Centro de Estudios de Postgrado
Máster Interuniversitario en Enseñanza Bilingüe y AICLE

UNIVERSIDAD DE JAÉN

UNIVERSIDAD DE CÓRDOBA

Master's Dissertation/
Trabajo Fin de Máster

MUSIC AS A RESOURCE FOR TEACHING NATURAL SCIENCE IN ENGLISH

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July, 2021

MIEB
MASTER INTERUNIVERSITARIO EN ENSEÑANZA BILINGÜE Y AICLE

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Abstract:

Teaching in compensatory schools usually entails added difficulties because of the particular type of students enrolled. In this learning context, CLIL lessons have to be carefully designed in order to cater for motivation and interest for students. The aim of this dissertation is to develop a didactic proposal for educational intervention based on the use of songs as a resource to motivate and improve learning in non-linguistic subjects, in our case Natural Sciences, where English is used as vehicular language for learning content. Accordingly, a theoretical account of the literature of music and learning in CLIL has been provided, and a didactic proposal has been proposed for this particular context. Finally, conclusions have been exposed, with a special emphasis on the specific measures that can be deployed in the classroom to make the objectives operational and reach successful teaching and learning results.

Key Words: Music, Songs, Natural Science, English, CLIL

Resumen:

A menudo, la docencia en los colegios de compensatoria suele conllevar dificultades añadidas debido al tipo particular de alumnos matriculados. En este contexto de aprendizaje, las lecciones CLIL deben diseñarse cuidadosamente para satisfacer la motivación y el interés de los estudiantes. El objetivo de esta disertación es desarrollar una propuesta didáctica de intervención educativa basada en el uso de canciones como recurso para motivar y mejorar el aprendizaje en materias no lingüísticas, en nuestro caso Ciencias Naturales, donde el inglés sea utilizado como lengua vehicular para el aprendizaje de contenidos. De este modo, se ha proporcionado un marco teórico, donde se recogen aspectos relacionados con la literatura de la música y el aprendizaje en CLIL, diseñando además una propuesta didáctica para este contexto particular. Finalmente, se han expuesto conclusiones, con especial énfasis en las medidas específicas que se pueden desplegar en el aula para hacer operativos los objetivos y alcanzar resultados de enseñanza y aprendizaje exitosos.

Palabras clave: Música, Canciones, Ciencias Naturales, Inglés.

1. JUSTIFICATION

The purpose of this TFM is to design a didactic proposal which embraces three content areas, namely, Foreign Language, Natural Sciences and Music. Accordingly, this work complies with the integrated curriculum paradigm. The integrated curriculum is a response to the traditional teaching model, where learning was divided into plots, to put the student in contact with reality through the union and fusion of the contents of different subjects (Torres, 2016).

We live in a changing and plural society, in which social and individual needs are multiplying more and more. That is why the school, as part of the society that trains and develops students to turn them into competent adults on a personal and academic level, must respond to and meet these needs (Bautista, 2010). In this way, the search for methodologies and proposals that favor the integral development of students constitutes a challenge for teachers.

However, the integration of areas in the curriculum is difficult and is neglected in many CLIL contexts. This is because it involves a lot of coordination and collaboration amongst the different specialist teachers for the elaboration of joint tasks that encompass the learning of the different areas (Irún and Otto, 2018). This challenge increases with the added pressure that bilingual teachers have, where in addition to teaching the content of the area, they must assure that the student acquires the necessary linguistic skills that guarantee an optimal level in the development of the foreign language.

Bilingual teachers are called to teach Natural Sciences, Social Sciences, Physical Education or Art in the English language (although the most common subjects taught in bilingual education in Andalusian centers are Social Sciences and Natural Sciences). However, at no time do we receive any kind of training that prepares us to teach a content subject using a foreign language. We only have a language certificate that certifies that we have a certain level in the English language. Thus, if it is difficult to prepare good session programming and find good methodologies that adapt to our students and that also motivate them and bring the content closer to the real world; it is even more difficult to do all this using a language that is not the mother tongue.

All this is even more complicated if we have to teach in a compensatory center (this is my case) where students have social, family and academic difficulties. That is to

say, a center where the level of the students is already quite low in their mother tongue, let alone to also offer them the contents in another language.

In the end, what usually happens is that, given the lack of knowledge of the teacher and the difficulty of the situation, we end up teaching the content subject in a traditional way, focusing the language activities on the recognition and learning of specific vocabulary. In this way, the following question arises to me: how can we develop a didactic proposal with the second-grade students of the Intelhorce school in Malaga so that the disciplinary component of Natural Sciences is learnt when teaching the subject in a foreign language, in our case English? This is how the proposal to include music and songs as a dynamic way of teaching the contents of Natural Sciences in English arises to me.

2. INTRODUCTION

People listen to music every day. Music is an inherent part of our life. Music encourages, motivates and secretes dopamine, the hormone that makes us happy and motivated (Storr, 2008). Almost before learning to speak, young children learn songs and listen to music that activate their language development, memory, the learning of new words and above all stimulate their cognitive and social skills.

That is why learning the contents of the area of Natural Sciences in English using songs can be a good procedure to awake the motivation of our students for the study of the foreign language. Students are often bored and frustrated studying a foreign language, which they do not see practical sense for. The current educational system aims for children to study English from a very early age, including bilingual teaching, which from my experience is sometimes not very successful. The methods have to be improved if we want to achieve a true integral learning in our classes. Thus, using music and songs as a teaching resource means going beyond entertaining students, listening and hanging out. Students can improve many language skills with songs. In addition, the use of songs in class allows us to go from a more conceptual and rote learning to a more creative, dynamic and experiential learning that adapts to the needs of this new generation of students.

Music adds to the area of English the possibility of listening, expressing and interpreting from a more innovative and creative experience, as well as promoting the enjoyment of the English culture. The song in this area makes English fun, encourages

motivation and leads students to enjoyment and relaxation through learning, in addition to helping them express themselves and feel motivated by learning, both in English and in the Natural Science subject.

As is well known, participating in artistic-musical activities gives children opportunities for enjoyment and aesthetic expression. In addition, music and other artistic areas allow the development of multiple ways of thinking and learning in students. These ways of thinking are directly related to creative skills, self-expression, critical thinking, problem solving, discipline and teamwork. That is why the use of music in the classroom has as a collateral effect in other areas of knowledge, allowing a more complete social, cognitive, spiritual, physical and emotional development (Elliot, 1993).

3. THEORICAL FRAMEWORK AND LITERATURE REVIEW

3.1. CLIL Methodology: Main Difficulties

In a monolingual lesson, in which a teacher uses the students' first language, it is assumed that students have relevant basic language abilities. That is, they can hold a conversation, they can read and write and they can understand people talking about a topic. This is survival language: the language we need to live in a community.

Cummins (1991) used the acronym BICS to refer to these basic interpersonal communicative skills. According to Cummins, another fact that most teachers can rely on when teaching in students' first language is cognitive academic language proficiency or CALP. This is the language children use for the purposes of learning at school. Even if there are a lot of schools which teach these skills explicitly, there are still some teachers who tend to assume that learners acquire them through repeated exposure. However, when teaching CLIL, students have limited target language proficiency and very often, they are learning the basic language (BICS) at the same time as the teacher is introducing the subject contents and the language needed for expressing these concepts (CALP). CLIL teachers know that their students will come up against several additional problems because of this. For instance, they will not be able to talk in groups in English without help, they will find it hard to write sentences without making mistakes and searching for

the right words to use, and they may have difficulty understanding a reading passage or getting the gist of a video (Cummins, 1991).

More serious issues will arise when students are confronted with productive skills. Academic skills are hard for CLIL learners, mainly because they are still developing basic target language abilities. Because of this, in CLIL programmes it is difficult for subject teachers to avoid teaching CALP explicitly. The challenge is larger as learners face the learning of basic language skills, academic language skills and new subject concepts all at the same time.

The first step when planning a CLIL unit is to choose the content that is going to be learnt, both in terms of learning outcomes and of teaching objectives or aims (Coyle, 2005). The teaching objectives are the knowledge and skills that are intended to be developed. The learning outcomes are the concepts and tasks that students will be able to deal with at the end of the unit. Once the learning outcomes are specified, the content is analyzed with a double aim. On the one hand, to think of the tasks and activities that will best help students learn the content. On the other hand, to look for the key words, grammatical functions, and genre patterns that students will need for both content comprehension and expression (Coyle, 2005). The next step is to analyse the activities and tasks to find the language and the content that will enable the learner to operate effectively in a CLIL setting. This implies scaffolding of both content and language and it is one of the most crucial stages of CLIL planning, because it is here that content and language are clearly integrated (Coyle, 1999). The last step in planning is to ensure tasks that enable cognitive development and cultural awareness, making them explicit to learners. By putting tasks and activities at the core, students use knowledge and skills to apply higher-order thinking skills (HOTS), and so learning is more effective and meaningful (Coyle, 2005).

3.2. How to Organize the Class

As Pavesi et al. (2001) stress, in young learners, acquisition of the target language follows the same patterns as acquisition of their mother tongue. Therefore, the teacher has to respect the silent period and, thus, take into consideration that the initial stages primarily focus on listening, and that spoken production should not be forced.

The CLIL teacher should involve the children in many listening and responding activities, such as miming, problem-solving tasks and games. As the methodology that best suits CLIL is hands-on learning, CLIL seems to prefer inductive thinking rather than deductive or the traditional PPP approach (presentation, practice, production) (Ball, 2013b).

One of the first things to do in class is to establish learning goals and present learning objectives accordingly. The unit has to start with activities that learners can do on their own. They have to be aware of their strengths and weaknesses, but a good introduction is always a good way of putting students at ease. Asking questions, requesting clarification, giving praise, and encouraging students help them remain focused on their goals and, therefore, be motivated.

A good way to start each class is by asking each student the following questions: *How are you?* or *how do you feel?* to which they can answer: *I am happy* or *I am tired, I feel happy* or *I feel excited*. In this way, we begin the class giving them direct prominence, in addition to working on emotions daily. We can also have routines of asking each day to a different student the date or asking them how the weather is.

We also have to remember that young learners have very short concentration spans. Therefore, activities should be short and motivating. Further, it is important to know when to stop an activity and move on to the next one. By breaking down the lesson into smaller steps we provide support for slower learners and give them a sense of success, which enhances their self-esteem and motivation (Irún and Otto, 2018). Since learning is a social, interactive process, it is always advisable to include tasks that involve learners in collaborative work: *two heads are better than one*. It is also very effective in terms of students' involvement to connect learning to learners' lives, and also to the local community and to the world. For example, asking why the flower in the classroom was straight but is now bent (HOTS) is more meaningful than simply learning how plants grow (usually LOTS) (Coyle, 1999).

3.3. Teaching Natural Sciences in English

Natural Sciences are essential in the education of today's society, allowing us to transform the way we see the world and become aware of our actions on it. Natural

Sciences are necessary for children since it allows them to know the environment that surrounds them and the changes that occur in it, offering answers to many of the questions that they pose about the reality that surrounds them. It is not about knowing as much data as possible, that, on many occasions, are totally unrelated to their reality, but about developing necessary tools that help them understand the phenomena and situations that occur in their day-to-day life, and thus making responsible decisions (Furman, 2004).

In this sense, Natural Sciences help children to develop the capacity for observation, reasoning and analysis, among others, and allows them to give answers and explanations to many of the questions and phenomena that they, by innate nature, ask, and for which, they require an explanation.

However, when using English as a vehicular language in the area of Natural Sciences, we face two risks. On the one hand, that the learning of the contents is impaired, and, on the other hand, that children lose interest and become frustrated when they find themselves having difficulties when using English to communicate. And this can happen since studying a subject in a language that is not fluently mastered can cause some problems when it comes to passing it. In addition, carrying out the explanations of the subject in another language can generate more confusion in the students.

In this sense, it is more enriching to use as many resources and scaffolding as possible to facilitate the learning and comprehension of the students.

Taking into account Álvarez (2010) and Navarro (2010), learning languages and academic content in an integrated way is relevant since communication skills are strengthened and academic and personal skills are developed. In the same way, mastering a foreign language allows the strengthening, either directly or indirectly, of cognition and an intercultural awareness. Cummins (2000) also points out the importance of learning the contents using an active language on the part of the student. He also remarks the importance of Natural Sciences in today's society. Further, he emphasizes that it is necessary for teachers and educational institutions to be able to provide good scientific training in order to achieve an acceptable level of literacy.

On the other hand, Arango (2010) states that the use of the foreign language allows to favor its acquisition, since the language becomes a means to achieve communicative objectives, thus ceasing to be an end in itself. In this way, the student must develop skills to interpret messages, evaluate the sentences that they produce, receive and give meaning

to the speech in a given context. Thereby, the traditional approach in which the use of any language was merely limited to produce phrases or words learned by rote memory, is left behind.

3.4. **Music as a Resource for the Teaching of Bilingual Natural Sciences**

3.4.1. Background

In ancient Greece, music was considered a necessary element in the formation of a person. For Plato (428-347 s. C.), music and the arts were an essential part in his ideal of civic education (The Republic, see Mark, 2002), arguing that music was for the soul what gymnastics is for the body. On the other hand, Aristotle (384-322 BC), argued that music had three practical applications: education, purification and entertainment. In this sense, both philosophers considered that music could be used in the formation of character, because of the way it evokes emotions and feelings (Leganés, 2012).

Similarly, Martin Luther (1483-1546) believed that, due to the positive influence on the formation of the person, all teachers should have musical training in order to transmit it to their students. However, unfortunately, over the years, this conception of music has been losing importance compared to other areas of knowledge, which are considered more important, such as mathematics or language (Leganés, 2012).

3.4.2. Music in Teaching

Recent research has shown the importance of the role of music in the cognitive development of students. There is evidence that under normal conditions all human beings are musical (Welch, 2001; Zatorre and Peretz, 2001). As part of our genetic inheritance, we have a predisposition to auditory-musical attention, which begins during the first months of gestation. And it is that, from an early age, we have the ability to differentiate sound patterns, melodic lines and harmonic progressions.

There is much research showing that education through music enriches the overall learning experience. An example of this are the studies carried out by Professor Daniel J. Levitin (2007) who affirms that through the use of music our brain produces a more accelerated and meaningful learning. Music provides children with real learning

experiences in which they have the possibility of exercising their mind, body and heart, in the following way (Fiske, 1999):

- Students at risk show greater possibilities of achievement and integral development.
- Allows self-expression, as well as interrelation with classmates.
- It transforms the learning environment, fostering creativity.
- It allows to connect learning experiences with challenges in the real world.
- Encourages self-directed learning.
- Promotes complexity in the learning experience.
- Promote a sense of achievement in students.
- Encourage motivation and participation.
- It allows the development of self-regulation and resilience strategies.

Following Reimer (2003), we can find five aspects that certify the value attributed to music and that endorse the importance of it being worked in schools:

1) Music is an end and a means.

2) Music involves mind, body and feelings.

3) Music is universal, cultural and individual.

4) Music is a product and a process.

5) Music is enjoyable and deep.

Participation in music shows a direct correlation with the development of cognitive skills and greater motivation towards other areas of knowledge. In this sense, considering the benefits offered by working with music in the classroom, we must propose a curriculum that attends and develops in a more equitable and flexible way the learning needs of a greater number of students, not only of those who show a greater disposition and motivation towards subjects considered academic (Campbell, 2002).

Research on the impact of music education for the development of students reveals that when working with songs in the classroom, emotions are involved, expressive behaviors and the imagination of students are encouraged. Other studies carried out by North, Hargreaves, and O'Neill (2000), show that listening to music allows students to satisfy their emotional needs, relieve tension and stress, as well as express their feelings and emotions. In this sense, it is worth highlighting the importance that the emotional aspect should be one of the most important aspects to consider in the integral development of the students, which we must include in the curriculum to achieve this goal.

As we can see, music is a potential work tool due to its ability to provide development and well-being, learn about cultures, promote social skills, and foster creativity and affectivity. In addition, as Forster (2006) points out, music has proven linguistic justification based on neurological studies that investigate how the brain processes and produces speech. And the thing is, music represents a language of sounds, rhythms, feelings and emotions, which is easily integrated with other curricular areas, becoming an important resource to acquire knowledge.

3.4.3. The Song as a Resource for Learning Non-Linguistic Subjects Using English as the Vehicular Language

Numerous investigations ensure that the inclusion of songs in the teaching of foreign languages brings benefits in the learning process of students. Studies along these lines show how the use of songs facilitates memorization (Schellenberg et al., 2007, collected in Toscano-Fuentes and Mora, 2012), motivation (Falioni, 1993; Murphey, 1990; Crookes and Schmidt, 1991; Fonseca and García, 2010, collected in Toscano-Fuentes and Mora, 2012), in addition to improving the four basic skills (Toscano- Fuentes and Mora, 2011).

The incorporation of instrumental and vocal music in English sessions helps both linguistic (phonetic, phonological, morphosyntactic, semantic and lexical), affective (anxiety reduction, increased motivation) and sociolinguistic (exposure to varieties and registers of the language) (Toscano-Fuentes and Mora, 2012).

From a didactic point of view, songs are good resources that complement the teaching of a foreign language. The songs offer us a wide range of possibilities, not only

in the content but also in the applied methodology. Some of the reasons that show the importance of working on songs when teaching content from a non-linguistic area using a foreign language are (Barrera, 2009):

- **The four skills are worked on:** listening, reading, writing and speaking.
- **Exposure to English phonetics:** the songs offer a very beneficial practice regarding the phonetic field. One of the great difficulties of the English language is the lack of correlation between pronunciation and spelling. So, the songs present an oral exposure to the English language that is significant enough to assimilate the English pronunciation by the students.
- **Indirect grammar learning:** songs offer the possibility of working on grammatical aspects seen in the area of English in a real context.
- **Creation of an appropriate classroom atmosphere:** working with songs in class fosters a relaxed atmosphere for the students. In addition, it encourages motivation, enthusiasm and participation of the children, in addition to promoting a positive predisposition towards learning.

In foreign language learning, music occupies a prominent place since, among many other aspects, it contributes to improving motivation and creating an atmosphere conducive to interaction (Levitin 2007).

If we analyze different textbooks, we can see that musical activities are generally used to reinforce the topic of each didactic unit, mainly for vocabulary and pronunciation, but, as Leganés and Pérez Aldeguer (2012) tell us, there does not seem to be a deeper awareness of the importance of music when using it as an accelerator of learning in the English classroom and creator of meaningful learning.

These conclusions reveal the need to develop materials that use music and English in an interdisciplinary way, which can be a useful tool and a starting point for teachers, given the great motivating capacity of the use of songs and their potential to develop meaningful learning, both fundamental aspects in the Infant and Primary stages.

In this sense, the incorporation of songs in the English sessions is a good alternative for slower students in learning a foreign language since, on the one hand, it

favors the development of the three subcomponents of linguistic aptitude and the increase of the listening ability, and, on the other hand, a reinforcement of the linguistic ability with the study of the lyrics of the songs, in addition to facilitating memorization (Toscano-Fuentes and Mora, 2012).

Considering the importance that music represents in education, the objective presented is to use it as a facilitating vehicle for learning the English language in an interdisciplinary and inclusive way. The idea is to cooperatively develop resources and materials where music takes center stage in the English class, and that at the same time serves the music specialist in the development of their music curriculum. In other words, putting music at the service of English, but at the same time favoring the school musicalization process (Thain, 2010).

An adequate didactic intervention in the elaboration of a linguistic project with the collaboration of the music specialist would facilitate that the set of learning is approached in a coordinated way, and that we can use music in the learning of the language and, in this case, the English to learn other musical content.

4.4.4. How will we Develop the Song in our Classes?

A we have seen above, the song is a very useful tool in the English classroom. As Jiménez (1997) points out, in its lyrics there are a large number of grammatical structures and speech acts that can be studied and analyzed by the teacher and learned almost unconsciously by the students. According to De La Torre (2007), the use of songs in the English classroom contributes to introducing the art of recitation and encouraging reading aloud, developing reading comprehension, perfecting students' pronunciation, increasing active and passive vocabulary, increasing interest in English classes, offering opportunities to practice singing, as well as teaching and having fun at the same time.

When deploying the songs, we are going to differentiate three stages: before listening to the song, while listening to the song and after listening to the song. In this way, the procedure that we will follow when presenting the songs to the students will be as follows (Barrera, 2009):

- **Before listening to the song:** the students will become familiar with the topic doing activities of filling in the gaps, watching videos related to the song, etc.

- **During the song:** the students will have the lyrics of the song to be able to guide themselves when singing it. Gestures and movements will also be used to associate the content with its meaning. In addition, activities and exercises like dances, assignment of stanzas per group of students, etc., will be worked on.
- **After the song:** the objective is that the students learn the song and internalize it so that they learn the contents in a natural and motivating way. Students can act out the song and teach it to other classes.

4. DIDACTIC PROPOSAL

4.1. Contextualization

<table>
<tr><td>Sessions: 7</td><td rowspan="2">TITLE: ‘Little gardeners’</td><td>Course: 2nd grade</td></tr>
<tr><td>Timing: 2 weeks</td><td>Number of students: 13</td></tr>
<tr><td colspan="3">Justification:
In this didactic unit the topic of plants is worked on using a bilingual methodology based on CLIL. We will use songs as the main resource of the unit to facilitate the learning process of students. Besides, we will use manipulative and dynamic activities that connect learning with the reality.</td></tr>
</table>

4.2. Group-Class Characteristics

Before describing the characteristics of the group-class, we are going to place our class within the context of the center to better understand the characteristics and needs of the students to whom the pedagogical proposal is directed.

The school in question is a compensatory school located on the outskirts of the city of Malaga and is located in a working-class neighborhood. In the school we find mostly boys and girls whose families have a fairly low socio-economic level. Students have a lot of academic difficulties and their behaviors in class are often quite disruptive at times.

It is a small center that only has one line per course. In addition, the classes have an average of ten students per class, so the number of students enrolled in the center is quite low. The didactic unit is aimed at a group of students in the second grade of primary school. The class is made up of a total of 13 students, of which 8 are girls and 5 are boys. It is a very dispersed group of students, with little motivation to learn and very talkative. The activities in the book and repetitive exercises bore them and make them lose motivation for learning. Therefore, it is proposed to focus learning on an active and participatory methodology, which also uses music as a motivating element for learning.

4.3. Objectives

According to Royal Decree 126/2014, the objectives determine the general capacities to be achieved in each of the areas to contribute to the general objectives of the primary stage. Next, we expose each of the objectives that is intended to be achieved with the development of this didactic unit. To do this, we have differentiated between objectives of the stage, objectives of the Natural Sciences subject and objectives of the unit.

4.3.1. Stage Objectives

b) Develop habits of individual and team work, effort and responsibility in studying, as well as attitudes of self-confidence, critical sense, personal initiative, curiosity, interest and creativity in learning, and an entrepreneurial spirit.

c) Acquire skills for the prevention and peaceful resolution of conflicts, which allow them to function autonomously in the family and domestic sphere, as well as in the social groups with which they interact.

f) Acquire in at least one foreign language the basic communicative competence that allows them to express and understand simple messages and function in everyday situations.

h) Know the fundamental aspects of natural sciences, social sciences, geography, history and culture.

4.3.2. Objectives of the Natural Sciences Subject

O.CN.1. Use the scientific method to plan and carry out simple projects, devices, and appliances.

O.CN.6. Participate in working groups putting into practice values and attitudes of scientific thought.

4.3.3. Objectives of the Unit

- To identify the parts of a plant.
- To understand what plants need to survive.
- To understand how flowering plants reproduce.
- To differentiate between flowering and non-flowering plants.

4.4. Contents

According to the Order of March 17, 2015, the contents constitute the set of knowledge, abilities, skills and attitudes that contribute to the achievement of the objectives of each teaching and educational stage and to the acquisition of competencies.

The contents that are intended to work throughout the unit are:

4.4.1. Contents of the Subject

- Initiation to scientific activity. Experimental approach to some questions.
- Oral and written communication of information gathered from simple texts and images to demonstrate understanding.
- Manifestation of a certain autonomy in the execution of simple actions and tasks.
- Use of the vocabulary acquired in their presentations and class work.
- Carrying out small research, reflection and data collection projects.

4.4.3. Contents of the Unit

- Different types of plants.
- Parts of flowering plants.
- Reproduction cycle of flowering plants.

4.5. Competencies

According to Decree 97/2015, a key competence is understood as a combination of skills, practices, knowledge, motivation, ethical values, attitudes, emotions, and other social and behavioral components that are mobilized together to achieve effective action. Therefore, they are considered as knowledge in practice, knowledge acquired through active participation in social practices that, as such, can be developed both in the formal educational context, through the curriculum, and in non-educational contexts.

Following both Royal Decree 126/2014 and Decree 97/2015, and the latter in its Article 6, the key competencies would be:

- ✧ Linguistic communication.
- ✧ Mathematical competence and basic competences in science and technology.
- ✧ Digital competence.
- ✧ Learn to learn.
- ✧ Social and civic skills.
- ✧ Sense of initiative and entrepreneurial spirit.
- ✧ Awareness and cultural expressions.

It is interesting to note that the contribution to competences is achieved to the extent that the learning of the contents is directed to its usefulness to face the multiple occasions in which boys and girls use the contents of the areas of Natural Sciences outside the classroom, in their daily life and in their immediate surroundings. Next, we show the contribution that is made from the unit to the development of each of the key competences:

- ☆ Competence in linguistic communication: students will make use of this competence by having to communicate both in their mother tongue and in English. Active listening to songs, reading them, class discussions and the use of specific vocabulary promote the development of this competence.
- ☆ Mathematical competence and basic competences in science and technology: this topic brings students closer to the world of plants and makes them aware of its importance to people. On the other hand, by using the scientific method when planting seeds, observing growth, using the ruler as a unit of measurement, etc., we are promoting the development of mathematical competence.
- ☆ Digital competence: this competence will be worked mainly when using the computer to carry out the team kahoot exam.
- ☆ Learn to learn: by working on the song we are offering students dynamic strategies to learn, organize, memorize and retrieve information. Also, the reflection on what has been learned, how it has been done, from whom and where they have learned it, as well as the effort to tell it will contribute to its development.
- ☆ Social and civic skills: by using cooperative work as a methodology for the development of aspects so fundamental for this competence such as dialogue, debate, conflict resolution and social skills such as the assumption of group responsibilities, acceptance and elaboration of coexistence norms.
- ☆ Sense of initiative and entrepreneurial spirit: through teaching to make decisions from the knowledge of oneself that involve transforming ideas into actions, facing problems and learning from mistakes, choosing with their own criteria, being perseverant, responsible and creative.
- ☆ Awareness and cultural expression: with this topic, the students will become aware of the care of plants, they will know their names, they will learn to differentiate different types of plants and they will get closer to the knowledge of the most characteristic plants of our region.

4.6. Methodology

The methodology refers to the learning theories that guide the method. That is, to envisage the criteria and decisions that organize the didactic action in our classroom: role

played by students and teachers, use of means and resources, types of activities, organization of times and spaces, types of groupings and tasks, sequencing, etc.

Traditionally, the teacher, considered to be the expert, transmitted the information to the learner following a teacher-centred or teacher-led approach. Recently, there has been a shift to interactive and student-led learning models based on social constructivism, in which teachers, learners and educational resources all support learning. This social constructivist approach involves teachers as facilitators of cognitive challenges that engage learners actively through motivating tasks. Thus, the methodologies and approaches that best suit CLIL are those that are learner-centered and competence-based: service learning, cooperative and group work, project-based and problem-based learning. In this sense, our methodological proposal will be directed towards the promotion of learning by competencies, which requires using an active and contextualized approach that facilitate the participation and involvement of students, as well as the acquisition and use of knowledge in real situations, since it will be what generate more transferable and lasting learning. To do this, to bring students closer to the acquisition of content and learning in a meaningful way, we will use, in addition to practical activities and teamwork, music as a motivating resource in the classroom. In this sense, the songs will be the common thread that will allow students to internalize and learn the contents of the subject. Thus, most of the explanations of the subject by the teacher will be done by singing.

We will use music as a fundamental part of our sessions, as a motivating, reinforcing element and as a central piece of communication for learning the contents, using English as the vehicular language. In this way, learning becomes a pleasant experience for children (Murphey, 1990).

We have to consider that the relationship between language and cognition (thinking and understanding) is complex. Contrary to foreign-language teaching, the language in CLIL is functional and dictated by the context of the subject. The language is, therefore, related to the progression of conceptual understanding and should be approached lexically or pragmatically rather than grammatically. As Coyle, Hood and Mash (2010) point out, in CLIL settings, language has to be cognitively demanding but it cannot interfere with students' understanding.

In this way, what we want is an integrated learning of contents indirectly relating different subjects of the curriculum, such as Natural Sciences, English and Music. This methodology crosses the boundaries of the classroom of the subject itself, since it assumes that other subjects, or at least part of them, are taught in a foreign language with two objectives: learning the content and the language involved. In addition, if we add to this the implementation of music and rhythm as a resource in the classroom to promote learning, we are also integrating content related to the area of music.

The CLIL methodology directs educational action towards success and the construction of comprehensive and meaningful learning. That is why it presents a set of essential elements that characterize it. According to the authors Mehisto, Marsh and Frigols (2008), these elements are those that are exposed below:

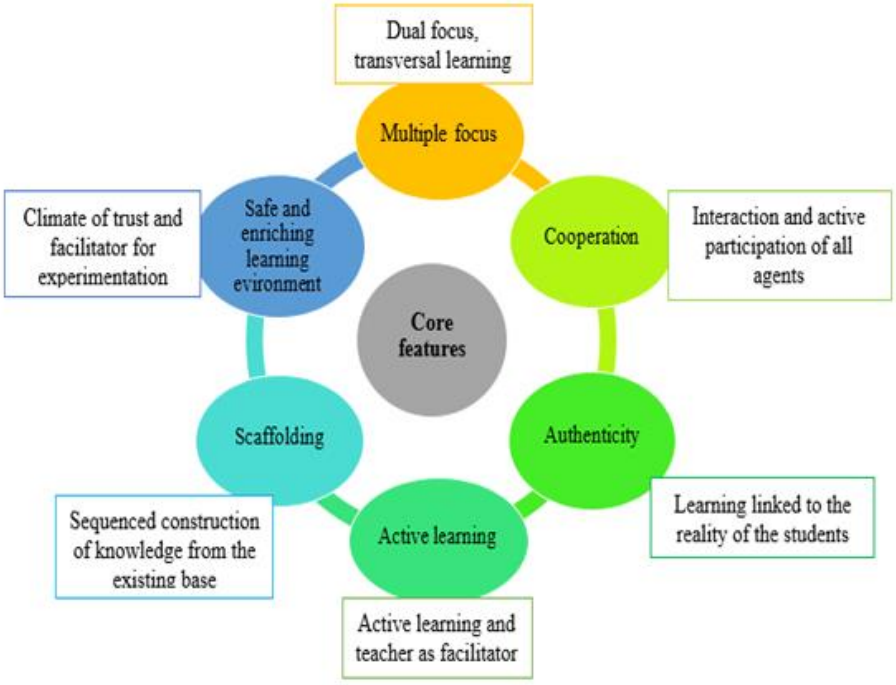

Figure 1: Core features of CLIL methodology (Mehisto, Marsh and Frigols, 2008)

For this, as we have already commented, we will use the song, interpretation and gestures as the main element of our class. In this way the students will understand almost intuitively the meaning of what the song is transmitting to them with hardly any difficulty and enjoying the learning process.

4.7. Materials and Resources

The selection and use of teaching materials and resources constitutes an essential aspect of the methodology. For this reason, teachers must be involved, with the collaboration of the students, in the elaboration and design of different types of materials and resources, adapted to the different levels and to the different styles and rhythms of learning.

Following Grisolía (2009), resources are all those means used by the teacher to support, complement, accompany or evaluate the educational process. Thus, a resource can be any element that, not having been specifically designed for learning, is used in that context. The materials and resources that we will use throughout the unit will be the following:

- Different types of worksheets
- Guitar
- Computer
- Digital board
- Speaker
- Plants (3 per teams)
- Lentils, cottons and plastic cups
- Different vegetables (lettuce, asparagus, cauliflower…) and fruits and seeds (sunflower seeds, banana, cherries, apple, pear, blueberries, grapes…)
- Pencils
- Colored pencils
- Ruler
- Template
- Tablets

4.8. Transversality

The transversal elements are a set of knowledge based on attitudes, values and norms that respond to some social problems that exist today. They are contents that cannot be treated in a single area, but must be treated by all of them in a global and programmed

way. It is therefore cross-sectional content, closely linked to the "hidden curriculum", that is, what students learn in the way they are taught. Thus, they are contents related to the social framework, towards which, we intend to guide our students. In this sense, the transversal elements represent an opportunity to globalize teaching and to carry out an interdisciplinary education.

In article 10 of Royal Decree 126/2014 we can find the following paragraph relative to cross-cutting themes: *"Without prejudice to its specific treatment in some of the subjects of each stage, reading comprehension, oral and written expression, audiovisual communication, Information and Communication Technologies, entrepreneurship and civic and constitutional education will be worked on in all subjects".* In this way, the transversal contents will be included in our didactic unit as essential elements to work with the students. They will be taken into account in all educational activities: when organizing the classroom, selecting readings and curricular materials, planning teaching sequences, grouping students, selecting strategies for collaborative work, etc.

Reading comprehension, oral and written expression

This transversal element will be carried out in all the tasks of our didactic units, since reading comprehension and oral and written expression are essential elements for the development of any activity.

Audiovisual communication

We will use this cross-sectional element mainly when using tablets so that students carry out a team self-assessment through the Kahoot application.

Entrepreneurship

Our methodology will employ teamwork in numerous activities, which entails a necessary autonomous work on the part of the students. To this end, the promotion of attitudes in children that arouse curiosity for knowledge and for discovering new experiences and learning will be key.

Civic and moral education

It will work throughout the unit, since we will have civic standards in the classroom necessary for the proper development of team activities. In addition, we will have a poster where the class rules will be collected and that we will remind the students daily.

Environmental education

This cross-sectional element will be the one that is most directly related to our didactic unit, since with this topic we intend to educate students in the care of plants as living beings and the importance of these in people's lives.

4.9. Interdisciplinarity

A CLIL-based teaching is based on the application of knowledge and not only on its transmission. For this reason, we must not only teach concepts (know), but we must also teach skills (know how) and attitudes (know how to be and live together). In this sense, we must know our student's capacities well to develop all their intelligences in them. For this, it is necessary to design the didactic units in such a way that skills are developed in the students linked to the natural and real development of day-to-day situations. In this way, we will achieve capacities that provide students with flexibility and creativity when facing new challenges.

Thereby, the systemic and globalized work of the didactic units is of vital importance, applying in a transversal way the different subjects of the curriculum and the different types of intelligences. There is no point in dividing teaching into individual schedules or subjects. It is much more enriching and meaningful to teach in a contextualized way, relating the different knowledge in an integrated way, so that the student naturally acquires the contents of different areas when working on a certain topic.

In this didactic unit we are going to work directly on the subject of plants, belonging to the area of Natural Sciences. By using English as a vehicular language as a means of acquiring content, we are also working on the English area. By using music, songs, rhythm and interpretation, we are working on aspects related to the Music area. And finally, in a more indirect way, by measuring the growth time of the plants or measuring the length of the stem, the students are working on content related to the area of Mathematics.

As we can see, it is much more significant for students and for the teacher himself to integrate and relate the contents of different subjects. In this way, students will acquire the different contents naturally and in meaningful learning contexts, related to real situations.

4.10. Planning

Session 1 (45 min):

Activity 1. *What can you see?*

We show the students different real plants that we have brought to class (See Annex 1) and we ask them the following question: *'What can you see?'* The students must answer *'I can see a plant'.* Next, we give each team (there are 3 teams) a plant and we explain to them that it will be the plant of the team, which they must take care of until the end of the course, thus receiving a gardener diploma.

Materials:

- Real plant

Learning goals:

- To activate previous knowledge: plants
- To practice the structure *What can you see? I can see…*
- To introduce questions with *'what'*

☙ Activity 2. *Bingo* ☙

To present the vocabulary that we are going to see throughout the unit we are going to do a bingo (See Annex 2). We will do it several times. In the first few times we will show the students with a flashcard the vocabulary that we are saying so that they associate it, and then we will stop showing the flashcards so that they can remember it.

Materials:

- Bingo

Learning goals:

- To present the vocabulary of the unit
- To recognize the vocabulary: *stem, roots, leaves, flower, sunlight, water, soil, air*

☙ Activity 3. *What part is missing?* ☙

We show four images of the same plant on the board, only that in each image the plant has something that is missing (See Annex 3). We ask the students the following question*: 'what part is missing in picture A?'* Students should answer: *the leaves…* and so on with the other images.

Materials:

- Digital board
- Plants images

Learning goals:

- To name the parts of the plant

- To recognize each part of the plant
- To identify missing parts of a plant
- To practice the vocabulary
- To practice speaking skills
- To introduce questions with '*What'*

Language structure: questions (what)

What	is missing	in picture A? in picture B? in picture C? in picture D?
The leaves The roots The trunk The fruit	Are are is is	missing in picture A. missing in picture B. missing in picture C. missing in picture D.

Key Words

Flowers
Fruit
Leaves
Plant
Roots
Stems
Trunk

Session 2 (45 min):

Activity 4. *Fill in the gaps*

We present one of the songs with which we are going to work during the unit. The title of the song is '*The parts of a plant*' with the tune of '*The wheels on the bus'* (See Annex 4).

We will give the students the lyrics of the song with gaps (See Annex 5) for them to fill in. First, we tell the students to listen to the song without writing anything, and once they have listened to the song several times, we tell them to fill in the gaps. We will sing the song with the guitar as many times as necessary until they have all the gaps filled.

Materials:

- Lyric song with gaps

Learning goals:

- To develop listening skills
- To recognize words in a song
- To develop reading skills

☙ Activity 5. *Play music* ❧

We will sing the song several times with the students. This song will help them to get into the different parts of the plant and see the function that each one has. We will sing the song with a guitar and will use flashcard with the different parts of the plant so that children can understand it.

Materials:

- Digital board
- Computer
- Speaker

Learning goals:

- To learn a song about the plants
- To develop listening skills
- To review what all plants need to survive

❧ Activity 6. *Asking and answering about plant parts* ☙

Each team will have their equipment plant in the center of the table and they will ask each other about the function that each part of the plant has. Then, we will do a kind of quiz (See Annex 6) where the teacher will ask each team about the function of one of the parts of the plants for the team to debate and answer. Teams will earn points for each correct question.

Materials:

- Real plants to observe

Learning goals:

- To describe what each part of a flowering plant does
- To develop speaking skills
- To practice the present simple in affirmative and interrogative form

Language structure: present simple (interrogative and affirmative)

What	Does do do do	stem do? flower do Roots do? Leaves do?
Stem Flowers Roots Leaves	Carry produce absorb absorb	water and nutrients. fruits and seeds. water and nutrients. Sunlight.

Key Words

Absorb
Carry
Flowers
Fruit
Leaves
Produce
Roots
Stem
Sunlight

Activity 7. *On-line learning*

Once they have listened to the song, we upload a live worksheet to the classroom platform for students to do by teams using tablets (See Annex 7). To do it, they can help themselves with the song and the observation of the plant that each team has. We will let the teams talk and debate among themselves to complete the worksheet. Then, each team will explain to the rest of the class the function of each part of the plant. Scaffolding will be provided by reviewing the main structures to be used.

Material:

- The class tablets

Learning goals:

- To practice the parts of the plant
- To describe what each part of a flowering plant does
- To develop reading skills

Session 3:

Activity 8. ***We plant our own plant***

Students will plant lentils on a cotton in a plastic cup to observe throughout the days how the plant grows; how the roots, the stem and the leaves begin to emerge. They will have a table where they will note how long it takes for each of the parts of the plant to come out (See Annex 8).

To do the task, we will first tell the students the name of the materials in the photos (ruler, seeds, soil, water, yoghurt pot). Next, we will read the instruction and help students to plant and water their seeds. We will ask students: *What is the best place in the classroom for our plant? Why?*

Every 2 days, students will observe their plant and will complete the chart. We will ask questions as: *How tall is your plant? It's 1cm tall*. *What part of the plant can you see? I can see the stem.*

Materials:

- Lentils
- Cotton
- Plastic cup
- Water
- Worksheet with a template to fill in
- Ruler

Learning goals:

- To learn how a flowering plant reproduce
- To review what all plants need to survive
- To understand the life cycle of flowering plants
- To grow a new plant
- To record information in a chart

∞ Activity 9. *Play music again* ∞

We will present students a new song which will we explain the parts of the plant in more detail, the germination and flowering process (See Annex 9). We will play the song on YouTube so that children can associate images with the listening. We will dance it and interpret it with gestures. Then, as we did we the other song, we will give the lyrics to the students to rehearse and learn it. Once they have listened to the song several times, we give them the song with gaps so that they fill in the blanks as we did before (See Annex 10).

Materials:

- Speaker
- Computer
- Digital board
- Lyrics of the song

Learning goals:

- To learn a song about the plants
- To practice the parts of the plant
- To learn how flowering plant reproduce
- To review what all plants need to survive
- To understand the life cycle of flowering plants
- To develop listening skills
- To develop reading skills

Session 4

∞ Activity 10. *What kind of plant is it?* ∞

We bring to class several branches of fruit plants such as blueberries, apple trees, lemon trees, etc., for students to observe the flower that later turns into a fruit. Every time we

show the students a branch, we ask them the following question: *What plant do you think it is? What fruit do you think comes out of this plant?*

Materials:

- Branch of blueberries, apple trees, lemon tress…

Learning goals:

- To understand where fruits come from
- To practice speaking skills
- To practice pronunciation and intonation in questions
- To practice the expression *'What do you think…'*

☙ Activity 11. *Where do fruits come from?* ❧

We bring some fruits to class (apple, banana, orange, strawberry, etc.) and cut them in half. Let student look at them and next we ask: *What do these fruits have in common?* (They all have seeds), *Are the seeds all the same?*

We will explain that flowering plants have flowers which produce fruits like this one.

Materials:

- Different types of fruit

Learning goals:

- To understand where fruits come from.
- To compare the size and shape of different fruit.

❧ Activity 12. *Looking for seeds* ☙

We give the students a table (See Annex 11). We explain to them that, as they have already seen, all fruit have seeds, but they don't all have the same number of seeds and the seeds are different. We give them in teams the fruit that we have brought, broken in half so that they can observe it and fill in the table. But first, we read the instructions and

check if students understand how to complete the chart. Students work in groups to study the seeds and complete the chart.

Next, we invite different groups to share their results with the class. For example: *This apple has four brown seeds. They are smooth.*

Materials:

- Fruit and seed chart
- Pencil
- Different kinds of fruits

Learning goals:

- To study the seeds in different fruits and compare a chart
- To develop a spirit of cooperation through teamwork

Session 5:

Activity 13. ***What part of the plant do we eat?***

We bring asparagus, lettuce leaves, sunflower seeds, and cauliflower to class and give each team one of each. Next, we ask them: *What part of the plant do you think it is?* Together we will come to the conclusion that when they eat lettuce, they are eating the leaves of the plant, when they eat the asparagus, they are eating the stem, the sunflower seeds are the seeds, and the cauliflower the flower of the plant.

Materials:

- Asparagus, lettuce, sunflower seeds, cauliflower

Learning goals:

- To understand that vegetable we eat belong to different parts of plants
- To practise speaking skills

Activity 14. *Singing and learning*

We sing and practice the two songs that we have worked on in the unit.

Materials:

- Digital board
- Speaker
- Computer
- Guitar

Learning goals:

- To revise the main concepts and language from the unit
- To practice speaking and listening skills

Session 6:

Activity 15. *Our plant book*

To review everything it has been seen on the unit, we will give students some worksheets to form a book (see Annex 12) that will also serve them for review all the contents for the exam.

Materials:

- Printable worksheet to work the plants

Learning goals:

- To review the concepts worked through the unit

Session 6:

Activity 16. *What have we learnt?*

Exam (See Annex 13).

Materials:

- Exam
- Pencil
- Rubber

Learning goals:

- To measure the degree of understanding and assimilation of content acquired by students in the unit

Session 7:

☙ Activity 17. *Funny test* ❧

Kahoot is used for an evaluation purpose by creating teams and using the school computers. It will be done once the students have taken the written exam and reviewed the possible errors.

Materials:

- Tablets

Learning goals:

- Student self -assessment and peer-assessment
- To measure the degree of understanding and assimilation of content acquired by students in the unit

❧ Activity 18 ☙

We give the students the diploma of gardener (See Annex 14) and plant caregiver, for the daily care they have had with the watering of their lentil plants and their equipment plant.

Materials:

- Diploma

Learning goals:

- To motivate the student
- To recognize and value student work
- To encourage students in learning and self-improvement

4.11. Attention to diversity

Boys and girls are as equal to each other as different. They are equal in rights and duties, but different in experiences, interests, and rates of learning. The apparent contradiction between these propositions, "all boys and girls are equal", "all boys and girls are different", forces teachers, when observing them, judging them and drawing conclusions, to take into account what they have in common as well as what distinguishes them, in order to be fair in their resolutions and equitable in their way of proceeding (Garanto, 2001).

Thus, attention to diversity must be understood as the set of educational actions aimed at responding to the different capacities, learning rhythms and styles, motivations and interests, social, cultural, linguistic and health situations of each student (Garanto, 2001).

This didactic unit aims to respect diversity through its flexibility and inclusion so that all students, regardless of their peculiarities, can participate significantly in the different proposals that are carried out, depending on their interests, strengths and weaknesses.

On the one hand, our didactic proposal contains varied activities using an active methodology that allows students to apply knowledge in real situations, allowing learning to be more flexible and closer to students, both for those who have difficulties and for those who excel. On the other hand, the methodology that we have employed when using songs as a means of learning implies attention to the diversity of the students. In fact, the proposal to use music as a means of learning arose in response to the need to provide a teaching style that allows students who have more learning difficulties to get hooked on learning and find it easier and more fun.

In addition, as in most activities we will work in teams, we will consider the capacities of each student so that the groups are balanced and the students can help each other so that the most capable can help those who have more difficulties

Despite the different generalized measures of attention to diversity, we will carry out some adaptations in certain activities for a specific student who has a mild cognitive disability. This adaptation will be carried out especially in the fill in the gaps activities, where the student has to write certain words that he hears from the song. What we will do with this student is to give them the word already written in the gaps but with dots so that they can trace the word.

For those students who are more advanced and want to delve deeper into the subject, we will give them the opportunity to create a notebook where they will paste different types of leaves from different plants, writing the name of the plant under each leaf. In this way, in addition to studying the different types of leaves, they will expand their vocabulary of plants.

4.12. Evaluation

As Spratt (2005) tells us, it is well known that assessment exerts an important backwash effect on teaching, which is still increased if we take into account that we are working with a CLIL methodology. When evaluating students, we have to take into account that in CLIL, content is the priority. The foreign language is not an end in itself but a means to achieve that content, both through teaching and in evaluation. In this sense, as CLIL methodology integrates the two phenomena of content and language, it is quite natural to assume that both aspects must be assessed.

Considering the dual focus on language and content, CLIL assessment needs to account for the goals and objectives of two different subjects, including knowledge, competences, skills, attitudes, and behavior, for both language and content (Massler et al., 2014). In our concrete case, Natural Science and English.

Following Pokrivčáková et al. (2015), when assessing learners, the CLIL teacher must consider both the criteria for the content-subject assessment and the criteria for the foreign-language assessment. However, despite these aspects already mentioned above, it is also important to take into account, when we are assessing students, the development

of other features like cognitive skills, collaboration, communication skills, creativity, critical thinking and interpersonal skills, which are very important to foster in our 21st century pupils. In this sense, we will carry out a continuous evaluation and we will assess all the activities and tasks that we do in class. Nevertheless, we will carry out three different types of assessment depending on the moment (Brown, 1994b).

Initial assessment:

This first assessment will help us to know about our student's previous knowledge, to detect potential lacunae, or to spot individual differences in the group.

The bingo that we develop in the activity number 2 would let us to see the previous knowledge of our students regarding the vocabulary of the topic.

Formative assessment:

This assessment is intended to offer informative feedback to learners while they are still learning the topic with the objective that they improve their learning development (Petty, 2009). It will allow us to obtain useful feedback in order to check whether the teaching and learning process is being effective or not. This information will provide feedback to both, the teacher and the learner for making decisions regarding appropriate modifications in the procedure (Nitko, 1998, cited in Bachman, 1990).

All the activities, attitudes and abilities of the students will be evaluated during the development of the unit. In addition, the motivation and dedication of each student in taking care of the classroom plant and their involvement and participation in the tasks and activities, will also be evaluated. To record all the progress of the students, we will use a *'can do list'* as well as oral comments, which help students to be aware of their progress and their mistakes and successes.

Summative assessment:

This final assessment will allow us measure our students learning at the end of the unit. It will allow student to review and study the contents in depth. To finish the topic and see what the students have learned throughout it and what their weaknesses and

strengths are, we will carry out an exam with some of the following exercises. We will also do a quiz that students will do per team with the Kahoot application.

To record all the observations made, behaviors, attitudes, achievements, etc., of the students, we will use different assessment formats, such as peer and self-assessment, and rubrics.

Self- assessment using the traffic light technique:

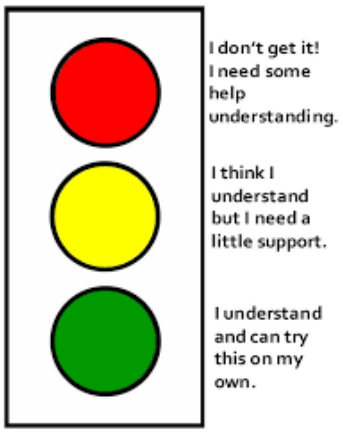

Figure 2. Material collected from the subject Evaluation and assessment in CLIL programmes

Peer-assessment:

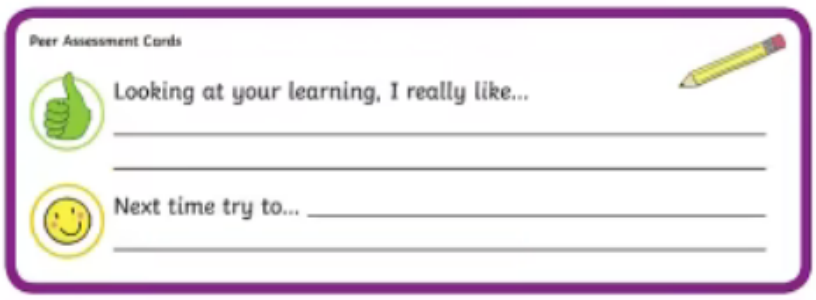

Figure 3. Material collected from the subject Evaluation and assessment in CLIL programmes

Rubrics:

Panadero and Jonsson (2013) explain: "Rubrics are documents that articulate the expectations for an assignment, or a set of assignments, by listing the assessment criteria and by describing levels of quality in relation to each of these criteria". In this way, taking into account the assessment criteria that are set out below, we will carry out a rubric like

the one detailed on the next page to evaluate the level of content acquisition by the students.

Assessment criteria:

- To name the parts of different plants and identify the function that each part performs.
- To differentiate between flowering and non-flowering plants.
- To identify the stages in the plant reproduction cycle and describe where fruit come from.
- Awareness and interest in plant care.

CATEGORY	LEVELS OF ACQUISITION			
	IN ROUTES OF ACQUISITION (1)	**PURCHASED (2)**	**ADVANCED (3)**	**EXCELLENT (4)**
Recognition of the parts of a plant	Need help pointing out the main parts of the plants.	Identify the essential parts of a plant.	Identify and point out the essential parts of a plant and explain their functions.	Identify and correctly point out the parts of a plant, explain their functions and classify plants according to the characteristics of their parts.
Classification of plants	Present difficulties to identify the criteria to classify plants.	Know some criteria for classifying plants.	Know the criteria for classifying plants and differentiate flowering and non-flowering plants.	Classify plants by stem into trees, shrubs, or grasses, and identify and differentiate flowering and non-flowering plants; classify evergreen or deciduous trees and shrubs.
Explanation of plant reproduction	Need help to explain how plants reproduce.	Know that moist soil and water are needed for a new plant to grow, but has trouble explaining the process.	Explain how plants reproduce, but confuse whether it is first the flower or the fruit.	Explain how plants reproduce and understand the process from when the seed is planted until the fruit comes out, pointing out where the new seeds are.
Interest in plants	Hardly shows interest in plants.	He/She is interested in plants only as elements of nature.	Shows interest in plants, in their care and in their cultivation.	He/She is interested in everything related to plants, their care, their cultivation and as a source to obtain various products.

5. CONCLUSION

With the development of this TFM we have tried to carry out an open proposal in which students can learn the contents of Natural Sciences through English as a vehicular language, using music and songs as a key learning resource.

With this, it is intended that students learn in a natural and simple way the contents of a non-linguistic subject such as Natural Sciences taught under the bilingual modality dictated by the curriculum referred to bilingual centers. And it is that, the bilingual educational modality implies methodological changes, since a combined methodology of didactic practices is used in both linguistic and non-linguistic areas.

Additionally, it is important to take into account the flexibility in the elements that intervene in the teaching and learning process: spaces, times, groupings, learning rhythms, L2 level of competence, the educational project of the center, etc. (Spratt, 2005).

However, as we have emphasized throughout the TFM, it is not about teaching a non-linguistic subject by providing only English vocabulary or presenting certain notions using L2. It is about using a CLIL methodology where the subject is taught through a foreign language with the aim of providing learning of the contents of certain curricular subjects in an integrated way while simultaneously learning L1. In this way, we believe that this methodology connects especially well in our proposal made for the teaching of contents in the area of Natural Sciences in English through music as a facilitating tool. However, we are not talking about presenting the songs in isolation as many textbooks present us, where music is conceived as another resource in the classroom, and is generally used to reinforce the topics of the unit (Leganés and Pérez Aldeguer, 2012). Quite the contrary, it is about the song being the axis of learning and the way of explaining the contents by the teacher. For this, it is also necessary to have a good didactic sequence where the different activities revolve around the theme of the lyrics of the songs and where students also work using an active and participatory methodology.

In addition, working in this way allows us to adapt to the different rhythms and learning styles of the students. Let us not forget that our original proposal arose precisely after reflection on how to bring bilingual learning closer to students with a fairly low educational and curricular level.

We consider that songs are an excellent tool to develop memory and concentration, as well as the linguistic capacities of listening and expression (Kraus and Chandrasekaran, 2010). In this way, we can get students to familiarize themselves more quickly with the language, thus facilitating the teaching-learning of both English and the content of the area.

Finally, it is important to point out that it might be interesting to continue researching and developing teaching units that revolve around music, allowing learning the content of non-linguistic subjects through song and students' participation. This, gives us the possibility of working in an integrated and interdisciplinary way, as different subjects are and must be implied. And it is that, this TFM is only the beginning of a personal initiative to develop and compose songs that encompass the different topics and contents of the areas of Natural Sciences and Social Sciences to teach them to students using the English language as a means of communication. In this way, we intend to create our own songs with the guitar so that students can learn any topic on the syllabus of the aforementioned subjects singing and having fun.

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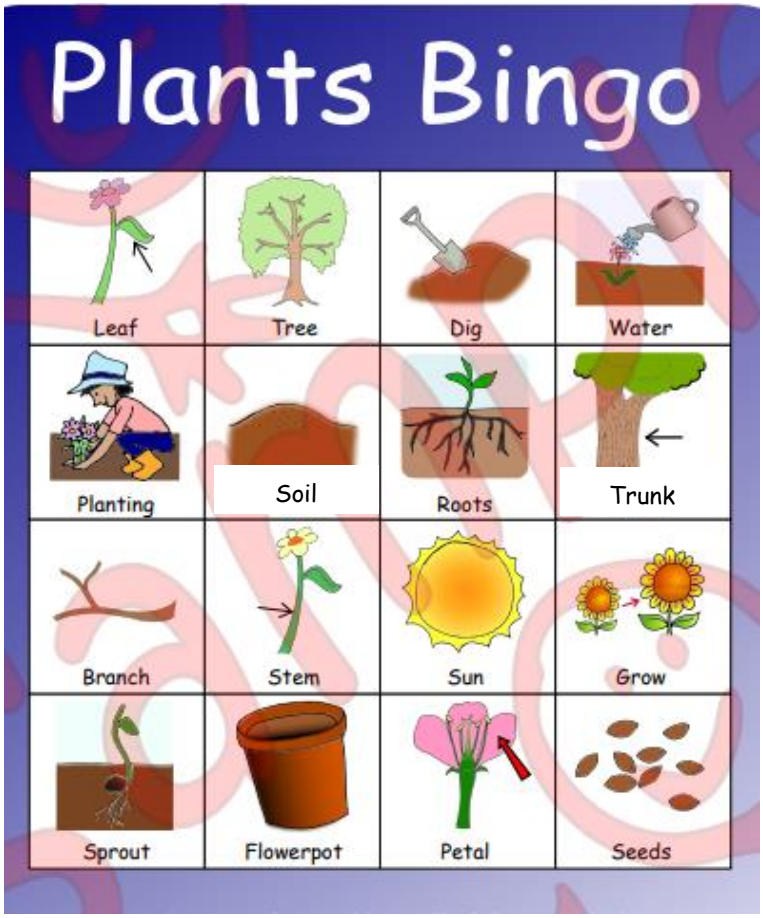
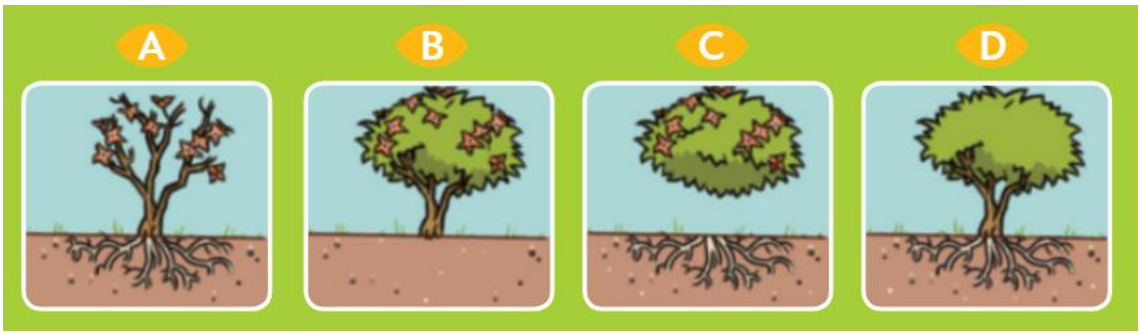
ANNEX 1

ANNEX 2



ANNEX 3



ANNEX 4

https://www.youtube.com/watch?v=UpMI0kYjcPs

ANNEX 5

The Parts of a Plant

(sung to "The Wheels on the Bus")

The [ ] on a plant grow underground.
Underground, underground.
The roots on a plant grow underground.
Roots are part of a [ ].

The stems on a plant hold up the leaves.
Up the leaves, up the leaves.
The [ ] on a plant hold up the leaves.
Stems are part of a plant.

The [ ] on a plant are making food.
Making food, making food.
The leaves on a plant are making food.
Leaves are part of a plant.

The flowers on a plant are growing seeds.
Growing seeds, growing [ ]
The [ ] on a plant are growing seeds.
Seeds are part of a plant.

ANNEX 6

What part of the plant produce fruit and seeds?

What part of the plant absorb sunlight?

What part of the plant absorb water and minerals?

What part of the plant transport water and minerals?

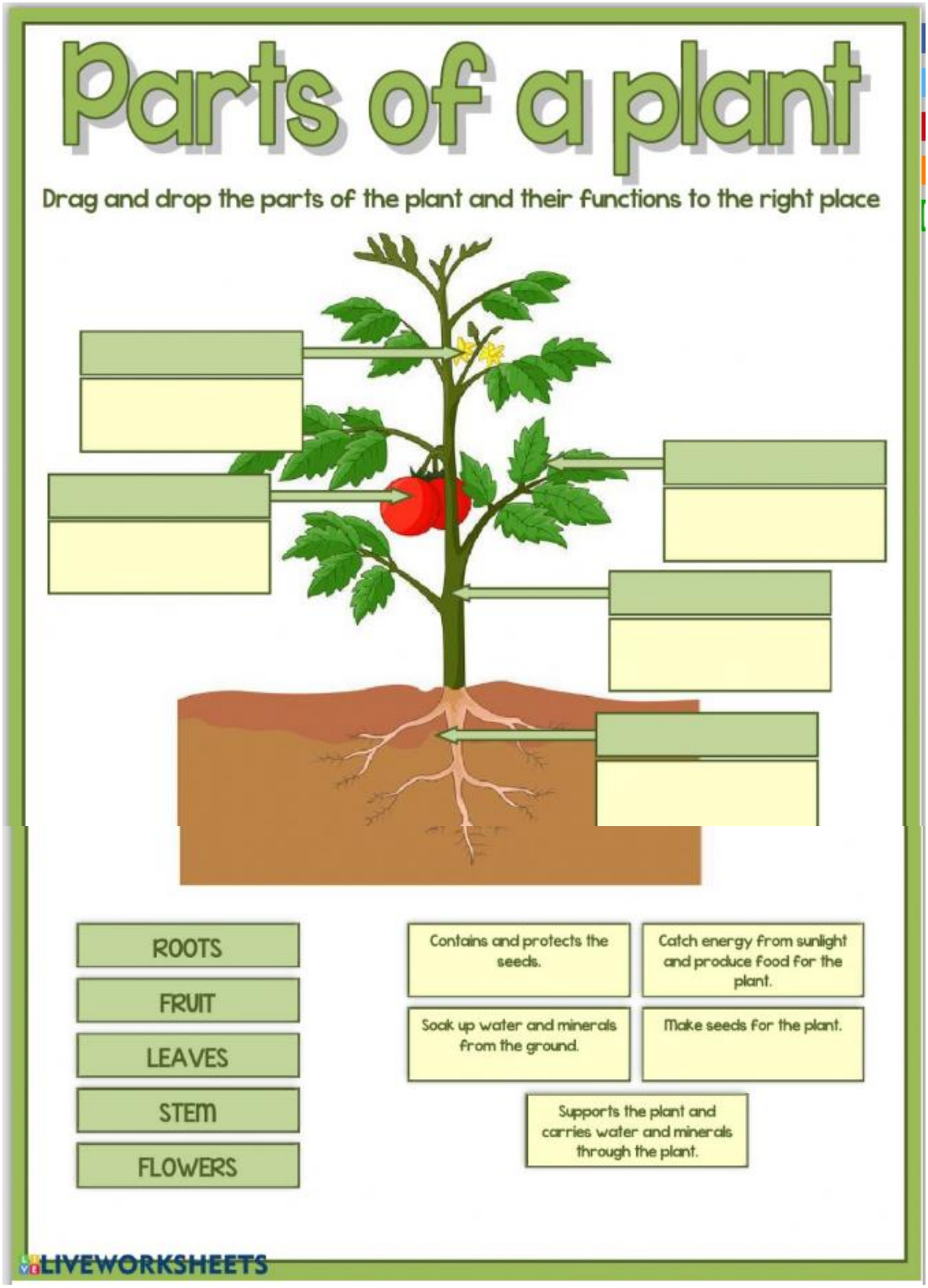
What does stem do?

What do flower do?

What do roots do?

What do leaves do?

ANNEX 7


Parts of a plant
Drag and drop the parts of the plant and their functions to the right place
ROOTS
FRUIT
LEAVES
STEM
FLOWERS
Contains and protects the seeds.
Catch energy from sunlight and produce food for the plant.
Soak up water and minerals from the ground.
Make seeds for the plant.
Supports the plant and carries water and minerals through the plant.
LIVEWORKSHEETS

ANNEX 8

DAY	PICTURE	HEIGHT

DAY	PICTURE	HEIGHT

DAY	PICTURE	HEIGHT

DAY	PICTURE	HEIGHT

DAY	PICTURE	HEIGHT

DAY	PICTURE	HEIGHT

DAY	PICTURE	HEIGHT
7		**1cm**

DAY	PICTURE	HEIGHT

ANNEX 9

https://www.youtube.com/watch?v=9bFU_wJgvBI&t=9s

ANNEX 10

ROOTS, STEM, LEAVES FLOWER

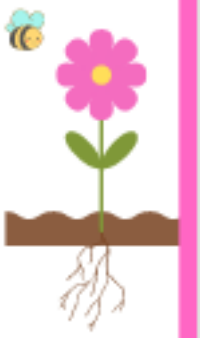
CHORUS

Roots, stem, leaves, flower

Needs sun, air and little rain shower

Roots, stem, leaves, flower

Needs sun, air and little rain shower



VERSE 1

We start with a tiny seed in the [ ]

Buried in the dirt, roots will be found

The roots get [ ] and form a base

The [ ] will hold the plant in place

VERSE 2

The stem holds the plant up straight and tall

It helps make sure the plant doesn't fall

The [ ] carries water up from the dirt

The stem helps keep the plant alert

VERSE 3

The leaves are not just there for show

The [ ] will work to help the plant [ ]

They take in sunlight and make it sweet

The leaves make food for the plant to eat

VERSE 4

The colorful [ ] is so very bright

Bees will stop and rest in their flight

They pollinate flowers and spread it around

Then the [ ] fall to the ground

FIREFLYFAMILYTHEATRE.COM

ANNEX 11

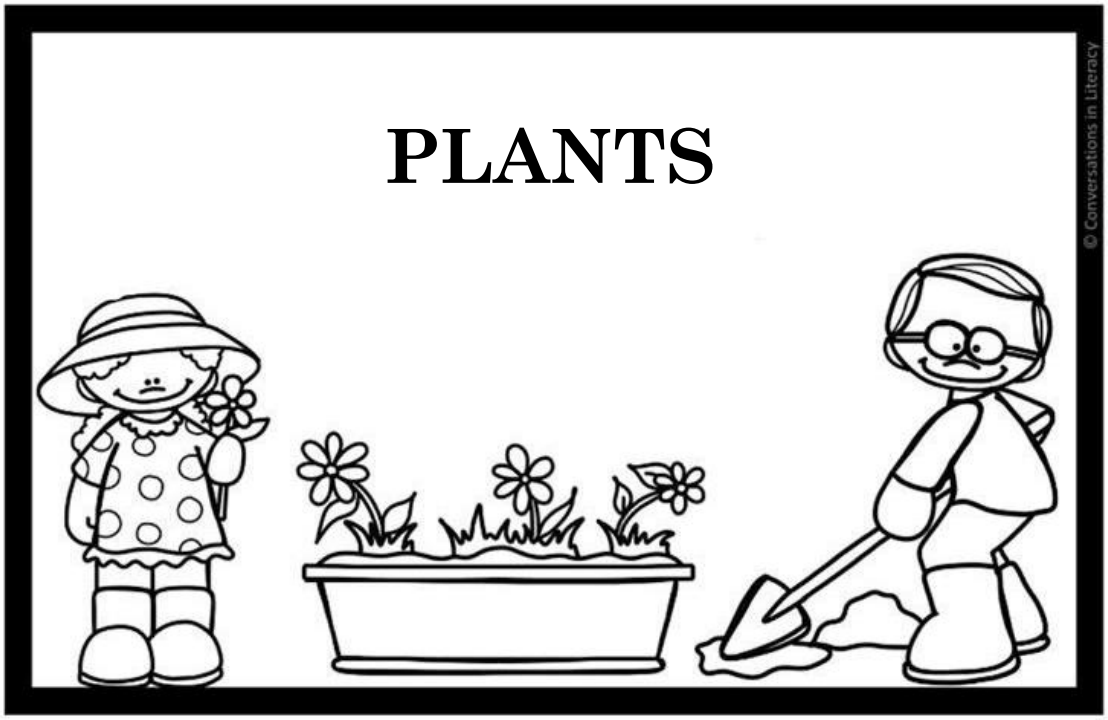
Make a fruit and seed chart

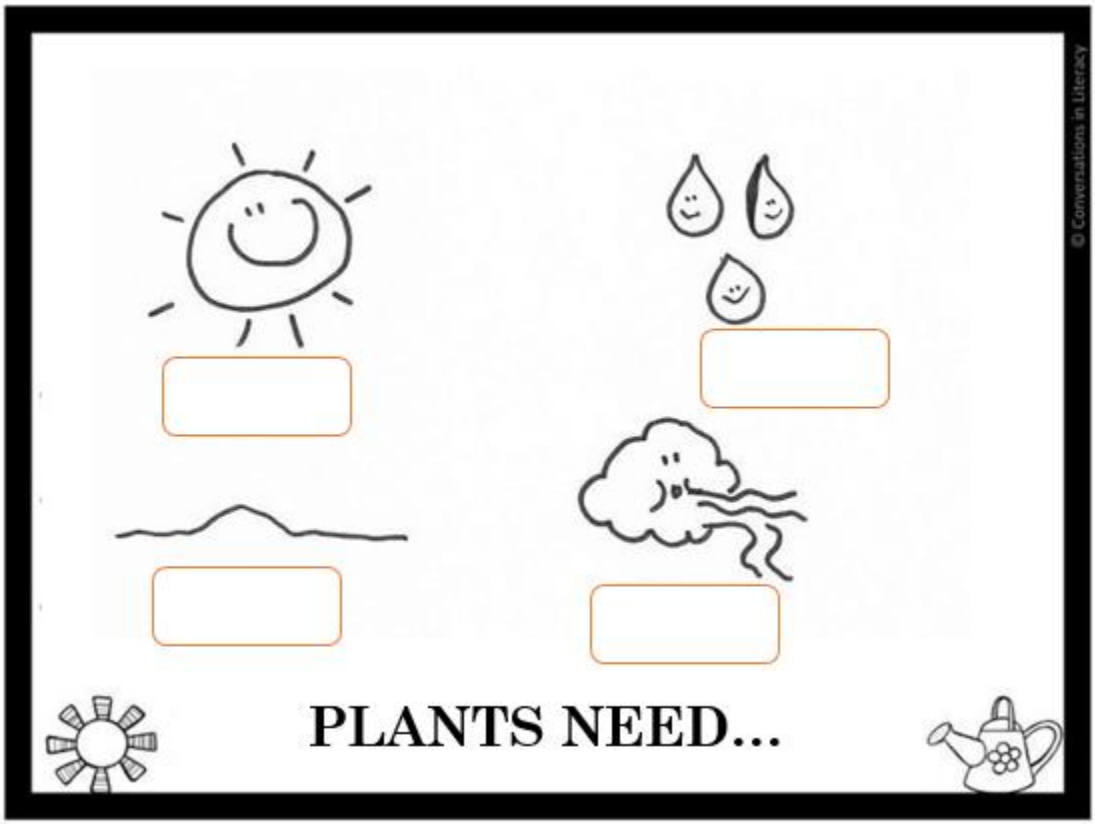
You need

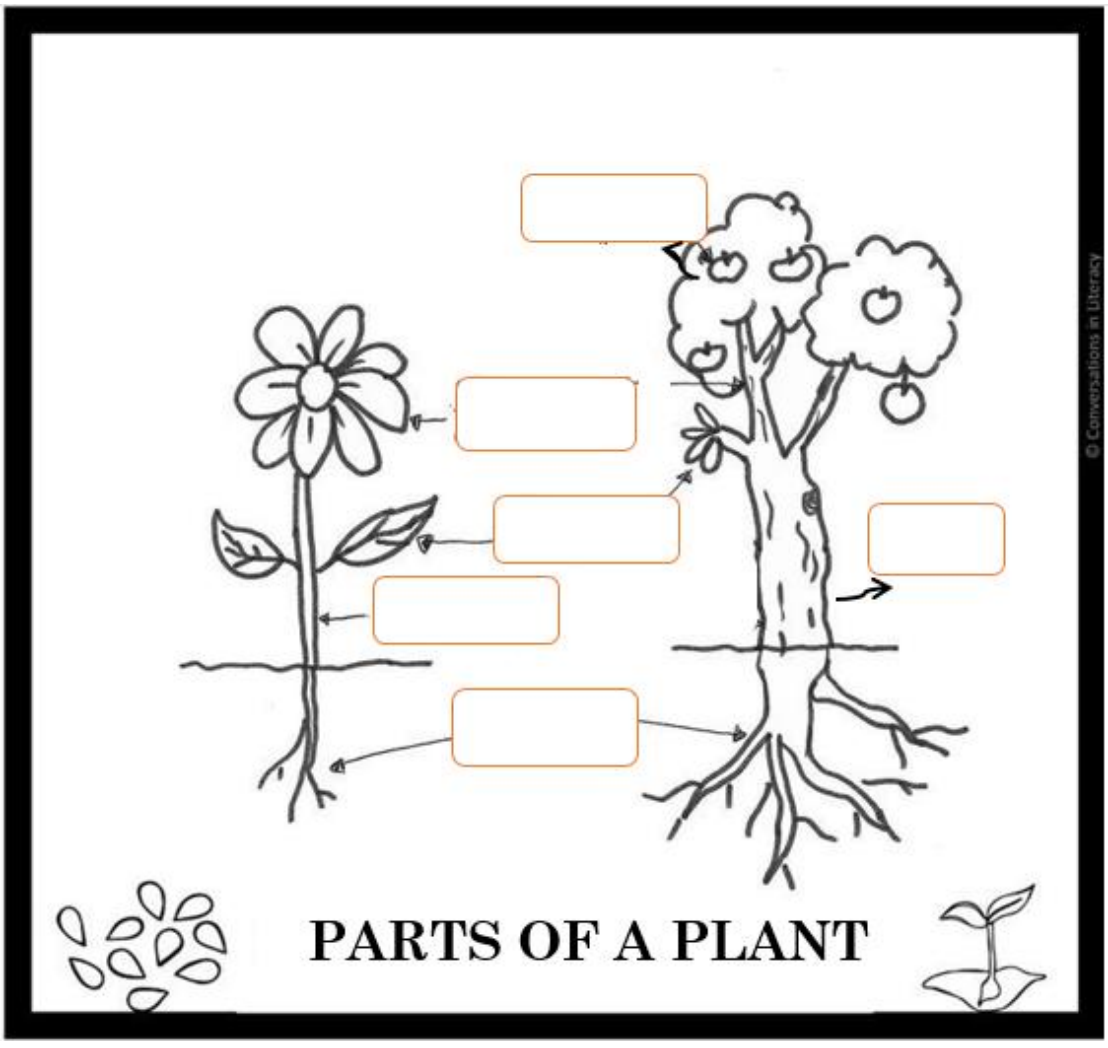
- Cut each fruit in half.
- Find the seeds. Count them.
- Complete the chart. Tick (✓).

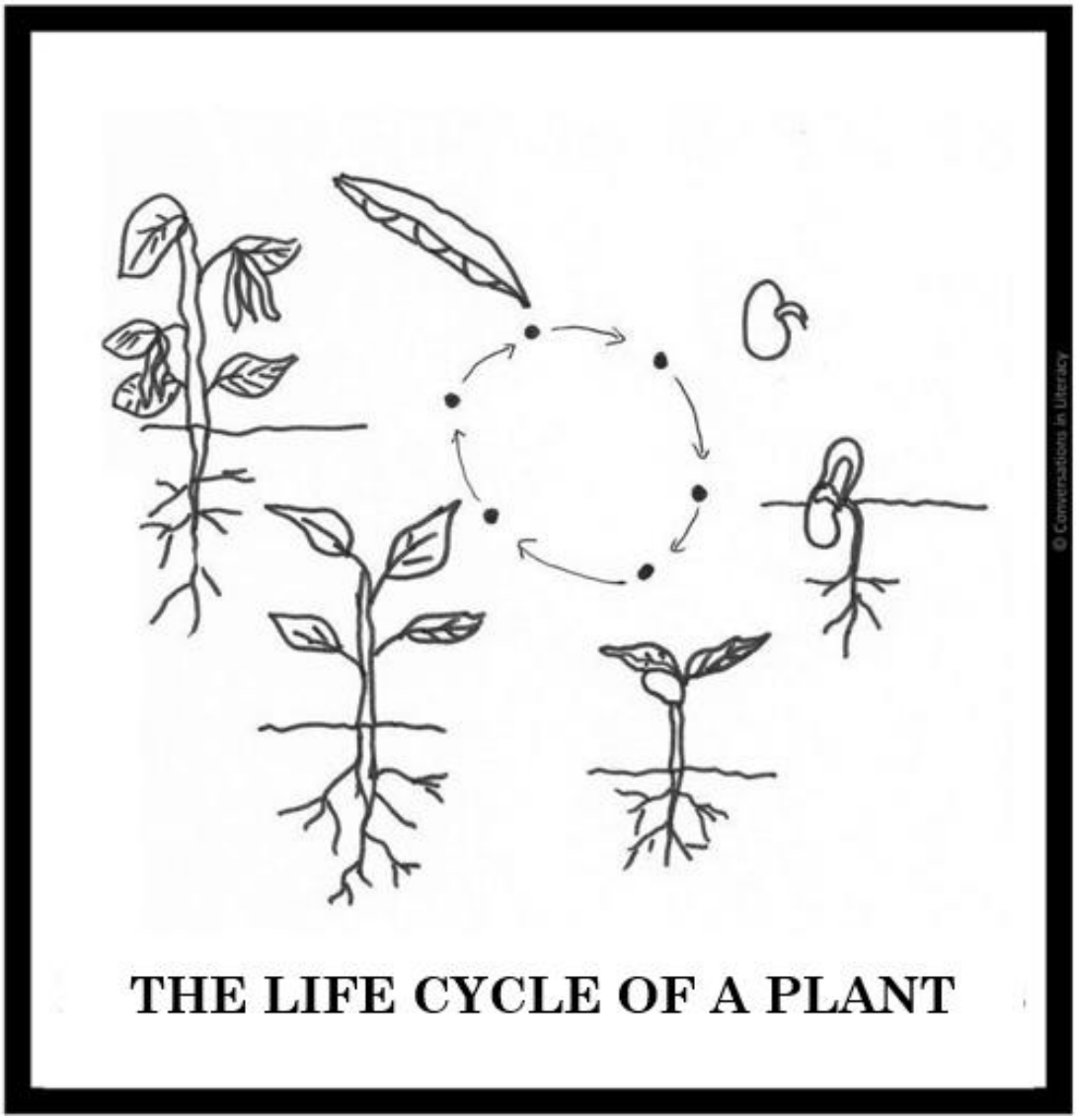
	How many seeds are there?			What are they like?	
	1	2 - 10	more than 10	rough	smooth
peach					
kiwi					
apricot					
apple					

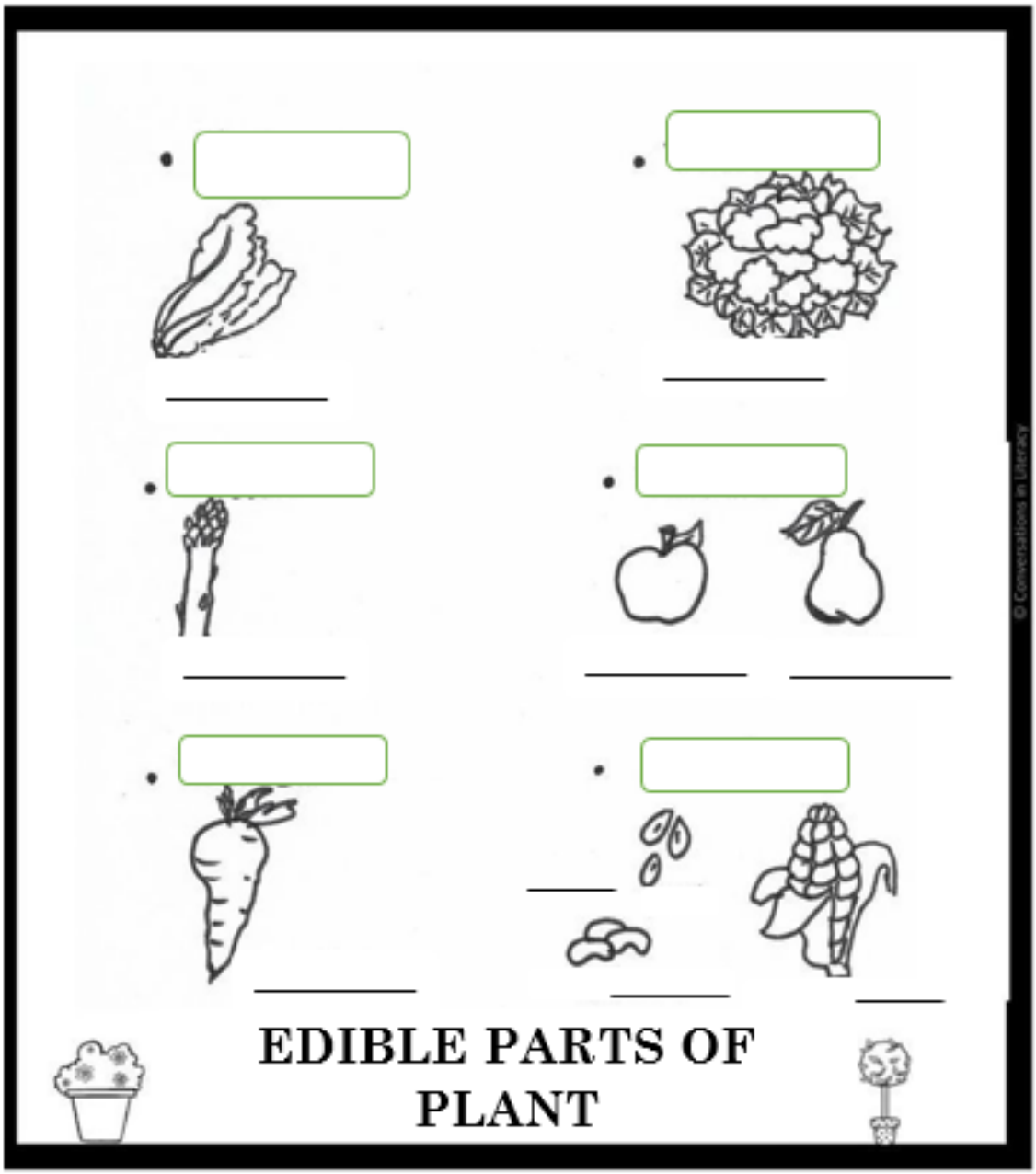
ANNEX 12




PLANTS NEED...
© Conversations in Literacy


PARTS OF A PLANT
© Conversations in Literacy


THE LIFE CYCLE OF A PLANT
© Conversations in Literacy


EDIBLE PARTS OF PLANT

ANNEX 13

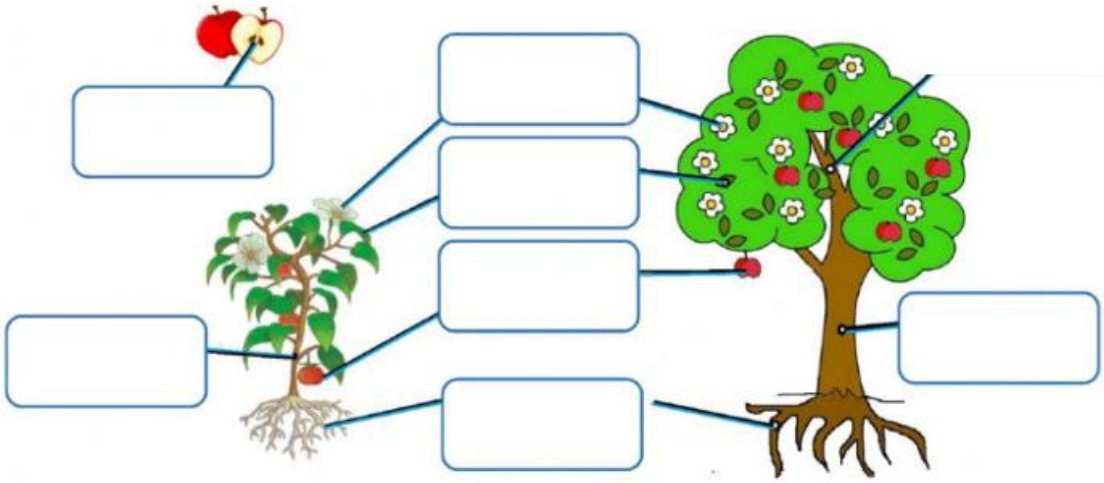
Natural Science | Unit 4: PLANTS | 3rd Primary

Name_____

1 Plants need 4 things to live. Write.

2 Put the parts in the correct place.

roots | stem | leaves | seeds | flower | trunk | fruit



3 Answer the following questions:

1. Could we leave our lentil plant forever in the glass with cotton wool?

_____

2. Why?

_____

_____

_____

3. Do all plants have flowers?

_____

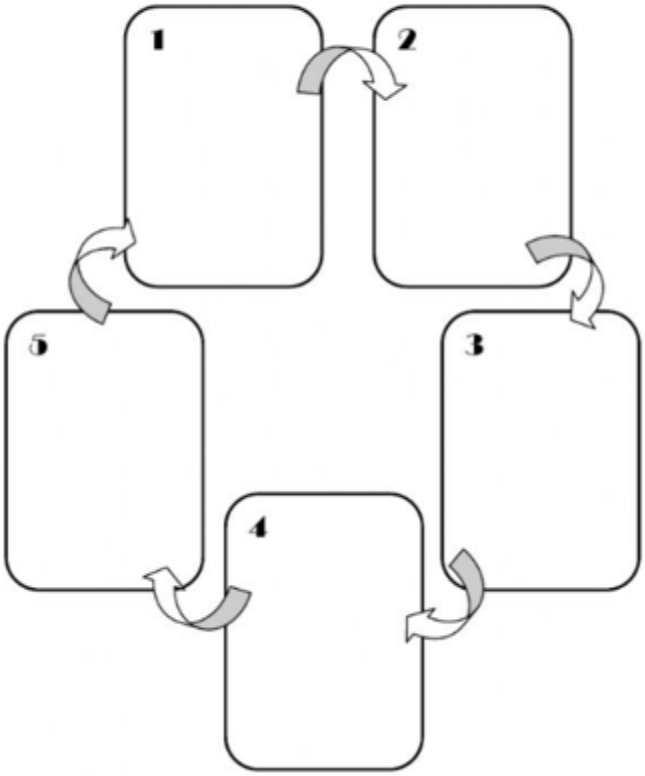
4. Do all plants have leaves?

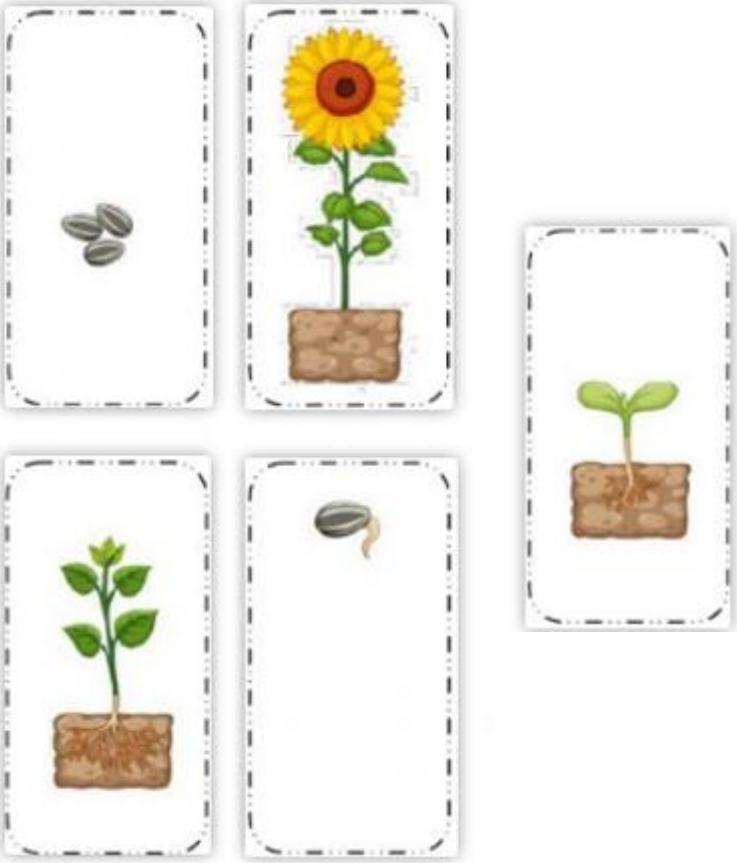
_____

4 Which part of the plant….

- Produce fruit and seeds? →
- Absorb sunlight →
- Absorb water and minerals →
- Transport water and minerals →

8 Put the pictures in order.





ANNEX 14


Garden Ambassador
is presented to
for
Planting and caring for plants in class and showing interest in learning about the wonderful world of plants
Natural Science
Subject
Date