

Master's Dissertation/  
Trabajo Fin de Máster

***FROM WATER TO LIFE: A CLIL  
DIDACTIC PROPOSAL BASED  
ON STUDENT-CENTERED  
METHODOLOGIES FOR THE  
NATURAL SCIENCE AREA***

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## **ABSTRACT**

This Master's Dissertation contributes a didactic proposal which addresses the contents of the Natural Science area of Primary Education related with plants and living things in a practical way and from a realistic perspective, close to real-life problems and based on students' role as problem-solvers and critical-thinkers. To reach this, we have tried to integrate in a comprehensive and meaningful way the Content and Language Integrated Learning approach (CLIL) with Howard Gardner's Multiple Intelligences Theory, Project-based Methodology and the implementation of an Integrated Curriculum. The final result has been the design of a Didactic Unit intended to solve real-life problems through hydroponic crops and the sustainable treatment of wastes.

Key words: CLIL, Multiple Intelligences, Project-Based Learning, Integrated Curriculum, Compost, Hydroponic crop.

## **RESUMEN**

En este Trabajo de Fin de Máster se lleva a cabo una propuesta didáctica en la que se abordan los contenidos del área de Ciencias Naturales de Educación Primaria relacionados con las plantas y los seres vivos de una manera práctica y desde una perspectiva realista, cercana a los problemas de la vida real y basada en el protagonismo de los alumnos como resolutores de problemas y pensadores críticos. Para ello, se ha tratado de aunar de manera integradora y significativa el enfoque de Aprendizaje Integrado de Contenidos y Lenguas Extranjeras (AICLE) con la Teoría de las Inteligencias Múltiples de Howard Gardner, la metodología de Aprendizaje basado en Proyectos (ABP) y el uso del Currículum Integrado. Como resultado final, se ha diseñado una Unidad Didáctica que pretende dar respuesta a problemas de la vida real, por medio de los cultivos hidropónicos y el tratamiento sostenible de los residuos.

Palabras clave: AICLE, Inteligencias Múltiples, Aprendizaje basado en proyectos, Currículum integrado, Compost, Cultivos hidropónicos.

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## **1. INTRODUCTION**

This final dissertation of the Master's Degree on Content and Language Integrated Learning (CLIL) has the aim of creating a didactic proposal in which the knowledge acquired throughout this year is put into practice unifying the different theories, methodologies and practices analyzed whilst creating a comprehensive set of meaningful activities and attending the needs of today's students and educative system. That is why it has been decided to combine the CLIL approach with Howard Gardner's theory of Multiple Intelligences (MI) and a Project Based Learning methodology (PBL) guided by an Integrated Curriculum (IC) proposal. As every teacher knows, teaching is not an exact set of procedures which creates a fixed result, but a combination of appropriate practices and ideas based on a continuous observation of our context. Thus, through the application of the aforementioned methods, it is intended to create a comprehensive didactic unit for the subject of Natural Sciences.

The current endeavours of the global education system are to make the most of the teaching-learning process, using new methodologies and resources in order to be adapted according to a dynamic society in constant change where information and technology have an important role in the way people think, behave and live their life.

In the last forty years, there has been a widening in our liberty to think, gather information, act and have an opinion. This change in society has been so big and persistent that the way in which we conceive education has consequently developed, arising several branches of what used to be, a long time ago, a simple acquisition of knowledge through direct exposition to a certain content. This is the how we could justify the vast range of possibilities that we have at our disposal nowadays, in order to create didactic proposals that cater for students' current needs. The methodologies that are carried out at present are usually selected depending on both students' and society's needs. Besides, we could highlight two main features of our society: globalization and diversification. The first one, because of the vast number of technological advances that allow us to connect different parts of the world; and the second one, as a consequence of this worldwide opening, in which new possibilities of jobs, opinions, actions and ways of living in general are created every day.

With regard the education context, this is the reason why approaches like CLIL and the other aforementioned ones have acquired so much importance in the past few years; they bring students the opportunity to fit in the globalized world in which we live

and cope with the new demands they will have to face as they grow and get included in the adult society.

When we talk about thriving in our current society, this success is not necessarily understood from the economic perspective of the future adult, even though this world seems to be usually focused only on the production of the citizen and on the economic benefit that a person can bring to his/her background. What is meant by “successful adult” is the one who can carry a healthy life, maintaining healthy interactions with other animals and human beings, taking care and valuing the background where he/she lives, considering both natural and historical features.

This is the main reason why this Didactic Unit (DU) will be developed considering the interaction of the human beings with the nature and all the ethical issues that it involves, stressing the value of recycling and of taking care of living things through the creation of a hydroponic crop and self-made compost.

Therefore, the main general objectives of this piece of academic work are:

- Explain the main features of CLIL, Project Based Learning and Gardner’s Multiple Intelligences theory.
- Revise the main ideas and similarities of the aforementioned theories and methodologies.
- Create a Didactic Unit based on a sustainable garden project.
- Apply the knowledge and conclusions obtained from the previous theories’ correlation to this DU.

This paper will be divided in three sections, the first one will outline every approach or methodology previously mentioned, indicating its main features in order to understand and link and correlate ideas among them. In the second section, the Didactic Unit will be develop explaining context, methodology, context and the development of the sessions. And at last, a brief conclusion highlighting the main assets and pitfalls of the proposal.

## **2. CONCEPTUAL AND THEORETICAL FRAMEWORK**

For the development of this Didactic Unit, many theories, methodologies and ideas will be approached and considered in order to get the most meaningful result possible. The unifying thread that will lead all the structure and learning of this DU will be Gardner’s Multiple Intelligences theory. Moreover, Project Based Learning

methodology will provide an objective and *raison d'être* to all the process while the Integrated Curriculum model will explain and formalize the interconnection of different topics in the D.U. Needless to say, that everything will be embedded within a CLIL framework.

We depart from the idea that these theories suit perfectly each other and can be the pillars of a well-founded didactic proposal. In this section we will proceed to explain in turn each of these theories so that we can muse on the possibility to compare them and find the common points and strengths that make them work in harmony.

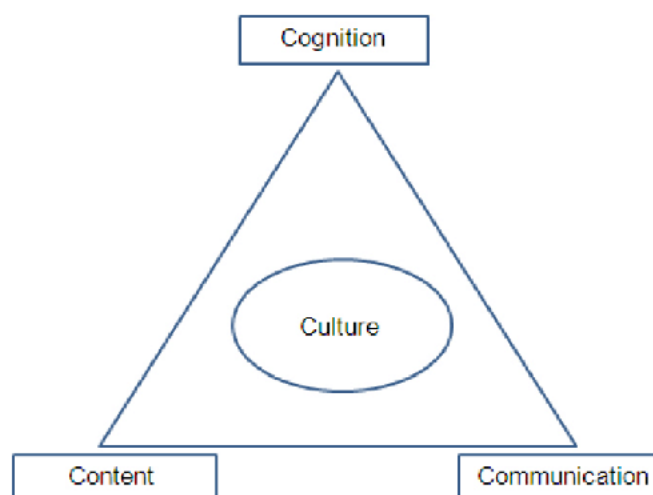
## **2.1 CLIL Approach**

Content and Language Integrated Learning (CLIL) is becoming one of the most deeply rooted approaches in our current education system, this way of acquiring the curricular knowledge created for every academic stage whilst fostering the autonomy and cognitive efforts needed to face the subject in a foreign language has become one of the most followed paths to follow in the creation of the Spanish' school plans in a logical and deserved way as this approach relies on many studies and researches that make it worth to implement.

Back in 1994, when this term was coined for the first time by David Marsh, there was a wide road already built for what was starting to be a formal approach. Canadian immersion programs and Bilingual education in the United States were a good example of how the combination of a second language and the content commonly thought in the first language contributed to the development of student's skills and cognitive networks. Those were the perfect conditions for Europe to start implementing a teaching model in which plurilingualism and the European awareness are the main objectives (Pérez-Vidal, 2007).

This is the basis from which CLIL is born and developed throughout the following years. Nowadays, it has earned an essential role in the Spanish and European education system due to the formalization of its basis and the corroboration by multiple researchers. As Marsh and Langé (2000) state, CLIL is based on the implementation of an additional language to learn at the same time both language and content. It implies a set of actions and methodologies which foster the communicative and cognitive skills of students as it is explained through Coyle 4 Cs framework: Content, Communication, Cognition and Culture. This 4 Cs model indicates that the subject matter must be transmitted by

communicative processes in the target language, taking into account the most suitable cognitive strategies for students to understand the content in a non-native language, and applying the cultural components that allow students to develop their intercultural competence as citizens of the world (Coyle, 2007).



*Figure 1: CLIL's 4c framework. (Coyle, 2005)*

Using the 4 Cs model is the direct way to enhance the second language in three different dimensions necessary for the correct development of the lessons. Coyle (2011) coined these dimensions as the Language Triptych: language related to understanding the subject (Language of learning), practical language to follow instructions and tasks (Language for learning), and individual language which arises during the lessons spontaneously (Language through learning). Through this triptych, students will develop their target language from two different and interconnected dimensions (Cummins, 1999):

- BICS: Basic Interpersonal Communication Skills, the everyday language necessary for social interactions, it is crucial for a proper development of students' communicative competence.
- CALP: Cognitive Academic Language Proficiency, the specific vocabulary related with the content of the different areas to develop.

The development of the students' linguistic skills with the subject's contents learning will boost individual's motivation and self-esteem. Nonetheless, it is important to consider individual needs and circumstances, as a wrong or too difficult approach of CLIL in the classroom might increase anxiety and hinder language acquisition. It is

important that children maintain their affective low barrier for an effective teaching and learning practice (Krashen, 1983).

## **2.2 Integrated Curriculum**

It is necessary to say that within the CLIL approach, the didactic requirements for carrying out an integrated curriculum proposal are met. As its own name says, there is a unification of different topics into the same language (content and language). Nevertheless, it is our intention in this DU proposal, to integrate topics and ideas from several subjects into the content side. As Torres Santomé (1994) states on his book about the Integrated Curriculum, the globalized society in which we live it is joining different nations and their own economic and social systems, thus, at school, what we believe it is a compound of independent knowledge separated by subjects does not make sense into a society where so many different fields are interconnected, such as ethical values, economy, science, etc. This is why we believe in a combination of not only content and language, but also different subjects into the main one.

For the accomplishment of this integration, several approaches can be adopted depending on the stress put on the main subject. According to Drake (1993), we can use:

- *Interdisciplinary Approach*: Many different topics or issues within two different subjects meet in the same Didactic Unit. This approach only uses the Evaluation Criteria of the main subject, as the idea is to globalize the unit but not explicitly assess the knowledge acquired in the secondary one.  
E.g., introducing Mathematics in the English subject, within the unit of dates, hours or numbers.
- *Multidisciplinary Approach*: The main subject is completed with important ideas of more than one subject. It mainly differs from the interdisciplinary approach in the number of subjects contained in the same DU.  
E.g., introducing topics of Natural Sciences, Arts, Social Sciences, and Mathematics within the same DU.
- *Integrated Approach*: It is a common approach used in the Spanish Education System since the establishment of the Key Competences and the Stage Objectives of Primary Education (ED 126/2014) as there is a common interest in accomplishing both objectives and competences. Here, it is necessary to

integrate the evaluation criteria of every subject put in practice, as every dimension need to be assessed to make sure the fulfilment of the Competences. E.g., include Natural or Social Science contents within Music or Arts, evaluating the fulfilment of each.

- *Transdisciplinary Approach:* This approach goes beyond the idea of integrating different subjects into the main one, but integrates topics based on real life issues which can be related to certain subjects but are not part of the main curriculum. Besides, these issues or topics usually have a common nexus, it is a way of transposing real life matters to the classroom and, thus, integrate the necessary aspects to accomplish the General Stage Objectives, which cannot be found in the main subject curriculum.

E.g., a project about safety measures in the use of social media in the English subject in which students work to raise awareness about the possible hazards of a misuse of Instagram.

The benefits of using Integrated Approaches in a subject are the globalization of the curriculum, the increase of the meaningfulness of the knowledge, as all the contents are contextualized to a greater extent or the better fulfilment of the general stage objectives, as it has been already mentioned. The main pitfall of these approaches probably could be the reduction of the load of the objectives of the main area, as it is necessary to spread the main area objectives into other areas. Nevertheless, the average results of this integrations seem to be positive.

### **2.3 Multiple Intelligences Theory**

Howard Gardner's Multiple Intelligences theory has meant a complete revolution in the education field, questioning and arguing the basic idea of *intelligence* which has been taken for granted since the beginning of our modern history as the master of mathematical/linguistic contents and memory skills.

Two centuries ago, the idea of intelligence was strictly linked with biological factors such as the size of the brain (Darwin, 1837), an idea largely discussed by the scientific community during the years. Nowadays, we have passed such belief, discovering the link between brain structure and the velocity of the connection between the neurons within it (Roth & Dicke, 2006). But, still with this more advanced and

developed idea of intelligence, it has not been possible to find a unanimous consensus about what the intelligence of a person means.

Many experts think about intelligence as the ability to manage the working memory (Colom et al. 2004). Many others, see the intelligence as a broader and more complex idea, in which many factors are considered and many facets of the personality come into play. One of the most important facets or dimensions to build the current idea of intelligence has been the individual's ability to adapt to the environment in which they live and interact (Sternberg et al. 2000). All this mean there has been a division between an academic and practical thought of intelligence among authors for many years.

One of the most supported theories by the educational community is the Multiple Intelligences theory by Howard Gardner (1993). In this theory, an individual's intelligence is not seen as a unique dimension that allows to be successful or unsuccessful, but rather as a wide spectrum where the importance resides in the ability to perform a in specific domain. This domain can vary depending on the field in which we are performing a certain task. As life can make people go through different situations where different sets of knowledge, attitudes and procedures are put in practice, the idea of a single intelligence does not make sense anymore. That is why MI theory breaks with the previously believed theories and intelligence starts to be seen as a multiple set of intelligences.

Since the creation of the MI theory, the educative community has utterly embraced this way of conceiving the student's intelligence, as it helps to approach one of the most common problems dealt with by teachers all around the world: the incapability to teach a certain type of students who are commonly labeled as problematic, unadapted or not worth being taught just because they cannot meet the common requirements that the history of the educational system has settled as the proper way to carry out the teaching-learning process. This is completely coherent from the student-centered teaching perspective, since student-centered teaching aims to search for the most suitable way to instruct students considering the most profitable way of learning they may manifest.

In the MI theory, there are eight recognized types of intelligence which a student may have, use or develop to different extents. These intelligences cover the most common dimensions of life. Nevertheless, as life is a dynamic construction in constant change, the intelligences must have a dynamic nature. Besides, according to Amstrong (2006) every type of intelligence is linked to a different learning style and preference to choose or perform tasks. The different types of intelligence appear explained below:

- *Linguistic intelligence*: The ability to use and analyze words, to express certain ideas or understand different meanings in both formats, oral and writing. Students with linguistic intelligence enjoy reading and writing. Thus, activities about narration, brainstorming focused on writing, voice recording, portfolios and personal diaries are good tools.
- *Logical-mathematical intelligence*: The ability to use numbers and calculate the results of given problems. Students embedded in this learning style enjoy talking about statistics, numbers and categorizing, problem solving and hypothesizing. Using scientific reasoning in any fields is a good practice to take advantage of their reasoning skills.
- *Spatial intelligence*: Students who match this intelligence can create and understand spatial images with relative ease. Visualizing and creating sketches are tasks they usually like to perform. Also, using in class any kind of graphic metaphor or listening tasks which allow them to imagine and create references in their mind are nice ideas.
- *Musical intelligence*: The ability to work with patterns of sound and remember them. Rhythms, songs, poems and other musical tasks are appropriate for students' development and classroom engagement. Their memorization and understanding are enhanced through music. Also, it is possible to use music to regulate their motivation, using music as a socio-affective strategy which will improve their performance (Ellis, 1989).
- *Naturalistic intelligence*: The predisposition to look, observe and handle elements of nature. Students with a naturalistic learning style enjoy observing nature, animals, insects and plants. Performing tasks about environmental issues, doing field trips, and handling insects or plants are very convenient tools to develop this intelligence. If it is not possible to exit the class, watching documentaries can also be useful, nonetheless it is less effective.
- *Body-kinesthetic intelligence*: The ability to use the body as a tool to solve problems to communicate. Students with a predominance of this kind of intelligence do not usually feel as comfortable sitting down and writing or reading as students with a more linguistic intelligence. Using role model, miming and activities carrying a non-verbal linguistic load are very convenient for their performance. Body intelligent students may be benefited

by the use of English as driving-lesson language, as their ease to use their body to express themselves will make non-verbal communication more efficient so that their communication attempts will be fulfilled in a greater extent. (Ellis, 1989).

Also, practices such as Total Physical Response, developed by James Asher (1965), in which concepts are linked to physical responses are very convenient, even more in the first stages of primary education. These tasks emulate learning as it happens in the student's familiar context for the acquisition of the L1.

- *Interpersonal intelligence*: The ability to share, communicate and understand people. Students with an interpersonal intelligence blossom with a cooperative learning approach, which allows them to interact and feel accepted. Considering every single student in Primary Education requires that feeling of belonging and socialization to develop successfully and it is specifically aimed in the educational law. Activities which promote student-student and teacher-student interaction are the most suitable for them.
- *Intrapersonal intelligence*: The ability to understand the individual's own moods, strengths and weaknesses. Students with predisposition for an interpersonal intelligence improve their performance by reflecting over their own learning. The implementation and scaffolding of metacognitive strategies, which allow students to know how to learn and monitoring their performance, is necessary and very interesting for them. The use of a personal portfolio or diary on which the students can reflect, visualize and follow their progress could increase their engagement and self-esteem, necessary to keep an active role in the class.

As we have previously mentioned, this set of intelligences must be understood as a spectrum rather than several simple options. That means that every person can perform all the different learning styles or intelligences to a larger or shorter extent, so that an individual could be specially thriving processing information through one, two or more ways.

## **2.4 Project Based Learning**

Another very extended approach among the educative community is Project Based Learning (PBL). Despite still being an innovative practice within the classrooms of our current education system, PBL has got a vast history as centre of interest among many educators involved in active teaching-learning practices. Around the 16<sup>th</sup> century, the architect education of the renaissance Rome started to put in practice an approach based in the “art of building”, which gave priority to student’s creativity and practice of their knowledge. This idea spread over the years in different fields, to the beginning of the 20<sup>th</sup> century, when William Heard Kilpatrick created and coined a methodology based on projects, according to the idea that learning is enhanced when combined with experiences. Kilpatrick’s theory was, at the same time, based on the wisdom of important educators such as Pestalozzi, who believed that providing students already-made products and ideas was wrong, but the right practice was providing students with the tools to build their own knowledge (Fernandez & Quintás, 2012).

That is how our current idea of Project Based Learning is built and applied to Secondary and Primary school contexts, in which it means the development of a project throughout a specific period, which can be longer or shorter (a term, semester or the whole year). The peculiarity of this methodology is that this project is meant to be the main character and the central motor of the lessons, which must cover the contents proposed by the curriculum through this common thread (Santamaría-Cárdaba, 2020).

Trying to identify benefits of this methodology, we can find, first, the focus on the student’s cognitive development. Project-based learning makes the student responsible of her/his own learning by providing challenges and opportunities to apply knowledge instead of only remembering. This is completely coherent with Bloom’s Taxonomy (1956), where learning is seen as a gradual process of stages in which the cognitive load increases gradually from the most basic one, remembering, to the most advanced one, creating or evaluating.

Second, PBL appears characterized by the fostering of curiosity, entrepreneurship, and reflection on the topic students are meant to carry out getting involved in the experience, taking ideas from the subject or topics and applying them to the different situations and issues they may get involved with. This is a very reasonable feature considering the necessity of building the Learning to Learn and Sense of Initiative and Entrepreneurship Competences and the stage objectives in both the national and the

Andalusian curriculum (objectives a, b, c and g) related with conflict resolution, problem solving, critical thinking awareness, entrepreneurial spirit, creativity, curiosity and personal initiative.

Third, as a student-centered methodology, PBL requires students to keep an active role in their learning development. An active role in this context means children should have a complete involvement in their learning process, applying the necessary learning strategies to learn appropriately, focus and acquire knowledge in a successful way. In PBL, students are required to monitor their learning and control the learning process through self-regulation by means of planning, structuring ideas, revising their performance and changing it if necessary. They also communicate successfully using any kind of tool to express their message in the target language and regulate their mood and behaviour to be more productive. To achieve this, students' self-esteem and motivation is absolutely necessary, as an active role in the classroom can only be maintained if students are emotionally competent and balanced. Once emotional balance is settled and students maintain their active role, pupils have the opportunity to express themselves through the project, to research, to ask questions and face possible problems, they may build up the necessary strategies to acquire their own learning. In other words, students perform an active role towards their own learning, for what they need a balanced self-concept, and once they achieve it, their involvement in the PBL classroom brings more significant improvements of their self-esteem (Bilgin et al., 2015) which are necessary for appropriate life-long learning.

The most significant factor which differentiates Project Based Learning from a direct method is the cognitive effort done by the students through a continuous inquiry (Barron & Darling-Hammond, 2008; Brush & Saye, 2008), who instead of finding straight solutions to certain problems, relatively easy to be found in any search engine, they have to deepen on a question or more than one, to solve a problem by thinking and collaborating. This has a fair amount of effectiveness over learning quality, which has been demonstrated to be significantly deeper than in direct learning, let alone improvement in students' collaboration skills (Strobel & Van Barneveld, 2009). Here, the teacher's role must be focused on guiding students to the appropriate sources and asking them instead of giving answers, while checking their performance continuously (Harmer, 1995).

Also, PBL has shown good results when implemented in schools with rural backgrounds, since it takes advantage of the proximal resources by applying the main project to students' rural context (Goh & Kale, 2016). As our work will be specifically designed for a rural school, implementing project-based learning seems appropriate to make the most of the school's resources and, at the same time, provide students with a contextualized project and tasks and attend their specific needs.

All these advantages joint perfectly with this UD's purpose: creating a globalized proposal with which we can support the general and specific needs of all and each of our students, taking into account their different rhythms, personalities and interests.

## **2.5 CLIL, MI and PBL**

As it has been mentioned before, our aim is to combine the set of approaches already explained in order to create a Didactic Unit as complete and meaningful as possible that fits the demands of our time from an educational point of view. This DU will be focused on teaching students to be interested in the natural environment and to broaden their knowledge about social problems related to the environment and ecosystems' hazards, all this in a holistic way following an integrated curriculum structure.

The reasons why we believe the approach Content and Language Integrated Learning can suppose a good fit with the Multiple Intelligences and Project Based Learning methodologies is based on the CLIL principles of cooperation, multidisciplinary and high-order skills development. The main aim of CLIL is to develop the learner's knowledge from a theoretical and a practical perspective, language and content at the same time, stressing the importance of using different strategies that make it natural for pupils to acquire a certain information in a way that is natural to them. Thus, in CLIL, the Target Language is not a demonstrating obstacle for them but provokes in the learner the necessary effort to make a transition between an "unknown" code and their own knowledge, an effort in which brain connections which do not take place with direct learning through the L1 are created.

This basic idea is in line with the main driving force of the Multiple Intelligences theory, which, as already explained, proposes an accommodation of the contents to the different ways of learning of the students, so that, as with CLIL, the motivation of the subjects does not wane when obstacles which they are not able to avoid are presented.

From this perspective, MI theory becomes the perfect tool to implement under the CLIL umbrella, so that the scaffolding normally employed to make content approachable for the learner will be further intensified by adjusting to different learning styles. These learning styles and the tools that are used to promote them need a nexus that distributes knowledge evenly among the different dynamics, so that all of them reach the same goal.

This is where the Project Based Learning methodology comes into play. The implementation of a common project from which a variety of questions can arise or derive, based on the context and the curiosity of the students, is the perfect way to engage student in several activities aimed at specific learning styles, such as the creation of a podcast, a song, watching documentaries, etc., all of them based in the idea of learning by doing, which would be difficult to fit into a classic Didactic Unit.

One of the pieces which makes this union of different approaches more comprehensive is the focus on a learner-centered approach, in which students will be the main characters in the class regarding to learning and taking responsibilities. As it has been mentioned in the previous sections, one of the most important factors is the emotional balance of the students, which they need to play an active role over their learning. Here, the MI theory blends perfectly with PBL learning and CLIL. The former two are student-centered approaches which can be nourished by the variety of tasks required by applying the MI theory, which is an effective measure for attention to diversity as it adapts the learning practice to the different styles of students. This derives in a lowering of the student's affective filter (Krashen, 1983), which combined with the motivation of PBL student collaboration allows students to maintain an adequate learning rhythm, active role, and preparation for her/his life-long learning.

From this combination, we do not intend to create a "new methodology" or novel idea that transforms classrooms. We are aware and believe that this mix of approaches might be the materialization of the classroom reality of many teachers, since as teachers, we know that the daily practice of an educator is based on the combination of different types approaches to fit the needs of the class. However, these practices are often carried out unconsciously and, therefore, this Didactic Unit can serve as an example of a combined implementation of these different ways of working, acknowledging them and taking into account their strengths and pitfalls in order to facilitate the content to all students in a conscious way.

### 3. DIDACTIC PROPOSAL

The name of this CLIL Didactic Unit is “From water to life” and it is addressed to the second year of Primary School. The proposal is meant to be carried out considering all the Covid-19 measures which have been included in the course 2020/2021 related to social distance, hygiene, safety measures and individual activity focus. As the Didactic Unit is based on a real experience, with real students and context, the aim is to adapt our ideas to the situation in which we currently live and make the DU possible to be put in practice in the current academic year (2021-2022) in which probably the safety measures will be implemented the same way. Nevertheless, this lesson plan is easily adaptable to a normal situation before the pandemic.

The content subject from which we start and in which the Didactic Unit is embedded is Natural Sciences so that all the didactic proposal is aimed to mainly foster and improve students’ basic science competence as the initial engine from which we can start developing and completing the rest of the basic competences. Also, one of the *raisons d’être* of this Didactic Unit is to increase the students' capacity for basic reflection on issues related to the most important environmental problems occurring today, such as sustainable development and the exploitation of the seas and oceans through illegal or abusive fishing, all through a project in which the main protagonist is water.

The content-driven language will be English, following a Content and Language Integrated Learning approach. This proposal will show the perspective of the Content Teacher, who teaches the subject of Natural Sciences although this process should be supported and completed by the Language Teacher, who should be covering and introducing the linguistic structures, vocabulary and typologies at the same time on this DU is being carried out. Thus, a constant and common teamwork is needed for the development of the unit.

The selection of this topic has been done due to our current knowledge of students interests and learning strategies, even though we will start from students’ questioning and reflection on their own capacities, interests and preferred ways of working, as this is a necessary starting point in the Multiple Intelligences approach. Needless to say, it has been very important to take into account the interests and preferences of the students involved in the process so that the project could be as meaningful as possible regarding the context.

### **3.1 Context**

The school and class which this DU is initially designed for is Novaschool Medina Elvira, a private school situated in the outskirts of Atarfe, a city belonging the province of Granada. Because of its location, the school could be considered rural as it is surrounded by forest without any kind of civilization around the school building. One of the most outstanding features of the school at the day is the low student's ratio in the classrooms, since it is a school which officially started in 2015, there are not many students per class in Primary Education and there is only a group for each grade and 4 to 12 students per class.

The low class-size and private nature of the school creates a very close and fluent contact with parents, who are very involved in their children's education, either presentially or through the school's platform. Most families come from wealthy, upper-middle class backgrounds, since they can afford paying the monthly school fees for an average of two students per family. It is a school that currently, from an economic point of view, is not having a positive profitability since it is in start-up, its economic weight is supported by the rest of the schools of which the Novaschool collective is part.

Students make up very heterogeneous groups, with a wide range of academic and linguistic levels. There are many students with a great capacity for learning while others present slower levels of attention or development and, for this reason, non-significant adaptations are made within the subjects. As for significant adaptations and specific learning needs, the school does not have any students so far who require special adaptations.

The school teaches most of its subjects in English, with Spanish Language and Mathematics being the only subjects taught in the mother tongue, so Natural and Social Sciences are adapted to the CLIL methodology.

The students' school schedule is longer than that of any state school in the same context, with a start time of 8:45 a.m. and an end time of 5:15 p.m., with an hour and a half break divided into two breaks during the day, and a total of 6 periods, which we can take advantage of in this UD to make the most of the school hours and the students' involvement time.

### 3.2 Methodology

As it has been already mentioned, this DU has the aim of integrating different methodologies which are usually seen as separate sets of practices, but which combined can fit perfectly to perform a communicative and meaningful proposal, reaching the level of innovation that students belonging our current educative system deserve. Our first and more general goal, is to provide the education of our students with the expectations and necessities attached to their own time.

The combination of different methodologies, approaches and strategies, from a more formal point of view, has the objective of adapting the actions within the classroom to the multiple ways of learning of the students, and thus creating a more motivating environment in which any student can give the best of him/herself. (Durán & Beltrán, 2020). On the following page, we will explain concretely the main reason why each approach or method is used in this didactic unit or with which objective it is adhered to.

As explained above, the Multiple Intelligences Theory by Gardner (1993) has the purpose of adapting the contents to the different ways of learning of the students. The subject of Natural Sciences does not usually stand out for its flexibility in terms of the way it is taught, so it highlights to a greater extent those students with more naturalistic or interpersonal intelligences, who may adhere to the content being taught. However, taking into account other ways of learning and evoking feelings in students with different learning strategies can bring the subject and the co-curricular content being addressed in a more effective way to all (Shore, 2004).

The search for a *raison d'être*, or a common thread that gives meaning and provides certain interest to the students is the reason why the project "Water, hydroponic crops and compost bins" has been created for the realization of this DU (Nunez, 2018). In this way, the students will investigate the different contents of the corresponding area, plus other curricular appropriate contents that have a direct reference to the topic through the realization of these crops. In addition, as the PBL methodology indicates, the students will present at the end of the Unit their project to the rest of the students of the school and their parents.

Likewise, the inclusion of an Integrated Curriculum can be beneficial for students in the same way as the Multiple Intelligences approach. Studies show the effectiveness of the Integrated Curriculum for the cognitive development of students, since, in the same

area, they can reinforce different parts of their brain with different activities framed in different subjects.

The Didactic Unit will be taught over 8 sessions, including the initial session. It is designed to last a full month with 2 lessons of 60 minutes per week, which is the average length of a Didactic Unit in the textbook assigned for class. Since the duration of the classes is longer than the average lesson in a private school, we can take advantage of this schedule to set up a larger number of activities and focus on the needs of the student during the lesson.

Focusing the DU on the Multiple Intelligences approach, the sessions will be distributed in the different types of intelligences in general, specifically, our intention is that each session contains activities that group as many learning strategies as possible, so that each student can make the most of their cognitive, metacognitive and communicative strategies. The following table specifies the main learning strategies per session:

| <b><u>Lesson number</u></b>    | <b><u>Main intelligences approached</u></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Initial session<br>(Session 1) |  Intrapersonal  Interpersonal  Musical  Naturalist  Visual/Spatial                                                                                                                         |
| Session 2                      |  Musical  Bodily/Kinesthetic  Interpersonal  Naturalist  Verbal/Linguistic  Visual/Spatial              |
| Session 3                      |  Interpersonal  Verbal/Linguistic  Intrapersonal  Visual/Spatial                                                                                                                                                                                                                |
| Session 4                      |  Interpersonal  Naturalist  Musical  Intrapersonal  Verbal/Linguistic  Visual/Spatial                   |
| Session 5                      |  Interpersonal  Logical/Mathematical  Naturalist  Bodily/Kinesthetic  Verbal/Linguistic  Visual/Spatial |

|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Session 6 |  Interpersonal  Naturalist  Bodily/Kinesthetic  Logical/<br>Mathematical  Intrapersonal  Verbal/<br>Linguistic<br> Visual/Spacial |
| Session 7 |  Interpersonal  Bodily/Kinesthetic  Naturalist  Verbal/<br>Linguistic  Logical/<br>Mathematical  Intrapersonal<br> Visual/Spacial |
| Session 8 |  Interpersonal  Verbal/<br>Linguistic  Naturalist  Intrapersonal  Visual/Spacial                                                                                                                                                                                                                     |

*Table 1. Learning styles covered in every session.*

Finally, it is necessary to specify that each session will follow a progressive cognitive load following the steps of the CLIL approach, and taking as reference Bloom's (1956) taxonomy, and its revision by Anderson and Krathwohl (2001). Their pyramid of levels of cognitive processing states the steps to reach higher order thinking skills and, thus, a more complex cognitive development in the students in terms of performance. This is the reason why each session is divided in pre-task (remembering), while-task (understanding, applying, analyzing) and post-task (creating and/or evaluating).

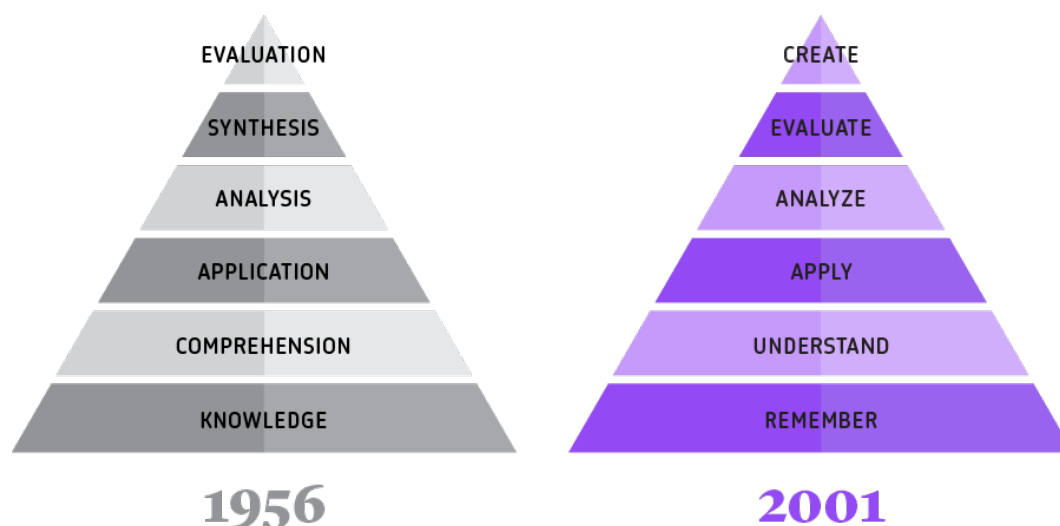


Figure 2: Bloom's Taxonomy (1956) and Anderson and Krathwohl's revision (2001)

### 3.3 Contents

Regarding the main subject of Natural Sciences, in which this DU will be embedded, the block 3 “Living things” will play a main role in the development of the unit as it will turn around animals, plants and its relationship with the environment. In this block, with the realization of this sequence, students are intended to understand the meaning of living things, classify different types of living things regarding their environment, think about plants as a non-static and living organisms which carry out processes that are similar to animals and understand the importance of water and its value for the proper functioning of all the processes. Also, it is important for students to deep into the value and care of all the living things around us.

In order to understand the concept of living things and the importance of water in natural and everyday biological processes, the chosen project, hydroponics and the handmade compost bin, will be fundamental, as it will give the students the opportunity to observe first-hand and experience the relationship between plants/animals/water.

It should be borne in mind that by carrying out the Didactic Unit in a CLIL environment, the pupil will not only be developing knowledge relating to the contents we have just explained but will also be developing the linguistic contents of the area of knowledge being studied. Thanks to the collaboration of the language teacher, the pupil will be putting into practice vocabulary and structures from this scientific area, and also from their daily life: animals, plants, ecosystems, etc.

In the following table we can see a relation between the contents and objectives concerning the non-linguistic subject plus those of the target language:

| Natural Sciences Contents                  | Content objectives                                                                            | Language Contents       | Language Objectives                                                                                                                                                                                                                                                                                                                                                      |
|--------------------------------------------|-----------------------------------------------------------------------------------------------|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Concept of “Living Thing” and environment. | To understand and identify living things, their nature and environment among a set of things. | Living things concept.  | <p>- Comprehension:</p> <p>To understand basic concepts related to Living things in oral and written channels.</p> <p>- Production:</p> <p>To use vocabulary related with living things when speaking and writing.</p> <p>To communicate short sentences to identify what a living thing is.<br/>e.g., <i>A lion is a living thing. A rock isn't a living thing.</i></p> |
| Types of living things.                    | To differentiate different types of living things regarding their nature, plants, animals...  | Types of living things. | <p>- Comprehension:</p> <p>To recognize different names of living things in oral and written texts.</p> <p>- Production:</p> <p>To label different animals, plants and objects as living or non-</p>                                                                                                                                                                     |

|         |                                                                                                                                  |                    |                                                                                                                                                                                                                                                                                                       |
|---------|----------------------------------------------------------------------------------------------------------------------------------|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         |                                                                                                                                  |                    | <p>living things in oral and written activities.</p> <p>e.g., <i>This is a monkey,</i><br/><i>monkeys are mammals.</i></p>                                                                                                                                                                            |
| Animals | <p>To identify different sets or types of animals, including human beings.</p> <p>To differentiate an animal from an insect.</p> | Animals and types. | <p>- Comprehension:</p> <p>To recognize and differentiate animals by their name when listening or reading a text.</p> <p>- Production:</p> <p>To speak about their favourite animals/insects and write or speak about them.</p> <p>e.g., <i>My favourite animal is the dog.</i></p>                   |
| Plants  | <p>To understand the basic parts of the plant and the difference between flowering and non-flowering plants.</p>                 | Plants and types.  | <p>- Comprehension:</p> <p>To understand and distinguish the name of several and different plants.</p> <p>- Production:</p> <p>To be able to describe plants as flowering or non-flowering when it is shown and write the name appropriately.</p> <p>e.g., <i>pinos are non-flowering plants.</i></p> |

|                                                |                                                                                           |                                                     |                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------------------------|-------------------------------------------------------------------------------------------|-----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Water                                          | To understand the importance of water for everyday life and reflect on its use and waste. | Water importance/<br>how to save water.             | <p>- Comprehension:<br/>To understand basic information about water and its importance in oral and written texts.</p> <p>- Production:<br/>To produce short and basic sentences regarding the importance of water in life in both oral and written means.<br/><i>e.g., We need water to live/eat/drink/wash.</i></p>                                        |
| Respect and care habits towards living things. | To reflect on the importance of treating the environment gently.                          | Animal care and respect/<br>plant care and respect. | <p>- Comprehension:<br/>To understand discourses about importance of taking care of the environment and living things that surround us.</p> <p>- Production:<br/>To produce short and basic sentences about animal, plant or environmental care and respect by oral and written means.<br/><i>e.g., We can't kill animals/throw rubbish to the sea.</i></p> |

*Table 2. Relation between contents and objectives, linguistic and non-linguistic.*

This project could strictly cover the contents related to the subject; however, our intention is to cover other topics and aspects related to other subjects, competences and real-life issues in general. Thus, the cross-curricular elements and interdisciplinary elements are the following ones.

### **3.3.1 Interdisciplinary elements**

Language: Students will learn the importance of communicating in an appropriate way and will do so by various means, in both their mother tongue and the foreign language. Therefore, communicative strategies such as letter writing and informal conversation in podcasts will be put into practice.

Physical Education: Taking advantage of the environment in which the school is located, one of the sessions will include a mini hiking route for students to locate different types of plants, animals and insects. This practice also aims to emphasize the importance of going out into the natural environment and physical movement to be in contact with nature and improve general wellbeing.

Social Sciences and Social and Civic Values: Even though the fostering of behavioral contents related with the importance and care of the environment are reflected in the subject of Natural Sciences, the contribution of these actions and ways of thinking as a proper way of living in society and becoming a healthy citizen could also be attributed to the areas of Social Science and Civic Education

Artistic Education: In order to promote a proper practice of the spatial and musical learning strategies of students regarding the Multiple Intelligences approach, students will be asked to create a portfolio in which they will reflect the work done and the new knowledge acquired with pictures. Besides, they will have the opportunity of learning through songs.

### **3.3.2 Cross-curricular elements**

Cross-curricular elements are those ideas and values that will be treated in the UD, focused to promote attitudes which are not strictly related with the subject:

- Animal and plant harassment caused by the illegal or abusive fishing strategies in our oceans, the importance of sustainable fishing procedures, techniques and timing in order not to destroy ecosystems.
- Using ICT and the use of the Internet to spread ideas and beliefs about a certain topic, writing a complaint letter for a townhall, reading or writing news, creating a podcast in which the thread of the project will be explained.
- Daily basic water economy and the importance of saving water for the proper functioning of society. The use of water to create life and the introduction of smart procedures of watering plants to save water such as hydroponic crops.

## **3.4 Objectives**

### **3.4.1 General Objectives for Primary Education**

Regarding the *Orden 15 de enero de 2021*, which develops the curriculum corresponding the Primary Education Stage in the Autonomous Community of Andalusia, the objectives students are supposed to accomplish at the stage of Primary Education in the subject of Natural Sciences are:

- O.CN.1 To use the scientific method to plan and carry out simple projects through observation, a plan of hypotheses and investigation in practice, developing conclusions which allow the student to reflect on his/her own learning process.
- O.CN.2 To analyze and select information about properties of some materials, objects or phenomena and make hypotheses about them using the evolution and plan of their projects.
- O.CN.3 To recognize and comprehend basic aspects of the human body functioning, establishing links with the possible consequences for the individual and collective health, valuing the benefits of the acquisition of healthy habits.

- O.CN.4 To interpret and recognize the main components of ecosystems, analyzing their organization and characteristics and their interdependence relationships, searching for explanations, proposing solutions, and acquiring a behavior in daily life towards protection and ecological balance, sustainability, etc.
- O.CN.5 To know and value the Andalusian natural heritage and contribute to its maintenance and improvement.
- O.CN.6 To participate in working groups, putting in practice attitudes regarding the scientific method.
- O.CN.7 To comprehend the importance of scientific progress and value its incidence and transcendence on our daily life.
- O.CN.8 To use information and communication technologies as a learning tool to obtain information, share knowledge and contribute to the improvement of the life conditions of citizens.

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### **3.4.2 Specific Objectives for Primary Education 2<sup>nd</sup> year**

The general objective of this Didactic Unit could be summarized as: To reflect and understand the importance of water, animals and plants for the natural environment and identify the basic concepts and types regarding this area of knowledge. From this point, several specific objectives could be developed to express what these 2<sup>nd</sup> year students of Primary Education are supposed to achieve in order to learn the contents of the proposal. These are the forementioned content objectives and language objectives adding the interdisciplinary and cross curricular elements, plus, those regarding the MI theory. The specific objectives are the following ones:

- To understand general and specific information about living things, concept, identification, nature and environment.
- To discriminate whether something is a living thing or an inanimate object.
- To differentiate different types of living things regarding their nature: plants, animals, or insects.
- To identify different sets or types of animals, including human beings.
- To understand the basic parts of the plant and the difference between flowering and non-flowering plants.

- To understand the importance of water for everyday life and reflect on its use and waste.
- To reflect on the importance of treating the environment gently.
- To understand the importance of sustainable fishing and the care of the sea bottom.
- To know basic vocabulary related to living things.
- To produce simple and basic structures related to living things, their importance, care, etc.
- To understand the difference between a formal register and an informal register when talking about the topic.
- To use and familiarize with the use of ICTs to share information and ideas.

### **3.5 Competences**

Regarding the Real Decreto 126/2014 which establishes the Key Competences, combination of knowledge, abilities and attitudes necessary for a life-long learning that must be acquired throughout the Primary Education stage in the Spanish Education System and taking into consideration Orden ECD/65/2015 which establishes the relation between these basic competences, contents and evaluation criteria, we can conclude that our Didactic Unit contributes to the development of the different Key Competences in the following ways:

- 1) Linguistic Communication Competence (CCL): The main outcome of this Didactic Unit is the communication in diverse directions: with the teacher through the daily portfolio; with other students, carrying out the activities; and with a simulated audience to whom the podcast is addressed. Most of this communication will be performed in L2 but the mother tongue will be used in some activities.
- 2) Mathematical Competence and Basic Competences in Science and Technology (CMCT): With the study and reflection over the environment and living things, science will be an always present factor in the class and one of the main reasons of the development of this unit is fostering the value of living things, ecosystems etc.

- 3) Digital Competence (CD): The role of technology in this DU will be a means of communication, as students will have to get familiarized with the use of platforms where sharing their knowledge and ideas, also the viewing of documentaries and videos will help the understanding of content.
- 4) Learning to Learn (CPAA): The DU will be carried out through a communicative, student-centered, and the task-based methodology, task-based learning, in which students will have an active role over their cognitive and metacognitive strategies by exploring the content through multiple ways and monitoring their performance in the portfolio.
- 5) Social and Civic Competences (CSC): With the fostering of student's environmental awareness, this competence will have a major role in the unit, and it will be evaluated throughout all the activities which are meant to have a communicating product as, for example, the portfolio.
- 6) Sense of Initiative and Entrepreneurship (SIE): When students reflect on the possible solutions to diverse problems or choose different paths for carrying out the project, their sense of initiative will be put into practice.
- 7) Cultural awareness and expressions (CEC): With the development of the didactic unit, students will learn to appreciate both the general environment of the planet earth, oceans and seas, plants, animals, etc. in general, and the ecosystems of their immediate context, rivers, beaches, forests, etc. Moreover, the mini-trips outside the school to learn about the ecosystem that surrounds us will help the fulfillment of this competence.

### 3.6 Lesson plan general development

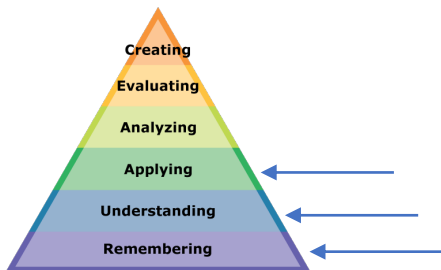
In this section we are going to summarize the general arrangement of the lessons scheduled during this Didactic Unit, as we mentioned previously, the DU is meant to last around a month. Considering there are two sessions every week, every week will be focused on a different aspect. The next table will show the different aspects covered every week:

|                                   |                                                                   |                                 |                                 |
|-----------------------------------|-------------------------------------------------------------------|---------------------------------|---------------------------------|
| <u>Week 1</u><br>(Sessions 1 & 2) | <u>Week 2</u><br>(Lesson 3 & 4)<br>• Introduction to the project. | <u>Week 3</u><br>(Lesson 5 & 6) | <u>Week 4</u><br>(Lesson 7 & 8) |
|-----------------------------------|-------------------------------------------------------------------|---------------------------------|---------------------------------|

|                                                                                                                                                                                                                                             |                                                                                                                                                                                                                              |                                                                                                                                  |                                                                                                                                                                                                        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• Introduction to the topic and its vocabulary.</li> <li>• Introduction to MI theory.</li> <li>• Students initial test to MI.</li> <li>• Introduction and starting to the Unit Portfolio.</li> </ul> | <ul style="list-style-type: none"> <li>• Designing of the project elements.</li> <li>• Material gathering for the project.</li> <li>• Introduction and creation of the Unit Podcast.</li> <li>• Portfolio making.</li> </ul> | <ul style="list-style-type: none"> <li>• Creation, Construction of the project.</li> <li>• Start of the Unit podcast.</li> </ul> | <ul style="list-style-type: none"> <li>• Introduction to environmental issues.</li> <li>• Reflection on possible solutions to those issues.</li> <li>• Project presentation (and rehearsal)</li> </ul> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### 3.7 Lesson Plan Development

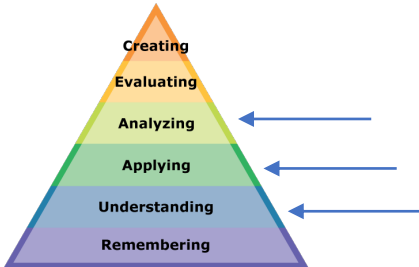
#### 3.7.1 Session 1

| Lesson Planning (Session 1)      |                                                                                                                                                                                                                                                                                                                   |
|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Lesson Name: I'm a Living Thing! | Unit Name: From water to life<br><i>Block 3 "Living Things"</i>                                                                                                                                                                                                                                                   |
| Stage Objectives                 | <i>O.CN.1, O.CN.4, O.CN.6</i><br>(Orden 15 de enero de 2021)                                                                                                                                                                                                                                                      |
| Specific Objectives              | <ul style="list-style-type: none"> <li>- To understand the different types of learning.</li> <li>- To understand general and information about living things.</li> <li>- To discriminate whether something is a living or a non-living thing.</li> <li>- To use vocabulary related with living things.</li> </ul> |
| Main outcome                     | <ul style="list-style-type: none"> <li>- To identify student's learning style.</li> <li>- To draw and classify living and non-living things within the class.</li> </ul>                                                                                                                                          |
| Methodology                      |                                                                                                                                                                                                                               |

| Description of activities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Learning strategy                                                                                                                                                              | Timing |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| <p><b>Pre-task</b></p> <p>As a warm-up, students are going to listen to a song in the target language about Multiple Intelligences. Here, they will get a first idea about the existence of different types of intelligence (lyrics in appendix 1):</p> <p><a href="https://www.youtube.com/watch?v=K5XpODzUE78">https://www.youtube.com/watch?v=K5XpODzUE78</a></p> <p>After listening and singing the song, students will be ready to start looking for their own learning style(s).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                             | 10 min |
| <p><b>Task</b></p> <p>Regarding the theory of the Multiple Intelligences, we ought to discover which are the different learning styles of our students, so that they will get a better understanding of their learning processes. Thus, a survey with several questions about their preferences will be presented to them (appendix 2).</p> <p>Once they have filled the survey, they will be asked which questions were answered “yes” in order to know what preferences they have as it can be seen in appendix 3.</p> <p>They will find out which intelligence(s) are their preferred ones and for every different type of learning style they discover they have; a badge will be given to them. Nevertheless, it will only be used as a reference for the teacher, as the daily practice of the different tasks and the direct observation of the teacher will be the main tool to understand students learning style.</p> | <br> | 30 min |
| <p><b>Post-task</b></p> <p>Once students are aware of their learning style, the cool-down activity of this class will be focused on introducing the topic of the Didactic Unit. Thus, they will watch a mini documentary about the difference between living and non-living things.</p> <p><a href="https://www.youtube.com/watch?v=X9qGI4Ju8ak">https://www.youtube.com/watch?v=X9qGI4Ju8ak</a></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <br> | 20 min |

|                                                                                                                                                                                                                                         |                                                                                                                                 |  |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|--|--|
| Following this, students will play a little to put into practice what they have learnt, they will be asked to find in the classroom all the living and non-living things the class contains and draw them down in a paper (appendix 4). |                                                                                                                                 |  |  |
| Materials                                                                                                                                                                                                                               | <ul style="list-style-type: none"> <li>• Learning style survey</li> <li>• Living things / non-living things template</li> </ul> |  |  |

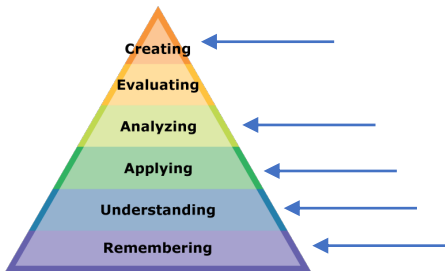
### 3.7.2 Session 2

| Lesson Planning (Session 2) |                                                                                                                                                                                                                                                                                                                                |                                                                 |        |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|--------|
| Lesson Name: Field trip     |                                                                                                                                                                                                                                                                                                                                | Unit Name: From water to life<br><i>Block 3 “Living Things”</i> |        |
| Stage Objectives            | O.CN.1, O.CN.2, O.CN.4, O.CN.5<br>(Orden 15 de enero de 2021)                                                                                                                                                                                                                                                                  |                                                                 |        |
| Specific Objectives         | <ul style="list-style-type: none"><li>- To differentiate living and non-living things in their own environment.</li><li>- To value student’s own natural context.</li><li>- To understand general and specific information about living things.</li><li>- Exchange oral and written information about living things.</li></ul> |                                                                 |        |
| Main outcome                | <ul style="list-style-type: none"><li>- Recognize different natural elements during the mini trekking field trip.</li><li>- To plant a seed previously picked up.</li></ul>                                                                                                                                                    |                                                                 |        |
| Methodology                 |                                                                                                                                                                                                                                            |                                                                 |        |
| Description of activities   |                                                                                                                                                                                                                                                                                                                                | Learning Strategy                                               | Timing |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                    |                                           |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
| <p style="text-align: center;"><b>Pre-task</b></p> <p>In order to elicit the previous knowledge acquired in session 1, students are going to listen and sing a song about living things:</p> <p style="text-align: center;"><a href="https://www.youtube.com/watch?v=tzN299RpJHA">https://www.youtube.com/watch?v=tzN299RpJHA</a></p> <p>The lyrics extract which will be repeated to them in order to remember what a living thing is (appendix 5).</p> <p>Also, a Total Physical Response (TPR) sequence is going to be repeated while singing the song, so that comprehension can be enhanced.</p>                                                                                                                                                                                                                 |  Musical<br> Bodily/Kinesthetic                                                                                                              | <p style="text-align: center;">5 min</p>  |
| <p style="text-align: center;"><b>Task</b></p> <p>The main task of the class will be focused on movement and observation of the natural background, students are going to be carried to the school's surrounding field, a mini trekking trip for which parents have given their explicit permission.</p> <p>In this trip, students will be asked to look at the difference between several objects, some of them living things and non-living things. Besides, those living things will be classified as animals, plants or insects.</p> <p><i>e.g., What is this? is this a living thing? Or a non-living thing? Is this an animal? Or a plant?</i></p> <p>Students will also be asked to find a wild seed and as they find it, it will be introduced in a container with cotton and water, in order to make it.</p> |  Naturalist<br> Bodily/Kinesthetic<br> Interpersonal | <p style="text-align: center;">45 min</p> |
| <p style="text-align: center;"><b>Post-task</b></p> <p>To finish up this session, students will start to create their Unit Portfolio. In a notebook which they were previously asked to bring to the trip, sitting down on the ground, they will write and draw their own experience down, using simple grammar structures (appendix 6) provided by the teacher and pictures of their most remarkable moments.</p> <p>They are not limited in terms of writing or drawing; students will decide the content of their portfolio.</p>                                                                                                                                                                                                                                                                                   |  Visual/Spacial<br> Verbal/Linguistic                                                                                                    | <p style="text-align: center;">10 min</p> |

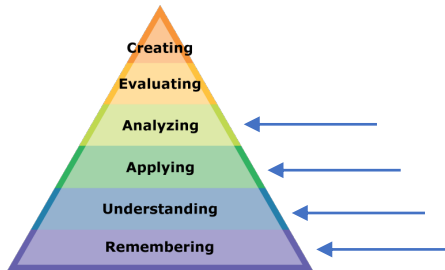
|           |                                                                                                                                                                                                                                                                              |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Materials | <ul style="list-style-type: none"> <li>• Short-distance trekking equipment (Sport clothes, water, sunscreen, etc.).</li> <li>• Container with cotton and water.</li> <li>• Small notebook (Portfolio).</li> <li>• Seed(s) to germinate.</li> <li>• YouTube video.</li> </ul> |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### 3.7.3 Session 3

| Lesson Planning (Session 3)                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                                        |        |
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| Lesson Name: I love plants!                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                     | Unit Name: From water to life<br><i>Block 3 “Living Things”</i>                                        |        |
| Stage Objectives                                                                                                                                                                                                                                                                                                 | <i>O.CN.1, O.CN.2, O.CN.4</i><br><i>(Orden 15 de enero de 2021)</i>                                                                                                                                                 |                                                                                                        |        |
| Specific Objectives                                                                                                                                                                                                                                                                                              | <ul style="list-style-type: none"><li>- To understand the meaning of hydroponic crop.</li><li>- To understand general and specific information about plants.</li><li>- Exchange information about plants.</li></ul> |                                                                                                        |        |
| Main outcome                                                                                                                                                                                                                                                                                                     | <ul style="list-style-type: none"><li>- Create a design for the project “hydroponic crop”.</li><li>- Portfolio diary.</li></ul>                                                                                     |                                                                                                        |        |
| Methodology                                                                                                                                                                                                                                                                                                      |                                                                                                                                 |                                                                                                        |        |
| Description of activities                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                     | Learning Strategy                                                                                      | Timing |
| <p><b>Pre-task</b></p> <p>Images of several types of flowers and plants will be presented to students. Some of them flowering plants, non-flowering plants, trees, bushes, etc.</p> <p>Then, they will be asked simple question about the pictures in order to elicit their previous knowledge (appendix 7).</p> |                                                                                                                                                                                                                     | <br>Interpersonal | 10 min |

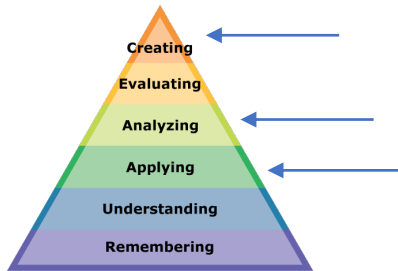
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                       |                                                                                                                                                                                                                                                                                                                                             |        |
| <p style="text-align: center;"><b>Task</b></p> <p>The main part of this session will be focused on deepening on the meaning of plant, their types and parts, and the introduction of the main part of the unit project.</p> <ul style="list-style-type: none"> <li>First, students will read a text, graded to their level, about plants, main parts and importance of water in plant's life. (Appendix 8).</li> <li>Following this, the class will focus on the idea of hydroponic crop. Taking into account that water is one of the most important features in plants growing and evolution, several examples of plants growing in water will be shown to them (appendix 9).</li> <li>The germinated seeds they planted in the previous lesson will be used as examples of the importance of water for plants.</li> <li>Once they understand can live with water, they are going to see examples of several plants, hydroponic crops and create the sketch of their own cop after seen a model. (appendix 10).</li> </ul> |                                                                                       | <br>Verbal/<br>Linguistic<br><br><br>Intrapersonal<br><br><br>Visual/Spacial       | 35 min |
| <p style="text-align: center;"><b>Post-task</b></p> <p>As a gathering of all the new information introduced in this session, students will reflect and write on their Unit Portfolio everything they have learnt. In order to facilitate this, the teacher will write a set of structures on the board.</p> <ul style="list-style-type: none"> <li>- <i>All plants need... and...</i></li> <li>- <i>My favourite plant is...</i></li> <li>- <i>A flowering plant has...</i></li> <li>- <i>A hydroponic crop is...</i></li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                       | <br>Intrapersonal<br><br><br>Verbal/<br>Linguistic<br><br><br>Visual/Spacial | 15 min |
| Materials                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <ul style="list-style-type: none"> <li>Plants images.</li> <li>Plant text.</li> </ul> |                                                                                                                                                                                                                                                                                                                                             |        |

### 3.7.4 Session 4

| Lesson Planning (Session 4)                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                             |        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| Lesson Name: Animal and insects are awesome!                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                     | Unit Name: From water to life<br>Block 3 “Living Things”                                                                                                                                                    |        |
| Stage Objectives                                                                                                                                                                                                                                                                                                                                                                   | O.CN.1, O.CN.4, O.CN.6<br>(Orden 15 de enero de 2021)                                                                                                                                                                                                               |                                                                                                                                                                                                             |        |
| Specific Objectives                                                                                                                                                                                                                                                                                                                                                                | <ul style="list-style-type: none"><li>- To understand general and specific information about animals and insects.</li><li>- To understand general information about compost and its importance.</li><li>- Exchange information about animals and insects.</li></ul> |                                                                                                                                                                                                             |        |
| Main outcome                                                                                                                                                                                                                                                                                                                                                                       | <ul style="list-style-type: none"><li>- Start the Unit Podcast.</li><li>- Portfolio diary.</li></ul>                                                                                                                                                                |                                                                                                                                                                                                             |        |
| Methodology                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                  |                                                                                                                                                                                                             |        |
| Description of activities                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                     | Learning Strategy                                                                                                                                                                                           | Timing |
| <p><b>Pre-task</b></p> <p>Images of plants, animals and insects will be introduced to students, previous and future content, in order to remember the previous knowledge acquired and link it to the new one (appendix 11).</p> <p>Students will be asked simple questions. e.g., What is this? Is this a plant or an animal? Who knows what this is? Is a fly an animal? Why?</p> |                                                                                                                                                                                                                                                                     | <br>Interpersonal                                                                                                      | 10 min |
| <p><b>Task</b></p> <p>The main part of this session will turn around the concept of compost. First, they will watch a mini documentary for kids explaining what compost is (appendix 12).</p> <p><a href="https://www.youtube.com/watch?v=Q5s4n9r-JGU">https://www.youtube.com/watch?v=Q5s4n9r-JGU</a></p>                                                                         |                                                                                                                                                                                                                                                                     | <br>Naturalist<br><br><br>Musical | 30 min |

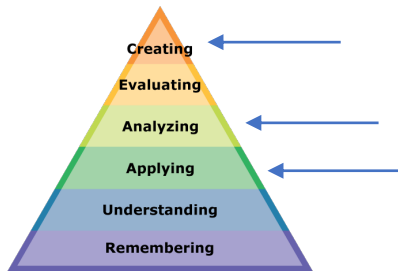
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| <p>Then, students will deep in the role of plants, animals and insects in the creation or use of compost so that some emphasis is put on the differentiation of these three concepts.</p> <p>To finish, students will listen and sing a song about insects, so that they can settle the knowledge learnt during the class (appendix 13).</p> <p><a href="https://www.youtube.com/watch?v=lxH7NBbL9JY">https://www.youtube.com/watch?v=lxH7NBbL9JY</a></p>                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                           |
| <p style="text-align: center;"><b>Post-task</b></p> <p>Students will keep working developing the project items:</p> <p>First, they will be introduced to the concept of podcast, pumping students up towards the importance of sharing their knowledge with people, family and friends.</p> <p>Pupils will start the first program by explaining what the project is going to be about (hydroponic crop and compost) and, they will have the opportunity at the end of the “episode” to share their feelings in the mother tongue, in a mini debate.</p> <p>Every podcast episode will be recorded and sent to their parents by the school platform (MyAgora+).</p> <p>After this, they will write or draw on their Portfolios everything happened during the lesson. Animal/insects difference, compost, and the beginning of the podcast.</p> | <br>Interpersonal<br><br><br>Intrapersonal<br><br><br>Verbal/<br>Linguistic<br><br><br>Visual/Spacial | <p style="text-align: center;">20 min</p> |
| <p style="text-align: center;">Materials</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <ul style="list-style-type: none"> <li>• Plants, animals and insects’ images.</li> <li>• Small microphone.</li> <li>• YouTube video</li> <li>• MyAgora+ (School platform)</li> </ul>                                                                                                                                                                                                                                                                 |                                           |

### 3.7.5 Session 5

| Lesson Planning (Session 5)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                             |        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| Lesson Name: Our hydroponic crop!                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                     | Unit Name: From water to life<br><i>Block 3 “Living Things”</i>                                                                                                                                                             |        |
| Stage Objectives                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <i>O.CN.1, O.CN.4, O.CN.6</i><br><i>(Orden 15 de enero de 2021)</i>                                                                                                                                                                                                 |                                                                                                                                                                                                                             |        |
| Specific Objectives                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <ul style="list-style-type: none"><li>- To apply the knowledge previously provided about hydroponic crops.</li><li>- To participate and work in teams for the creation of the crop.</li><li>- Exchange information about the process and use of the crop.</li></ul> |                                                                                                                                                                                                                             |        |
| Main outcome                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <ul style="list-style-type: none"><li>- Create a hydroponic crop with recycled materials.</li><li>- Portfolio diary.</li><li>- Podcast episode.</li></ul>                                                                                                           |                                                                                                                                                                                                                             |        |
| Methodology                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                  |                                                                                                                                                                                                                             |        |
| Description of activities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                     | Learning Strategy                                                                                                                                                                                                           | Timing |
| <p><b>Pre-task</b></p> <p>The possible designs of the project’s hydroponic crops made by students in session 3 are going to be presented, from their portfolio to the digital board with photos. Students will have to analyze the different models trying to identify the most convenient considering the materials used, as they look at the photos, they will be asked simple questions (appendix 14). Then, a model will be chosen in agreement with the recycled materials gathered at our disposal.</p> |                                                                                                                                                                                                                                                                     | <br>Interpersonal<br><br>Logical/<br>Mathematical | 5 min  |

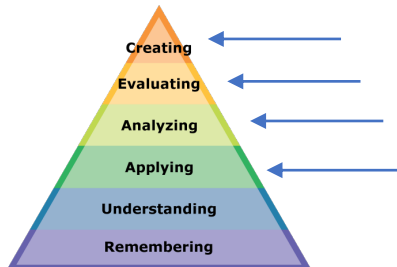
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| <p><b>Task</b></p> <p>Students will collaborate to create the crop agreed, teacher will follow them during the process and will help them to do those more difficult or tricky tasks (cutting bottles, wood, etc.). Examples of the process are shown in the appendix 15.</p>                                                                                                                                                   |                                                                                                                                                                                                               | <br>Interpersonal<br><br>Naturalist<br><br>Bodily/Kinesthetic<br><br>Logical/<br>Mathematical | 40 min |
| <p><b>Post-task</b></p> <p>At the end of the session, students will talk about the process of creation of the hydroponic crop in a 2-3 minute podcast episode and then, they will record the most remarkable aspects of the session on their unit portfolios.</p> <p>As usual, the teacher will provide simple structures to students in order to perform both the podcast episode and the portfolio writing (appendix 16).</p> |                                                                                                                                                                                                               | <br>Intrapersonal<br><br>Verbal/<br>Linguistic<br><br>Visual/Spacial<br><br>Interpersonal  | 15 min |
| Materials                                                                                                                                                                                                                                                                                                                                                                                                                       | <ul style="list-style-type: none"> <li>• 1'5L water bottles.</li> <li>• Bicycle used inner tubes.</li> <li>• Fishing cord</li> <li>• Wood sticks</li> <li>• Small water engine.</li> <li>• Plants.</li> </ul> |                                                                                                                                                                                                                                                                                                                                                                                                                                           |        |

### 3.7.6 Session 6

| Lesson Planning (Session 6)                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                           |                                                                                                        |        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|--------|
| Lesson Name: Let’s compost!                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                           | Unit Name: From water to life<br><i>Block 3 “Living Things”</i>                                        |        |
| Stage Objectives                                                                                                                                                                                                                                                                            | <i>O.CN.1, O.CN.4, O.CN.6</i><br><i>(Orden 15 de enero de 2021)</i>                                                                                                                                                                       |                                                                                                        |        |
| Specific Objectives                                                                                                                                                                                                                                                                         | <ul style="list-style-type: none"><li>- To understand the concept of compost and compost bin.</li><li>- To understand general and specific information about compost.</li><li>- Exchange information about insects and compost.</li></ul> |                                                                                                        |        |
| Main outcome                                                                                                                                                                                                                                                                                | <ul style="list-style-type: none"><li>- To create a homemade compost bin.</li><li>- Portfolio page.</li><li>- Podcast episode.</li></ul>                                                                                                  |                                                                                                        |        |
| Methodology                                                                                                                                                                                                                                                                                 |                                                                                                                                                        |                                                                                                        |        |
| Description of activities                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                           | Learning Strategy                                                                                      | Timing |
| <p><b>Pre-task</b></p> <p>Several images they saw previously in session 4 will be introduced to kids. The teacher will elicit the vocabulary of compost/compost bins and insects with simple and short questions, e.g., What is this? How do we use it? Is this an animal or an insect?</p> |                                                                                                                                                                                                                                           | <br>Interpersonal | 5 min  |

|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                               |        |
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|           | <p><b>Task</b></p> <p>Students will collaborate to create the homemade compost bin, they will pick up all the recycled materials (foam containers, soil, remains of food) and will mix them up and build the compost bin, adding the soil worms previously acquired and mixing everything with water. Examples can be seen in appendix 17. The assemble of the compost bin will be done taken into account the knowledge provided in session 4.</p> |  Naturalist<br> Bodily/Kinesthetic<br> Interpersonal<br> Logical/<br>Mathematical | 40 min |
|           | <p><b>Post-task</b></p> <p>At the end of the session, students will talk about the process of creation of the homemade compost bin in a 2-3 minute podcast episode and then, they will record the most remarkable aspects of the session on their unit portfolios, both following the structure model provided (appendix 18).</p>                                                                                                                   |  Intrapersonal<br> Verbal/<br>Linguistic<br> Visual/Spacial<br> Interpersonal  | 15 min |
| Materials | <ul style="list-style-type: none"> <li>• Californian red worms.</li> <li>• Soil.</li> <li>• Organic wastes.</li> <li>• Fish recycled container bins.</li> </ul>                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                               |        |

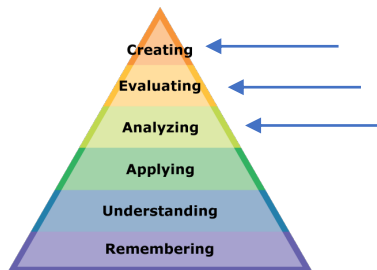
### 3.7.7 Session 7

| Lesson Planning (Session 7)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                              |        |
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| Lesson Name: Taking care of the Ocean.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                        | Unit Name: From water to life<br><i>Block 3 “Living Things”</i>                                                                                                                                                                                                                                                              |        |
| Stage Objectives                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | O.CN.1, O.CN.4, O.CN.6<br>(Orden 15 de enero de 2021)                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                              |        |
| Specific Objectives                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <ul style="list-style-type: none"><li>- To understand general and specific information about the role of water in life.</li><li>- To reflect about the importance of water for living things.</li><li>- Exchange information about water and its importance.</li></ul> |                                                                                                                                                                                                                                                                                                                              |        |
| Main outcome                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <ul style="list-style-type: none"><li>- Create a formal letter to the mayor.</li><li>- Portfolio page.</li><li>- Podcast episode.</li></ul>                                                                                                                            |                                                                                                                                                                                                                                                                                                                              |        |
| Methodology                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                              |        |
| Description of activities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                        | Learning Strategy                                                                                                                                                                                                                                                                                                            | Timing |
| <p><b>Pre-task</b></p> <p>The lesson will start with the daily maintenance of the project (turning on the water engine, pouring water on the compost and adding some organic wastes) remembering all the elements of the hydroponic crop and the compost bin.</p> <p>This will become a class routine which students will do at the beginning of every Sciences lesson at least until the end of the term.</p> <p>Later, students and the teacher will start talking about the role of water in the process of the hydroponic crop and the compost bin, the importance of it for the plants’ growth and the creation of plants’ food.</p> <p>This conversation will lead to the main part of the lesson.</p> |                                                                                                                                                                                                                                                                        | <br>Interpersonal<br><br>Bodily/Kinesthetic<br><br>Naturalist | 10 min |

|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                               |        |
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|           | <p style="text-align: center;"><b>Task</b></p> <p>Continuing with the importance of water in our project, students will reflect on the importance of water in life. They will watch the following mini-documentaries and discuss on:</p> <ul style="list-style-type: none"> <li>- The importance of water in the earth:<br/><a href="https://www.youtube.com/watch?v=bGWr5jXJfbs">https://www.youtube.com/watch?v=bGWr5jXJfbs</a></li> <li>- Interesting facts about the oceans:<br/><a href="https://www.youtube.com/watch?v=pob8VfvXtIc">https://www.youtube.com/watch?v=pob8VfvXtIc</a></li> </ul> <p>After the previous reflection, students will be asked what measures they are taking to save water. Our own project will come up and will settle the best example of not wasting water. Then, in order to foster this feeling and necessity of saving water, students will write a letter to the town Major, to show the measures they are taking to save water and serve as example for the whole community.</p> <p>The teacher will help students to write the letter with simple pre-marked structures. e.g., Dear sir...My name is... We think it's important..., we save water by closing the tap, having showers, not bath, we created a hydroponic crop...)</p> | <br>Naturalist<br><br>Verbal/<br>Linguistic<br><br>Interpersonal<br><br>Logical/<br>Mathematical  | 35 min |
|           | <p style="text-align: center;"><b>Post-task</b></p> <p>To finish the session, as usual, students will talk about the importance of water in life and how to save it in the unit podcast, in this episode, students will have the opportunity to discuss with each other the measures they take at home and in their daily lives.</p> <p>Finally, they will end up writing or drawing everything done or learnt on their portfolio.</p> <p>A set of models for both portfolio and podcast episode will be provided students (appendix 19).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <br>Intrapersonal<br><br>Verbal/<br>Linguistic<br><br>Visual/Spacial<br><br>Interpersonal | 15 min |
| Materials | <ul style="list-style-type: none"> <li>• YouTube video.</li> <li>• MyAgora+</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                               |        |

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|  | <ul style="list-style-type: none"> <li>Portfolio page.</li> </ul> |
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### 3.7.8 Session 8

| Lesson Planning (Session 8)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                   |                                                                                                        |        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|--------|
| Lesson Name: Project Presentation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                   | Unit Name: From water to life<br><i>Block 3 “Living Things”</i>                                        |        |
| Stage Objectives                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | O.CN.1, O.CN.4, O.CN.6<br>(Orden 15 de enero de 2021)                                                                                                                                                             |                                                                                                        |        |
| Specific Objectives                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <ul style="list-style-type: none"><li>- Expose and exchange information about hydroponic crops, compost bins and role of water in life.</li><li>- To differentiate between plants, animals and insects.</li></ul> |                                                                                                        |        |
| Main outcome                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <ul style="list-style-type: none"><li>- Exposition of the Unit Project.</li></ul>                                                                                                                                 |                                                                                                        |        |
| Methodology                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                |                                                                                                        |        |
| Description of activities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                   | Learning Strategy                                                                                      | Timing |
| <p style="text-align: center;"><b>Pre-task</b></p> <p>The las session of the unit will be used to explain the project and link it with all the knowledge learnt during this period.</p> <p>In order to settle students and motivate them to expose the project, the teacher will ask them questions to elicit the reason and description of the project:</p> <ul style="list-style-type: none"><li>- What is a living thing?</li><li>- What are plants?</li><li>- What are animals? And insects?</li><li>- What do we use in the compost bin? Animals? Insects?</li><li>- What is compost?</li><li>...</li></ul> |                                                                                                                                                                                                                   | <br>Interpersonal | 10 min |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                      |        |
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| <p style="text-align: center;"><b>Task</b></p> <p>Once students are settled and have clear the reason of the project, it's time for them to prepare a presentation.</p> <p>As the safety Covid-19 measures are still present, the presentations are going to be recorded and sent to parent through the school platform (MyAgora+).</p> <p>The presentations will follow the next criteria:</p> <ul style="list-style-type: none"> <li>• The presentations will be made by groups of four.</li> <li>• All students, with the guidance of the teacher, will prepare three main points which will be talk about with help:             <ol style="list-style-type: none"> <li>1. Hydroponic crop</li> <li>2. Compost bin</li> <li>3. Reasons of the project (water saving, ...)</li> </ol> </li> <li>• As students may feel nervous or doubtful with the L2, the video recording can be cut at different convenient places and fixed at the end, in order to get the most motivating outcome for the student.</li> </ul> |                                                                                                                                                    | <br>Interpersonal <br>Verbal/<br>Linguistic <br>Naturalist                                                                                                                  | 30 min |
| <p style="text-align: center;"><b>Post-task</b></p> <p>Finally, to finish the “From water to life” Didactic Unit, students will record a farewell episode podcast in which they can explain all the feelings and thoughts of the last session (appendix 20).</p> <p>Following this, they will draw or write down the last page of their portfolio and will handle it to the teacher.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                    | <br>Verbal/<br>Linguistic <br>Visual/Spacial <br>Intrapersonal <br>Interpersonal | 20 min |
| Materials                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <ul style="list-style-type: none"> <li>• Video camera.</li> <li>• Video edition program.</li> <li>• Portfolio page.</li> <li>• MyAgora+</li> </ul> |                                                                                                                                                                                                                                                                                                                                                                                                                                      |        |

### **3.8 Attention to diversity**

The past course 2020/2021 there were not any students with specific needs although the class level is commonly heterogeneous in every level. As we have mentioned previously, the private nature of the school, with its corresponding individualized treatment for every student and constant communication with families, draws the attention of both parents of students with a very high cognitive development level for their age or stage and students with needs for extra attention. Even more, talking about language competence, there are a big extent of bilingual students, other students with very advance level and others with not so many communicative resources in the second language. Here, even though there is not a specific special need, there is a necessity to cope with the expectations of learning of all pupils at the same time. Nevertheless, for the next course, new incorporations will take place in the school and as this DU is meant to be reproduced in the future, we need to be ready for the possible new diversity that may join the school.

This is the main reason why the Multiple Intelligences theory came up before creating the didactic Unit, the need for an approach which could give so many quality opportunities to students to stand out on their own skill field or with their resources. If we make sure students are comfortable in the lessons and they have activities or dynamics they feel familiar or comfortable with, their adaptation to the aimed level and the normal run of the lessons will be much easier for them.

Moreover, the absence of written exams can ease the process to many children who usually need non-significative adaptations on written tests, because these create, more and more commonly every day, negative feelings as anxiety in students, also in the younger ones, due to the pressure sometimes imposed by families eager to see numeric results on their children, no matter how their competences are being coped.

In addition, at the school, we are at the disposal of those students with Adaptation of Access to the Curriculum (ACC), who are still under the same conditions and objectives as the rest of their partners but need some tools to reach those objectives in the same way as their classmates. Very commonly, in the first cycle of Primary School, there are students who have not mastered their reading skills, which are necessary to start writing their first sentences. These students could be provided with extra flashcards and materials with images as aids in order to facilitate their task. For those students with less

advantages speaking the L2, we have at our disposal a set of mirrors, which students can use to visualize their own mouth and help them with their pronunciation skills.

And last but not least, those students with needs will always count with extra support from the teacher and eventually the help of their fast finishers classmates when appropriate.

### 3.9 Evaluation

The evaluation of this Didactic Unit is composed of several assessable tools treated or made during the sessions, each one of them divided in three dimensions we consider fundamental for the thrive of the student throughout the Unit: Content accuracy, language and communication skills and predisposition towards the activities (behaviour, participation and interest). The percentage of the final mark will be shared equally between these three dimensions, and, at the same time, each dimension will be divided among the assessable tools depending on whether the tool is relevant or not for the dimension. For example, the table below shows the different percentages. We have considered non-relevant to assess the content accuracy used in the podcast interventions but pay more attention to the language skills and the predisposition.

The assessable tools are the following:

- Assessable learning activities: activities carried out throughout the unit which are evaluated. These are:
  - Session 1: living things and non-living things chart.
  - Session 2: Distinction of the elements of nature.
  - Session 3: Sketch of the hydroponic crop.
  - Session 7: Letter to the major.
- Portfolio: the diary of the sessions in which students reflect on the work done and the knowledge acquired through pictures and writing.
- Podcast interventions: participation in the unit podcast, number and quality of the interventions done both in English and Spanish.
- Project presentation: the extent of clarity and knowledge applied over the different points of the unit used to transmit the information to parents.

The mark of each tool will be determined by a rubric adjusted to every dimension in every activity. For example, when evaluating the portfolio, we will provide a mark for the content accuracy, language and predisposition. This is an example of a rubric:

|                |                                                                                                                                                     |          |          |          |         |                                                                                                                                       |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|----------|---------|---------------------------------------------------------------------------------------------------------------------------------------|
|                | Perfect understanding and expression of the ideas with a perfect application regarding the language and communication skills and total disposition. |          |          |          |         | Total lack of understanding and application of the content, absolute lack of communication, and total misconduct during the activity. |
|                | +                                                                                                                                                   |          |          |          |         | -                                                                                                                                     |
| PORTFOLIO      | 5 points                                                                                                                                            | 4 points | 3 points | 2 points | 1 point | 0 points                                                                                                                              |
| Content        |                                                                                                                                                     |          |          |          |         |                                                                                                                                       |
| Language       |                                                                                                                                                     |          |          |          |         |                                                                                                                                       |
| Predisposition |                                                                                                                                                     |          |          |          |         |                                                                                                                                       |

Table 3. Example of portfolio evaluation rubric

These rubrics are made and managed in the app Idoceo which has been used in the past course year. The following table projects the percentages used for every tool:

|                                   | Assessable learning activities |      |      |      | Portfolio | Podcast interventions | Project presentation | TOTAL |
|-----------------------------------|--------------------------------|------|------|------|-----------|-----------------------|----------------------|-------|
| Content Accuracy                  | 2.8%                           | 2.8% | 2.8% | 2.9% | 11.4%     | -                     | 11.3%                | 34%   |
| Language and communication Skills | 2%                             | 2%   | 2%   | 2.1% | 8.3%      | 8.4%                  | 8.3%                 | 33%   |
| Predisposition                    | 2%                             | 2%   | 2%   | 2.1% | 8.4%      | 8.3%                  | 8.3%                 | 33%   |

Table 4. Percentage of loads of the assessable tools.

Finally, it is important to say that this is a *teacher-student* evaluation approach, Nevertheless, it will also be considered the *self-evaluation* of students during the creation of the portfolio, *peer evaluation* in the presentation process and a final *student-teacher* evaluation to obtain a quality feedback about whole DU.

#### 4. CONCLUSION

This Final Master's Degree Dissertation was meant to bring up to the classroom Gardner's (1993) Multiple Intelligences theory in a natural and comprehensive way. Considering the daily teacher practice in most of the cases has a varied mix of methodologies and approaches, the purpose has been centered on using a varied but still meaningful set of approaches which could fit with each other so that this practice could be the most down-to-earth possible although not losing the innovative idea or background.

Then, into the Content and Language Integrated Learning umbrella we have tried to combine the above-mentioned MI theory with a Project Based Learning methodology and an Integrated Curriculum, ending up in a realistic application which has been built significantly well.

As mentioned, this proposal was built on a specific class of a specific and real context. Thus, the ideas embodied in the DU are based on a whole course of trial and error with different activities and dynamics. Nevertheless, this certainty is volatile as the classroom can always change, increase, decrease in number of students, etc. That is why we have created a SWOT analysis chart (Strengths, weaknesses, opportunities and threats) about the Didactic Unit.

| Strengths                                                                                                                                                                                                                 | Weaknesses                                                                                                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• It is a very dynamic approach; it is easy to boost students' motivation as there is a varied range of tasks.</li> <li>• It has been created for a specific classroom.</li> </ul> | <ul style="list-style-type: none"> <li>• Logical and mathematical intelligence is not so well exploited.</li> <li>• The addition of so much speaking practice can be detrimental for some students.</li> </ul> |

| <ul style="list-style-type: none"> <li>• All types of learning strategies are involved to a certain extent.</li> <li>• Students are in contact with nature.</li> <li>• It is meaningful, everything has a purpose and an application to real life.</li> </ul> | <ul style="list-style-type: none"> <li>• There is not a classic measurable test to check out students results.</li> <li>• It could be difficult to handle for schools with no natural surroundings.</li> </ul> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Opportunities                                                                                                                                                                                                                                                 | Threats                                                                                                                                                                                                        |
| <ul style="list-style-type: none"> <li>• The unit can be extended or linked with other units, changing some topics or extending them.</li> <li>• It is possible to work more closely with other subjects, such as P.E.</li> </ul>                             | <ul style="list-style-type: none"> <li>• In contexts with non-well developed CLIL practices, this unit could not thrive, it needs a constant and tight teamwork with the language teacher.</li> </ul>          |

Finally, we would like to highlight the importance of applying the methodologies mentioned to a larger or shorter extent, in the daily run of our lessons. After long time of research and thought it has become clear the affinity of the different approaches as they seek a common point which every innovative practice aims to. That is, to make the students the center of the lesson and give them the best tools possible to make the most of their cognitive resources and growth. It is very easy to talk about innovation in the school context applying wrongly or only partially dynamics which by themselves are not useful and put the label “innovative” on it. It is possible to see this misunderstanding in many schools, where the word “craft/handcraft” is basically substituted for “project”. But if we want to lead the improvement that we dream of in our educative system, it is the responsibility of every single teacher to practice what we preach. This is a complete requirement for the success and improvement of programs such as CLIL, which are being despised due to the negligence of many schools and professionals.

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## 6. APPENDIX

### Appendix 1: Lyric song session 1

So many ways to show you're smart,  
are in the brain and part, part, part,  
multiple intelligences, you're the star,  
everyone's smart, yes you are!

Verbal, linguistic, smart with words,  
reading, writing, think and heard.

You're word smart!

Listen to songs, beats, poetry,  
is music smart,

songs and rhymes, fill your hearth,  
is music your thing?

You're music smart!

So many ways to show you're smart,  
are in the brain and part, part, part,  
multiple intelligences, you're the star,  
everyone's smart, yes you are!

Logical, mathematic, number smart,  
solving puzzles every time,  
step by step,

you're number smart!

Visualization, picture smart,  
express yourself with photos or art,

Use the color!

You're picture smart!

So many ways to show you're smart,  
are in the brain and part, part, part,  
multiple intelligences, you're the star,  
everyone's smart, yes you are!

Body, kinesthetic, an athlete new,  
moving all around and acting too,  
using your hands, playing the roles!

You're body smart!

Naturalist intelligence, up to you!

Loving trees and lands too,  
watching birds, collect the leaves,  
you're nature smart!

So many ways to show you're smart,  
are in the brain and part, part, part,  
multiple intelligences, you're the star,  
everyone's smart, yes you are!

Person smart, the person people knew,  
getting along with others too,  
working good, living share,

you're people smart!

Interpersonal,

Know about the self,

Studying good, on your role,

You're self-smart!

### Appendix 2: Survey about learning preferences.

# Learning Style

## Multiple Intelligences Survey

Be honest!

|     |                                        |     |    |
|-----|----------------------------------------|-----|----|
| 1.  | I like to write my own stories.        | YES | NO |
| 2.  | I like to take pictures.               | YES | NO |
| 3.  | I like to plant seeds and grow plants. | YES | NO |
| 4.  | I like to count.                       | YES | NO |
| 5.  | I like to check the weather.           | YES | NO |
| 6.  | I like to talk to others about ideas.  | YES | NO |
| 7.  | I like to read in my free time.        | YES | NO |
| 8.  | I like to dance.                       | YES | NO |
| 9.  | I like to read maps.                   | YES | NO |
| 10. | I like to figure out patterns.         | YES | NO |
| 11. | I like to take turns.                  | YES | NO |
| 12. | I like to solve puzzles.               | YES | NO |
| 13. | I like to sing.                        | YES | NO |
| 14. | I like to make things with my hands.   | YES | NO |
| 15. | I like to talk to others.              | YES | NO |
| 16. | I like poetry and rhyming.             | YES | NO |
| 17. | I like to be by myself sometimes.      | YES | NO |
| 18. | I like to touch different materials.   | YES | NO |
| 19. | I like to move around a lot.           | YES | NO |
| 20. | I like to play alone.                  | YES | NO |
| 21. | I like to play word games.             | YES | NO |
| 22. | I like taking care of animals.         | YES | NO |
| 23. | I like to draw.                        | YES | NO |
| 24. | I am wise.                             | YES | NO |

Appendix 3: Result survey's table.

Tally for each number answered Yes. The most yeses reflect intelligence in that area!

|                           |                           |                            |                            |
|---------------------------|---------------------------|----------------------------|----------------------------|
| <u>Music</u><br>13, 16, 8 | <u>Body</u><br>14, 18, 19 | <u>Nature</u><br>3, 22, 5  | <u>Word</u><br>1, 7, 21    |
| <u>Math</u><br>4, 10, 12  | <u>Self</u><br>17, 20, 24 | <u>People</u><br>11, 6, 15 | <u>Picture</u><br>2, 9, 23 |

Appendix 4: Living things chart

| <u>Living Things</u> | <u>Non-Living Things</u> |
|----------------------|--------------------------|
|                      |                          |

**Appendix 5:** Song chorus session 2.

*“Living things grow,  
living things have cells,  
living things need air,  
living things need water,  
I’m a living thing!”*

**Appendix 6:** Grammar structure models for the portfolio starting.

- This is me.
- I can find \_\_\_\_\_. (Seeds/plants/insects)
- This is a \_\_\_\_\_. (seed/insect/plant/leaf)
- This is my \_\_\_\_\_. (plant)
- My plant is \_\_\_\_\_. (colour, size)

**Appendix 7:** Pre-task questions, session 3

- *What can you see here?*
- *Are these plants the same?*
- *Which plant is more beautiful?*
- *Do you know this plant?*
- *Is this a flower? Yes? No?*

**Appendix 8:** Graded text about plant parts and the importance of water (own creation), session 3.

## Plants

- > All plants have **roots**, **stems** and **leaves**.
- > Trees have **trunks**.
- > Some plants have **flowers** and **fruits**.



Flowers produce **fruits** and **seeds**.

Leaves absorb **sunlight**.

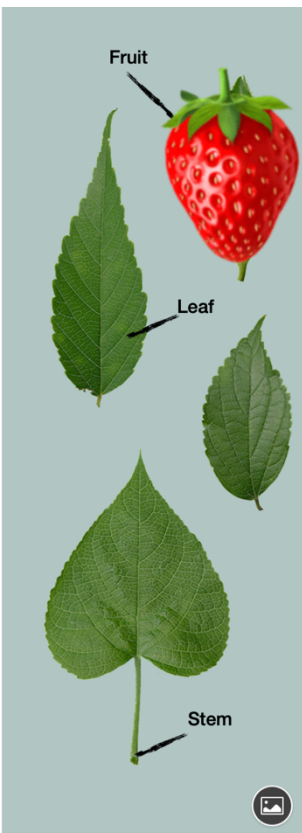
Stem carry **water** and **nutrients**.

Roots **absorb** water and nutrients.



**Water** is absorbed by the roots, travel trough the stem, to the leaves.

**Water** is essential for plants. It gives plants nutrients they need to live.



**Appendix 9:** Images of plants growing in water, session 3.





*Figure 3 Plants planted in water, [howtomontessori.com](http://howtomontessori.com)*

## **Appendix 10: Example of simple hydroponic crops.**



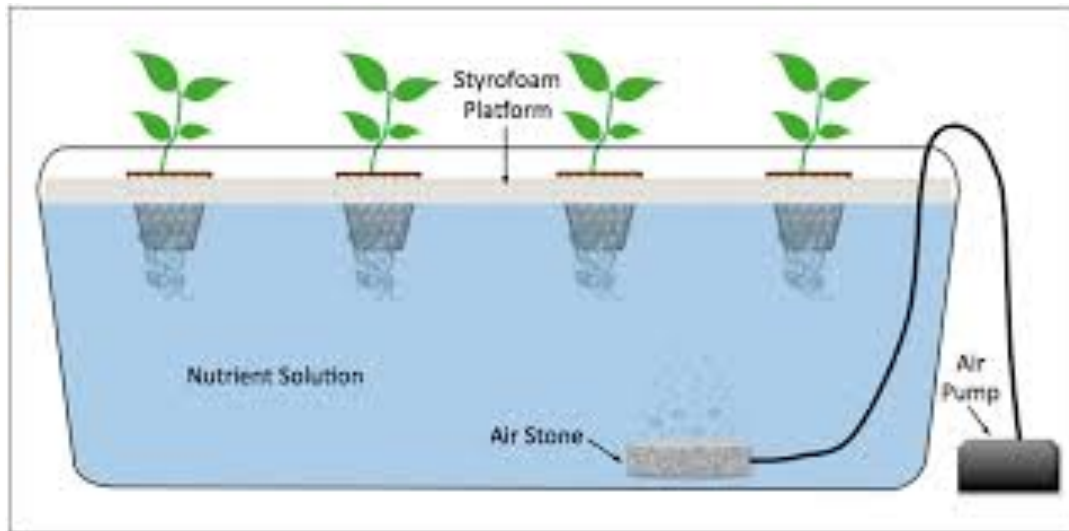


Figure 4 Hydroponic cops + sketch, [www.squaremilefarms.com](http://www.squaremilefarms.com)

#### Appendix 11: Images pre-task session 4

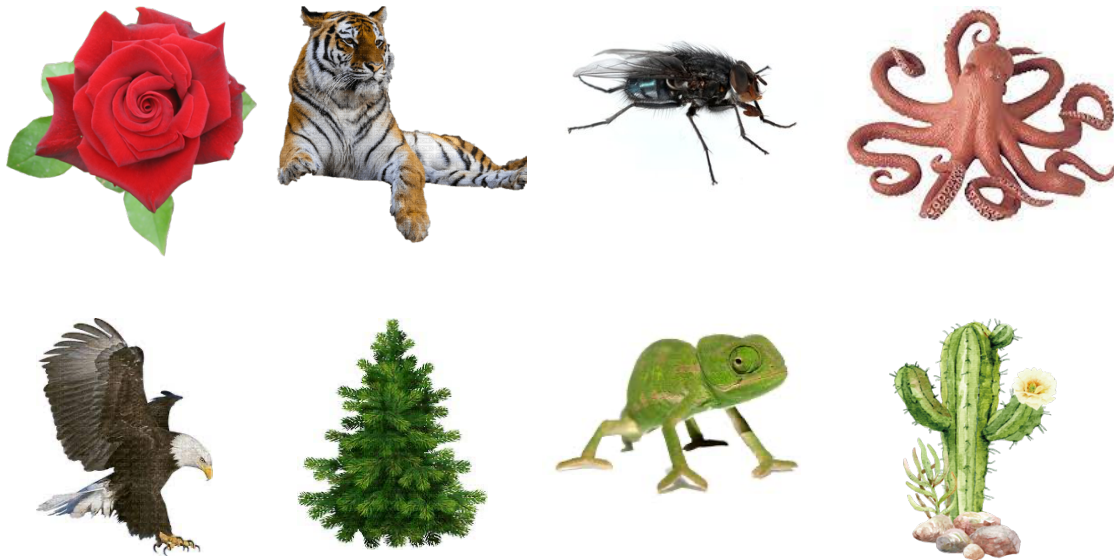


Figure 5 Images of animals and plants retrieved from Google images.

#### Appendix 12: Oral text, task cycle, session 4.

Hello! we're talking about recycling and how we can turn things like old paper metal or plastic into new things well did you know that we can also recycle plants. It's true! And you do it by turning stuff like dead leaves apple cores and kitchen scraps into compost.

Compost is a special kind of dirt that you can make by setting aside certain kinds of trash and letting it rot.

It might seem kind of “yucky” to keep a bunch of old banana peels and dead leaves around, but this waste will eventually turn to compost which you can use in your garden to grow flowers or vegetables or anything you want so how do we get from what we might consider trash to yummy vegetables.

Have you ever been out on a walk and seen an apple core that someone dropped on the ground after a while it gets all brown and mushy? And kind of slimy and eventually it seems to sort of disappear, but it doesn't just go away? It decomposes! When something decomposes it breaks down into teeny tiny pieces and decomposing is helped along by a group of living things called decomposers.

That's a pretty great name because decomposers get their energy by breaking down things that were once alive that apple core it was once part of an apple tree and that bread crust from your sandwich it was made from ground up parts of the week plants. Decomposers use these bits of once living things as their own food they basically eat our garbage.

Decomposers include things like mushrooms that grow on rotting logs and insects and worms that eat the scraps that come from that sandwich, that you didn't finish!

#### **Appendix 13:** Insect song lyrics, task cycle, session 4.

Insects have an exoskeleton  
They have a head, a thorax, and an abdomen  
Most have wings, but they all have six legs  
They have two antenna and they lay a lot of eggs  
Bees say, “Zzzzzzz”  
Crickets say, “Chirp, Chirp”  
Move like a bug.  
Now, dance like a bug.

#### **Appendix 14:** Pre task questions session 5.

- *What is this?*
- *Who did this model?*
- *How many bottles do we need here?*
- *How many bottles do we have?*

## Appendix 15: Design examples “hydroponic crop”.



*Figure 6 Plastic bottles linked to create a circuit. Personal image, Novaschool Medina Elvira*



*Figure 7 Plastic bottles, bicycle inner tubes or sponges. Recycled materials used to hang and connect the bottles or fix the plants. Personal image, Novaschool Medina Elvira.*

## Appendix 16: Example structures for session 5 podcast episode.

- Hello! Welcome to our podcast.
- My name is...
- Today, we started our hydroponic crop.
- We need... (Scissors, bottles, rubber, sponge, plants...)
- The teacher helps. (cut/paste)
- I like it because...
- It works...
- The water always moves.
- The plants always have fresh water.

**Appendix 17:** Soil worms and recycled compost bin, session 6.



*Figure 8. Californian red worms handled by students. Personal image, Novaschool Medina Elvira*



*Figure 9. Compost bin finished. Personal image, Novaschool Medina Elvira*

**Appendix 18:** Example structures for session 6 podcast episode and portfolio.

- Hello! Welcome to our podcast.
- My name is...
- Today, we made... (compost)
- Also, we created... (recycled compost bin)
- We need... (wood, worms, soil)
- Worms are... (amazing, disgusting, sticky, funny)
- I like it because...
- Worms eat... (wastes)
- We collect... (food, fruit, vegetables)

**Appendix 19:** Example structures for session 7 podcast episode and portfolio.

- Hello! Welcome (back) to our podcast.
- Today, we learnt the importance of... (saving water)
- Every minute... (lots of water is wasted)
- Humans / plants / animals need water... (to live, eat, clean...)
- Our crop saves water / does not waste / is good for environment.
- We wrote a letter to our major...
- We showed him... (crop drawing, crop pictures)

**Appendix 20:** Example structures for session 8 podcast episode and portfolio.

- Hello! Welcome to the (last) podcast episode!
- We made a presentation about... (our project)
- I like my project because... (It's funny, I learn a lot, I like plants, worms)
- Is important... (take care of plants / animals / save water)
- I don't like... (worms, waster...)
- Now, I know... (take care of plants / what is hydroponic / what is a flowering plant)
- I hope you like our project / presentation.
- Thank you.