (https://www.escenariopedagogico.com/obras/el-rock-se-cuela-en-la-escuela/) as happens in the film, a ghost appears. We will have settled a special show with the band where "a ghost" attacks the singer and they ask the students for help. How? They will ask some questions about energies. If students answer properly, they can step onto the stage to "hit" the ghost and defeat it.	1. Remember 2. Identify, recognize		Whole classroom

13.	Social Science - If they have watched the videos about Seville at home, they get 5 extra energy points for their group. Now, in work teams, they should answer page 19 of the portfolio about this city (see Annex I). Later, they will share their answers with the whole class. We use the rest of the lesson to let them organise their project.	1. Remember 2. Recognize 6. Create, investigate, design	Classdojo	Groups of five Whole class Groups of five
14.	Unexpected item: The ghost escapes into the city. Natural Science When they arrive at class the next day, they find a video of the ghost of yesterday. It has escaped, and students have lost half of the energy points in ClassDojo. - Brainstorm about how to reduce energy consumption and problems related to energy sources (acid rain, radiation...). The teacher leads students with questions and scaffolding. For the next day, they should investigate these topics. (Padlet) - Time to work in groups in their lapbook. Teacher goes to the groups supervising and helping.	4. Analyze, 5. Judge, value 6. Investigate 6. Create, design, develop	Classdojo Pencil rubbers...	Whole class Groups of five
	When they arrive in class, they have a letter with an invitation to a meeting with the School Headteacher the next day- like in the film Ghostbusters they go to speak with the Mayor.			

	fruits and vegetables. The solution is the “Atarazanas Mercado”. (Like in the film it is “Hotel Mercado”) In the next physical education lesson, they have to face Rowan.			
16.	Natural Science We use the 1-2-4 structure (adapted) and visual thinking to complete the risks of use of energy and energy-saving tips on page 20 of the portfolio. Time to work in groups in their lapbook. Teacher goes to the groups supervising and helping.	5.Examine 6. Judge, value 6.Design, create	Portfolio Pencils, rubber...	Groups of five
17	Social Science Last opportunity to prepare themselves and get energy points! In this lesson, they have to put some historical events that happened in Andalusia in chronological order on a timeline. Each group discuss and decide their answer and later, the whole class should reach an agreement. Scaffolding and review key vocabulary and concepts.	5.Apply, solve 6.Design, create	Labels about historical events	Groups of five
18.	Natural Science Reflection about the access to electricity (Padlet and Portfolio, p.24). Time to work in groups in their lapbook. The teacher goes around	4.Analyse, differentiate 5. Judge, value	Padlet Portfolio	Groups of five

	the groups supervising and helping. The number of lessons for doing that will depend on the students.	6.Design, create		Groups of five
19.	Social Science Time to work in groups in their final product. The teacher goes round the groups supervising and helping. The number of classes for doing that will depend on the students. However, in one or two lessons more, they should finish the project. We can start to film some scenes that students have already prepared.	6.Design, create, develop, construct		Groups of five
20.	Natural Science Time to work in groups in their lapbook. The teacher goes around the groups supervising and helping. The number of lessons for doing that will depend on the students.	6.Design, create, develop, construct		Groups of five
21.	Social Science Time to work in groups in their project. The teacher goes round the groups supervising and helping. The number of classes for doing that will depend on the students. However, in one or two lessons more, they should finish the project. We can start to film some scenes that students have already prepared.	6.Design, create, develop, construct		Groups of five

22.	Natural Science Mission 6: Invasion of ghosts upon the city; final task. Final task: Groups present their lapbook, taking into consideration the given rubric. At the end of each presentation, their classmates will value and evaluate them through Plickers questions (See Annexe III. Section 3.3.4. More assessment Instruments) that respond to the rubric and a small oral assessment. Depending on the results, they gain marks (maximun 3000 – 1000 per item) The teacher has a lot of ghosts on flashcards, located on the walls in the class. Each of them has a specific number of energy points that are necessary to defeat each one. As students are gaining energy points, they can catch a ghost. Depending on how well they do, they will be able to catch more or fewer ghosts. Teacher will say the scores at the end.	5.Critique, evaluate, value	Elaborated products by the students	Whole class
23.	Social Science Mission 6: Invasion of ghosts upon the city; final task. We watch the video edited from all the groups about the five provinces. At the end of every video, they do the same as in natural science. But this time only with a poster with the final result. Each team should score the other groups. (See the rubric in the annex)	5.Critique, evaluate, value	Digital board	Whole class

	With this honest marking and the teacher's grade, they can continue catching the ghosts. If all the teams are able to catch the ghosts, they will overcome the invasion.			
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Physical Education lessons

LESSION 1: Initial Assessment. MISSION KEVIN BECKMAN	
Info.	Teacher gives some copies to the students where they should write their results. The group should get 15 energy points with the following activities:
Warm up	General warm up: 2 laps to the court running, skipping, kick back, running crossing legs, running sideways...
Main lesson	1.25 M RACE: the sum of the time from all members cannot surpass 2 minutes (SPEED). They gain 5 energy points if they achieve it. 2.COURSE NAVETTE TEST: Students must run from one line to another before a timed beep in the audio. They should reach the line before the next beep, but as the test continues, the time between beeps gets shorter. Once one can no longer run, or she/he does not arrive before the beep, the test is over, and the level where each stopped is registered. (ENDURANCE). If the sum of their levels surpasses 20, they get 5 energy points. 3.LAUNCH OF THE MEDICINE BALL. The movement is executed standing, with the ball between the hands above the head and with a distance between the legs similar to that between the shoulders. Arching the body back and throwing the arms back, maintaining the balance in the eccentric phase they must quickly contract the muscles of the abdomen, dorsals and triceps in a whip effect movement and throw the ball as far as possible. (STRENGTH). To get 5 energy points, they should overpass 5 metres of distance between all members of the group.
Cool down	Sitting on the floor with legs together and extended forward. The trunk is flexed forward and they should try to reach with both hands towards their feet as far as possible. Once they can no longer flex, they should maintain this position for a few seconds. The distance will be measured. (FLEXIBILITY)

SESSION 2 : ENDURANCE AND STRENGTH	
Info	In the beginning, the teacher explains that they have to achieve three mini-cooperative challenge to get some materials to do an experiment in Science.
Warm up	THE ATOMS: Students are electrons, protons and neutrons. When the teacher says atoms of 3: they should try to form an atom with three particles, one of each type. In every atom must always be the same number of each kind; although it is permitted fewer neutrons. Teacher will say different numbers and they should make groups of that number as soon as they can.
Main lesson	1.FLOW OF ELECTRONS: electricity is a continuous flow of electrons, so now students are electrons, and all the students should achieve 75 laps to the court simulating the generating an electric current to shoot their “laser gun” to catch the ghost of Aldridge mansion. If they get it, between all the students, they get 5 energy points to the gun and materials for the first experiment: 3 jars (ENDURANCE). 2.CATERPILLAR: each group, over the mat, should move it through synchronised small jumps If 3 groups are able to do it, they get another material for the experiment: Food colouring (COOP. AND STRENGTH) 3.THE FLYING MAT: the group is placed on each side of a mat placed vertically. They must lift it by pressing it with their backs. Once they have got it elevated, they must take a tour without the mat falling. If 3 groups are able to handle the challenge, they get another supply: labels. (STRENGTH)
Cool down	GET THE SAFETY GOGGLES. In pairs, from different groups, with safety glasses for experiments over their head. Both partners are sitting down facing each other, with legs separated and stretched. Every person tries to “steal” the glasses to her/his partner. (FLEXIBILITY)

SESSION 3: GENERAL TRAINING IN A PARK	
Info	On the subway, on their way to the park they have seen a ghost. (Explained in Science lessons). For security reasons, two teachers accompany the students.
Warm up	They have to run several laps around the park to warm up. The exercises will be changed throughout the warm up: skipping, kickbacks, running sideways, running with crossed legs along parts of the path.
Main lesson	1.TRY TO CATCH THE GHOSTS: During the warm up, teachers have distributed flashcards and white handkerchiefs around a defined area. Each team has to try to get as many ghosts as possible. (SPEED) 2. GENERATING ENERGY: They should be continuously running/racing within the boundaries (ENDURANCE). 3. WHEELBARROW: The children are put into pairs; they must be similar height and weight. One child should be standing and grab the other child's ankles as they are resting their hands on the ground. Then they switch positions. (STRENGTH) 4. THROW YOUR OPPONENTS: It is played in pairs. Children face each other, step their right leg forward so they are touching laterally. The opponents hold right hands. They have pull and push the opponents to knock them off balance. (STRENGTH)-. Like in the film Ghostbusters they have to apply their strength to save Erin and themselves from the train that is coming.
Cool down	RELAXING: lying down on their mats, the teacher is leading the muscle relaxation using mindfulness techniques (body scan).

SESSION 4: SPEED AND ENDURANCE	
Info	The teacher explains that they have to achieve three mini-cooperative challenge to get some materials to do another experiment in Science.
Warm up	THERMAL/HEAT ENERGY: they are cold particles, who move very slowly. Bit by bit, the teacher explains that the heat is rising. So, their speed should also increase, as well as the temperature. At the end, they should be running quite fast. The teacher controls the pace with a whistle.
Main lesson	1.CHEMICAL ENERGY: There are some objects such us toy food, batteries, a piece of wood or stick, a toy flower, a bottle with black paint (petrol) and coal. Each group should change these objects from one hoop located on the floor to another one (where there are flashcards- see the annex- with words like combustion, photosynthesis, digestion, etc.). These objects represent some examples of chemical energy, which during the race they undergo a transformation. They have to put it in the correct hoop related with their transformation. For example, the coal in the combustion, the toy food in digestion. (SPEED). If they are wrong only twice, they achieve a candle for the experiment. 2. ACCUMULATION OF ENERGY: Between all students in the class, they should jump with the skipping rope (if somebody does not know, the team should encourage and help him/her). Summing 500 jumps (20 each person, more or less) they will accumulate enough energy for their laser guns and a necessary item for the next experiment: a cardboard circle (ENDURANCE). 3. MECHANICAL ENERGY: each group behind a line. They have to throw ghost-tennis balls- towards a shoebox, by turns. The class need to get 25 balls caught to obtain the next material: a glass with salt. (TARGET PRACTISE)
Cool down	HANDWARMER. This game is played in pairs. One person puts his/her palms over a classmate´s palms. The person with palms up tries to hit the hands of the classmate who has her/his palms down. The other person tries to remove his/her hands quickly to avoid being hit. Change. (REACTION SPEED)

SESSION 5: SPEED AND STRENGTH	
Warm up	ENERGY TAG: There are five different groups (mechanical energy, nuclear energy, thermal energy, chemical energy, light energy) using the flashcards (see the annex), the teacher divides the class into these five groups. To the signal of mechanical energy, people in this group will be the “it” (they have to tag everybody); if the teacher says "nuclear energy" this group have to tag. When somebody is tagged, he/she should jump ten times to save himself/herself.
Main lesson	1. AT THE SPEED OF LIGHT: Races in different ways: forwards, sideways, steps on one foot, jumping with skipping ropes, jumping hurdles, etc. With active rests (walking). 2. CATCH THE GHOST: the five teams should situate equidistant from a point where the teacher is located. Each person in each group is a character of the film: Abbey, Erin, Kevin, Jillian and Patty. The teacher has white handkerchiefs that represent the ghost. The teacher will name one character, who has to run and pick up the ghost- handkerchief before the other characters from the other teams. (SPEED) 3. TURN THE OMELETTE UPSIDE: each group should turn a person (from the other group) in the mat from “face-down” to “face-up”. The person in the mat should offer some resistance.(STRENGTH)
Cool down	WIND ENERGY: Explanation about thoracic breathing and abdominal breathing. Students practise out-breath and in-breath several times with both techniques in the supine position. Later, in the same groups, they transform their breath in mechanical energy to move ping pong balls from one hoop to another hoop located near.

SESSION 6: SPEED	
Warm up	MAGNETISM: 5 people are magnets who have to tag people. When they tag someone, he/she also turns in a magnet.
Main lesson	1. TRANSPORTING THE ENERGY: in their groups, they should transport the maximum number of balls-energy-, from one point to another -like high tension cables-, using the mats without losing the control and avoiding falling to the floor. If they get to transfer 25 balls between all the class, they get 5 extra energy points. (COOPERATION AND SPEED) 2. MECHANICAL ENERGY: in the same groups. With the help of mechanical energy, they should win the ghosts. The ghosts are some empty cans of fizzy drinks with ghost drawings (made in Art class). They have to throw a ball at the cans and knock them over. (TARGET PRACTISE) 3. GHOSTBUSTERS HOOPS: when the "ghostbusters" song plays they have to dance to the rhythm and move around some hoops located on the floor. When the music stops, they should step inside a hoop, sharing the space in them, avoiding that anybody is outside of them; that is to say, they have to protect themselves from the ghosts. (SPEED and CORPORAL EXPRESSION)
Cool down	PROPERTIES OF MATTER: Teacher says different materials and students should try to represent them with their bodies, e.g. rock, butter, quartz, foam, etc. (CORPORAL EXPRESSION). We finish with “butter”, relaxing on the floor.

SESSION 7: SPEED AND STRENGTH	
Warm up	NUCLEAR ENERGY: The class is divided into two groups. They should walk all together around the space without falling down. The teacher is going to say numbers lower than 12, for example, “atoms of 6” and the students should divide into smaller groups each time, imitating the nuclear fission.
Main lesson	1. GHOSTBUSTERS TAG: 5 people are Ghostbusters and the other students are ghosts. Ghostbusters has to tag everybody. When someone is tagged, she/he has to be frozen with his/her legs separated. The others ghosts can free them going through their legs. 2. FIGHT: In pairs. The students are crouching, facing each other with open hands and have to push hard against each other. They are not allowed to grab, get up or lean on the floor. Who ever falls first, loses.(STRENGTH) 3. GHOSTS AGAINST GHOSTBUSTERS: There are two groups –one of them are Ghostbusters and the other one are ghosts-, placing each one along a rope and facing each other. A handkerchief will be placed in the centre of the rope, which will be used to see who wins. In this way, two parallel lines are made on the ground, so that the handkerchief is between them. At the signal of the teacher, everyone starts to pull the rope and the team that manages to bring the handkerchief to their line wins. (STRENGTH) 4. DANCE: prepare the choreography of “Ghostbusters” song. (CORPORAL EXPRESSION and ENDURANCE)
Cool down	GUESS THE MYSTERY ENERGY WORD: through gestures and mimics. (See the flashcards in the annexes) like for example: digestion (transformation), toaster, television, dryer; types of energies: mechanical...

SESSION 8: TRAINING	
Warm up	ENERGY TAG: There are five different groups (mechanical energy, nuclear energy, thermal energy, chemical energy, light energy) using the flashcards (see the annex), the teacher divides the class into these five groups. To the signal of mechanical energy, people in this group will be the “it” (they have to tag everybody); if the teacher says "nuclear energy" this group have to tag. When somebody is tagged, he/she should jump ten times to save himself/herself.
Main lesson	1. LOOKING FOR THE HISTORICAL EVENTS: all the class should look for flashcards with historical events that happened in Andalusia around the playground (later in Science lesson, they have to order them on a timeline.) (SPEED) 2. DRAG THE PARTNER: in pairs, students stand facing each other holding hands. The aim of this activity is to pull their opponent as far as they can. The student who wins is the student who can drag their partner a greater distance. Then switch partners. 3. DANCE: prepare the choreography of “Ghostbusters” song. (CORPORAL EXPRESSION and ENDURANCE)
Cool down	RELAXING: lying down on their mats, the teacher is leading the muscle relaxation using mindfulness techniques (body scan). For the next day: each group should choose 3 games related to physical capacities (either done in class or new ones) to explain in class to their classmates. The teacher distributes the capacities to the different groups.

SESSION 9 : SPEED TRAINING	
Warm up	MAGNETISM: 5 people are magnets who have to tag people. When they tag someone, he/she also turns in a magnet.
Main lesson	Group 1 explains 3 games about SPEED.
Cool down	Group 4 explains 1 game about FLEXIBILITY ORAL REFLECTION: a discussion about the games explained by the students- if they were appropriate or not, if classmates liked the games-, the oral skills (vocabulary, pronunciation, fluency...)

SESSION 10 : STRENGTH TRAINING	
Warm up	GHOSTBUSTERS TAG: 5 people are Ghostbusters and the other students are ghosts. Ghostbusters has to tag everybody. When someone is tagged, she/he has to be frozen with his/her legs separated. The others ghosts can free them going through their legs.
Main lesson	Group 2 explains 3 games about STRENGTH
Cool down	Group 4 explains 1 game about FLEXIBILITY ORAL REFLECTION: like last day.

SESSION 11 : ENDURANCE TRAINING	
Warm up	MAGNETISM: 5 people are magnets who have to tag people. When they tag someone, he/she also turns in a magnet.
Main lesson	Group 3 explains 1 or 2 games about ENDURANCE.
Cool down	Group 4 explains 1 game about FLEXIBILITY ORAL REFLECTION: like last day.

LESSION 12: Final assessment	
Info.	We are going to compare their results today with the results from the first day.
Warm up	General warm up: 2 laps to the court running, skipping, kick back, running crossing legs, running sideways...
Main lesson	1.25 M RACE: the sum of the time from all members cannot surpass 2 minutes (SPEED). They gain 5 energy points if they achieve it. 2. COURSE NAVETTE TEST: Students must run from one line to another before a timed beep in the audio. They should reach the line before the next beep, but as the test continues, the time between beeps gets shorter. Once one can no longer run, or she/he does not arrive before the beep, the test is over, and the level where each stopped is registered. (ENDURANCE). If the sum of their levels surpasses 20, they get 5 energy points. 3. LAUNCH OF THE MEDICINE BALL. The movement is executed standing, with the ball between the hands above the head and with a distance between the legs similar to that between the shoulders. Arching the body back and throwing the arms back, maintaining the balance in the eccentric phase they must quickly contract the muscles of the abdomen, dorsal and triceps in a whip effect movement and throw the ball as far as possible. (STRENGTH). To get 5 energy points, they should overpass 5 metres of distance between all members of the group.
Cool down	Sitting on the floor with legs together and extended forward. The trunk is flexed forward and they should try to reach with both hands towards their feet as far as possible. Once they can no longer flex, they should maintain this position for a few seconds. The distance will be measured. (FLEXIBILITY)

15. CONCLUSION

Although it has not been possible to develop this didactic proposal in a real class as a whole because I am not teaching all these subjects at that level currently, some Physical Education activities have been undertaken with great success. The students react with more enthusiasm when a game has meaning, and they are involved in a story than when it is only a simple game; it is to say, when we follow a narrative line. It is not difficult to observe radical, rapid shifts in attitude when gamification and gamifiction techniques are implemented. Based on other similar experiences in Primary Education, on colleagues' opinions of this project and my own experience, it is expected that children will respond with deep commitment and their motivation will be increased significantly. Consequently, much more meaningful learning will be achieved overall.

One of the most difficult tasks to be able to develop this didactical proposal, and wherever integrated proposal, is to find enough time for the whole teaching staff to meet to plan and design the project. Additionally, that the teaching staff share the same educational philosophy and are willing to become involved can be challenging.

Nevertheless, with this didactic proposal, it has been shown it is possible to work the contents of each area, in a related way in a coherent unit with the same theme or thread. At the same time, children develop competence tasks, since they do not only learn content by memorising it, but must use their common sense, be critical and build their own knowledge. They learn as a team, developing their social skills such as the use of dialogue, tolerance, respect for different opinions or the commitment to the team. Besides that they do it in a motivating and fun way, involving what they are doing thanks to gamification and gamifiction.

We can not forget the pillars of CLIL that are presented in this project:

- **Content:** there is a clear learning content in each subject (as we can see in annexe III and the table about 4Cs Planning Grid)
- **Cognition:** they start from using LOTS (Lower Order Thinking Skills) to progressively get demanded to use HOTS (High Order Thinking Skills)
- **Communication:** students have to communicate with each other and with the teacher. They are always using one or more communicative skills: reading, listening, writing or speaking.; achieving the proposed language objectives.

- **Culture:** this proposal widens their cultural knowledge of Andalusia clearly, understanding its historical past, and other related cultures (such as the Arabs). But also the present and future reality for them and the others- the otherness- concerning energy sources and its consequences on Earth, making them aware and responsible for their actions to promote active citizenship. It is connected to the aforementioned transversality section.

Last but not least, I would like to highlight the importance of permanent and constant teacher training as well as their personal beliefs and motivations. It would not have been possible to develop this ambitious project without being knowledgeable of the latest innovative methodologies, through continuous recycling in workshops, courses, masters, etc. Furthermore, the deep conviction that CLIL works - personal beliefs- and strong motivation are essential ingredients that can never lack in a bilingual teacher who always desires to improve.

16. REFERENCES

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17. ANNEXES