



UNIVERSIDAD DE JAÉN
Centro de Estudios de Postgrado

Master's Dissertation/
Trabajo Fin de Máster

CLIL: DESIGNING A SCIENCE LESSON

Student: Tena Partido, Guadalupe Consolación

Tutor: Dr. Ana María Ortega

Dpt.: English Philology

TABLE OF CONTENTS

1 Introduction	2
2.CLIL.....	4
2.1Definition.....	4
2.2 Main features of CLIL.....	5
2.3 Advantages of CLIL.....	5
2.4 Disadvantages of CLIL.....	6
3. Curricular implications	7
4. Integration of content and language learning	9
5. Designing a lesson.....	11
5.1 Designing a lesson in Sheltered Instruction.....	11
5.2 Tool kit.....	17
5.3 Other methodological procedures.....	20
6. Didactic plan.....	22
6.1 The teaching context.....	22
6.2 Objectives.....	23
6.3 Procedures.....	25
6.4 Sequence.....	26
6.5 Evaluation.....	26
6.6 Unit development.....	27
7. Conclusions.....	43
8. References.....	44
9. Appendices	47

Abstract

We live in a mobile society. Globalization contributes to this undeniable phenomenon. This mobility affects changes of great masses of population from country to country due to different reasons: tourism, job opportunities, social life and so on. In order to adapt to that country or to know it in depth or just to adapt oneself, some knowledge of the culture and, above all, of the language of the destination country is necessary.

Our society is aware of these ideas and so of the need to start learning foreign languages at an early age. In this respect, there have been great changes in the last years. First of all, we have witnessed the rise of bilingual education that tries to help learners increase their communicative competence in foreign languages; secondly, more qualified teachers are being required for that kind of education in general and its methodology in particular; thirdly, more interest is being laid on the teaching and learning of cultural contents since experts have understood that speaking a language is not enough to get integrated in a different country; and, last but not least new materials are required if we want to fulfill the previous objectives and needs. These materials need to adapt also to the changes we undergo including the use of the New Information and Communication Technologies (from now on ICTs). The methodology adapted for the new kind of education is called CLIL (Content and Language Integrated Learning). So, the materials used should adapt to these new realities. But are there enough materials for all kinds of students? Are they useful? Can teachers create and use their own materials? This essay will try to answer these questions with an analysis of CLIL methodology and the creation of some teaching materials for the area of science.

Key terms: CLIL methodology, SIOP protocol, 4 C's, content and language objectives.

1. INTRODUCTION

Nowadays, more and more schools in Spain start bilingual programs on the belief that they can achieve better results from their students but not taking into account aspects such as the teachers' competence in the foreign language, the context in which this type of methodology is going to be carried out, the characteristics of the students and the materials necessary for it.

I live in Extremadura where the situation just described happens. However, if one has a look at how "bilingualism" is worked on, one can see many failures: many teachers are not linguistically qualified, other times they do not know how to teach content subjects and, finally, the materials are not adequate because they just adapt the Spanish books or materials to the foreign language.

The truth is that this same reality can be found not only in Extremadura but in Spain. Thus, we find students who finish compulsory education with the same proficiency in the foreign language as students who have followed the common Spanish curriculum.

The school where I work is totally different. It is based on an agreement between the Spanish Ministry of Education and the British council so it follows the British curriculum for Science and Art (the non-linguistic subjects taught in English) and the linguistic subject which, in fact, is called Literacy. The last one is taught by native speakers of English who use the methodology they used in their countries: they start with the phonics, association of sounds and images, games, songs, etc, just in the same way British kids study the same subject in their countries. On the other hand, the content subjects are taught by Spanish teachers who may have B2 level in English. We are advised by those same native teachers in aspects such as methodology, materials, contents and so on, so the materials are designed by teachers since the Spanish textbooks follow the Spanish curriculum.

This way of organizing a bilingual school is more successful and one can see the level that English children have when they finish primary education (the British council administers an exam to the students at the end of the sixth grade).

For all the reasons mentioned that make bilingual programs fail, many specialized authors are studying how CLIL works in the countries where it originated and are providing solutions to the difficulties that arise in its application.

As for resources, all CLIL teachers should design their own didactic units for each group of students and for each non-linguistic subject he/she teaches through the foreign language.

The questions this thesis tries to answer are the following:

- a. Which are the most adequate resources to follow CLIL methodology?
- b. Can teachers design their own teaching materials for a CLIL lesson?

The present essay describes bilingual education and its methodology, CLIL. It looks at its origins, evolution, application, advantages and disadvantages. New materials are required for it to be applied into the classroom. Many attempts to design materials have been carried out, some of them with success and some others not so successfully. Materials for a CLIL lesson depend on many different variables, they cannot be general; they need to be contextualized to the particular teaching situation and the particular students with whom teachers work.

This essay proposes a plan for a science lesson on the topics of health, diseases, prevention and healthy habits. This unit proposes an example of how to create one's own materials. Then, maybe those materials could be used by another teacher in different situations by just adapting them, making the necessary changes.

The general objective of this thesis is to create materials for a non-linguistic subject unit using the CLIL methodology. To achieve that objective some previous knowledge on the theoretical bases of it is essential since this methodology has its own specific features. We have already seen how important is that the materials used are adapted to the students and the context. Teachers may reasonably argue that creating them is a time consuming activity but they can work together to create a bank of resources for each school by means of groups of work. Once that bank is complete, the adaptations to each group are less complex. The more specific aim of this essay is to show an example of a science unit which helps to increase pupils' competence in English, to achieve the objectives of primary education and to work on the subject contents.

2. CLIL

2.1. Definition

CLIL stands for Content and Language Integrated Learning. It is “a dual-focused educational approach in which an additional language is used for the learning and teaching of both contents and language” (Coyle, Hood and Marsh, 2010:1). Dalton-Puffer defines this methodology as “the use of an L2 in the teaching of non language subjects”. From both definitions and from many others concerning the concept, we have clear that CLIL methodology has two main concerns, language and content, and they are intricately related.

Its origins can be found in the immersion programs carried out in the Canadian educative system; this country has a large proportion of population being French speakers while the official language of the country is English. Immersion programs arose as an attempt to cover the difficulties when communicating. This model was later on copied in Europe in the form of bilingual education (Pérez Vidal, 2005: 15-37).

The term CLIL was coined in 1994 by the European policies and it was first explained in the Eurydice reports in 2006: “achieving this twofold aim calls for the development of a special approach to teaching in that the non-language subject is not taught in a foreign language but with and through a foreign language” (Eurydice, 2006:8). According to this definition, CLIL lays the same emphasis and importance on contents and on language.

In its beginning, CLIL methodology was due to political and educational reasons: the political reason was based on the idea that mobility within the European Union required greater linguistic competences. The educational aspect referred to the already existing models, such as the Canadian one, so they tried to design and adapt the language teaching models and approaches prevailing in the educational system to be able to get higher language proficiency in students. More than twenty years later, the concept has changed a lot; CLIL is understood as new teaching and learning practices in the whole education process.

Generally speaking, one can affirm that there are four main proactive reasons for the appearance of CLIL: families wanting their children to have some competence in at least one foreign language; governments wanting to improve languages education for

socio-economic advantage; at the supranational level, the European Commission wanting to lay the foundations for greater inclusion and economic strength; and, finally, at the educational level, language experts seeing the potential of further integrating languages education with that of other subjects (Coyle, 2010:8).

2.2 Main features of CLIL

Several authors have analyzed and studied CLIL in depth to see the advantages and disadvantages its application can have. Authors such as Serra (2007) or Deller & Price (2007) emphasized the benefits it has on content learning; Pérez- Cañado (2011: 317), in contrast, explains that the oral production of learners is not successfully developed and improved in CLIL lessons. According to Ioannou Georgiou and Pavlou (2001), CLIL has three main features:

- The learning of a foreign language is integrated with the curriculum contents and areas such as History, Science or Geography. The students learn a language and the contents are provided through it.
- CLIL has its roots in socio-linguistic and political contexts and it is related to all languages and levels from infant education to vocational studies. One can say that this methodology is coherent with the principle of permanent education that our current education law (LOE and LOMCE) guarantees. It also defends multilingualism and multiculturalism to promote the integration, understanding and mobility of all the European citizens.
- CLIL is an approach that implies the development of social, cultural, cognitive, linguistic, academic and other learning skills that will favor different achievements both in content and in language (Mehisto et al 2008: 11-12)

2.3 Advantages of CLIL

Rainier(2010) clearly exposed the advantages that CLIL methodology has. According to her, the benefits are the following:

- CLIL can increase pupils' motivation to learn the contents they are dealing with. It leads to a quick progression, quicker than when studying them in separated subjects. One simply needs to lay emphasis on the content subject while leaving linguistic goals in a secondary place.

- CLIL is clearly associated to both a content subject and a foreign language so cultural implications also occur. Students will understand the culture associated to the foreign language and will see the relationship between language and culture.
- Through CLIL lessons one can assume that some skills and knowledge are related to different subjects in a variety of languages. Pupils will improve those skills as they appreciate they are useful outside the language class.
- Learning by means of CLIL is a challenge for students so teachers will build confidence in their abilities.

2.4 Disadvantages of CLIL

Despite the many advantages it has, CLIL has a negative side that is the focus of attack from those against this methodology.

- The first disadvantage has to do with teachers. Language teachers may lack knowledge on the subject while subject teachers may have minimal knowledge of the foreign language. Most subject teachers are required an European level B2 in that language, but it can be insufficient on some occasions.
- The second one is related to the materials. Most textbooks are very general, not adapted to the context of the regions. They need to be personalized for each country, each region and each subject. Creating one's own materials is time-consuming but it is necessary.
- Some students learn the contents in the foreign language but they do not know those contents in their mother tongue.
- Students with a low level of English do not learn the content subject contents, so they do not achieve the objectives of stage.
- Another disadvantage affects timing. When the content subjects are taught in the foreign language, teachers and students need more time so they run the risk of not covering the whole curriculum.

3. CURRICULAR IMPLICATIONS

Changing from a traditional methodology or way of teaching to CLIL implies that some adjustments need to be carried out:

1. The availability on the part of the teachers is essential, whether he/she adapts to working in teams.
2. The teacher's fluency in the target language is another essential factor as well as the students' level.
3. The amount of time available since it determines the choice of CLIL; for example, over what period of time the CLIL teaching will be applied.
4. The connections between language and content influence the ways in which the methodology is applied.
5. The kind of extra-curricular activities since they favor task-based communication and the use of language for active purposes, for instance, communication with learners from other countries, or teachers' cooperation with foreign teachers.
6. The role of assessment is also very important since teachers have to make decisions on how and what to evaluate: content and/or language.

De Bot (2002:32) said that "teaching a subject in a foreign language is not the same as an integration of language and content...Language teachers and subject teachers need to work together ...[to] formulate the new didactics needed for a real integration of form and function in language teaching".

Coyle et al. (2010:60) described the language triptych which represents the CLIL linguist progression: language of learning, language for learning and language through learning as can be seen in figure 1:

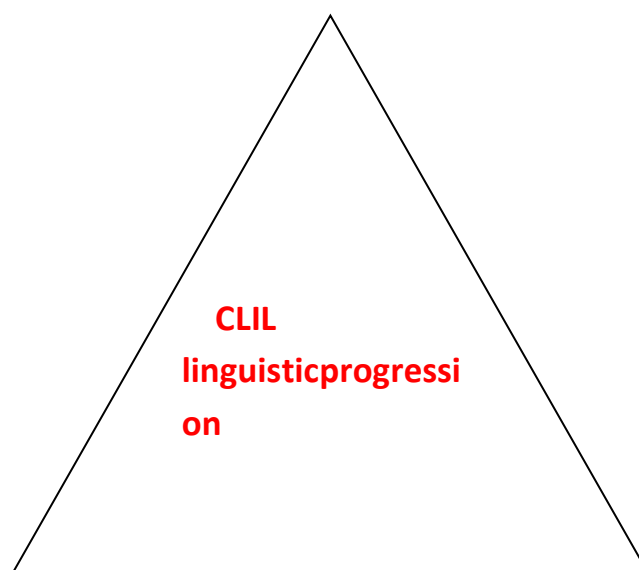
Language of learning**Language for learning****language through learning**

Figure 1: The language triptych (Coyle et al. 2010:36)

In this diagram language of learning refers to the structures and words relating to the topic. The subject teachers need to know the linguistic demands of the subject. According to Coyle et al.(2010:61), language of learning includes key vocabulary and phrases, language of describing, defining, modal verbs and verb tenses.

Language for learning refers to the necessity of using different language in different contexts, in this case in the moments of the lesson. Having a careful schedule is fundamental for an adequate progression in the learning and assimilation of the contents. A good idea to carry out tasks successfully is to prepare, present and practice a series of basic speech acts that are likely to appear in the lesson, such as describing, evaluating, defining, etc. Examples are asking and answering, writing reports, discussions, etc.

Language through learning means that effective learning requires the interconnection of language and thinking. There is a clear connection between learning and thinking since new settings will obviously require new language and this language needs to be learnt and practiced by teachers and students; in other words, language through learning is

capturing the language as it is needed by learners. The functions of language at this point include discussion skills, dictionary skills, using feedback, etc.

The next aspect to take into account when designing CLIL lessons and, therefore, materials, is the relationship between culture and language. Brown (1980:138) explains this relation in a clear way: “cultural patterns, customs and ways of life are expressed in language: culture specific world views are reflected in language... Language and culture interact so that world views among cultures differ, and that language used to express that world view may be relative and specific to that view”. Halliday(1978:39) had observed the importance of this dependency as well. He defined language as a “sociological event, a semiotic encounter through which meanings that constitute the social system are exchanged”.

Elmes also studied intercultural understanding when using foreign languages. Elmes (2013:1) explains that this relation is complex since it is complicated to understand people’s cognitive processes when they communicate. He exemplifies his point of view with the word “father” which has a very different meaning for a native English speaker and for a Seminole Indian.

However, cultural awareness should not be interpreted as the knowledge of some cultural festivities and traditions; teachers may increase children’s cultural competence by interacting with people in different situations, learning cultural differences and, as the European Union explains, supporting the promotion of cultural diversity and intercultural dialogue (Barroso, 2007).

4. INTEGRATION OF CONTENT AND LANGUAGE LEARNING

Great importance in CLIL and more specifically in bilingual education materials is attributed to what has been called the 4Cs framework. As can be seen in figure 2, the four Cs correspond to content, that is, subject matter, communication, cognition and culture. An additional C could be included in this theory since all four components are carried out in a specific context which is in fact the factor that determines the others.

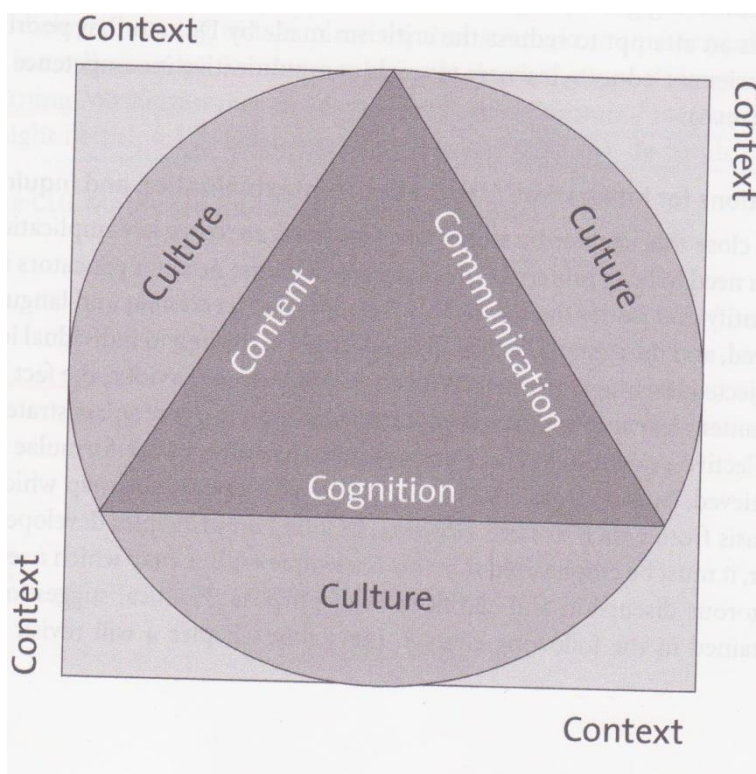


Figure 2: the four Cs (Coyle D, 2010:41)

Bearing this diagram in mind, CLIL consists in learning a language while successfully learning some kind of content. The main principles behind this are the following:

- Content refers not only to the acquisition skills and knowledge but also to learning to learn, to understand those skills and why they are important.
- Content is closely linked to thinking, therefore to cognition enabling the learners to have their own interpretation of content and of the linguistic demands.
- Language is transparent since it is related to learning, to the context, to the idea of learning through that language, to the cognitive process and to the contents.
- Interaction is a key point in all processes of learning but it is even more evident when talking of foreign languages since languages need to be listened to and spoken in order to be learnt.
- Great importance is given to intercultural awareness, as it has already been analyzed. Culture influences languages in many ways and some knowledge of some cultural facts is essential for a correct interpretation and use of it.
- CLIL has to be adapted to the particular context it is going to be applied because some variables such as the location of the school, the types of students or the socio-economic situation, make that methodology success or fail.

- Language and communication are synonyms when talking about CLIL methodology.

5. DESIGNING A LESSON

5.1 Designing a lesson in sheltered instruction

Sheltered instruction is a means for making grade level content more accessible for English language learners while also promoting English language development. This approach combines second language acquisition strategies with content area instruction. Sheltered instruction teaches academic subject matter and its associated vocabulary, concepts, and skills by using language and context to make the information comprehensible to English Language Learners (Campos Acosta, A and Parra A , *Effective Sheltered Instruction Strategies*).

The Sheltered Instruction Observation Protocol (SIOP) was developed to make content materials comprehensible to English Language Learners. It was developed by Jana Echevarria, MaryEllen Vogt and Deborah J. Short. The SIOP was originally created as “an observation tool for researchers to measure teachers’ implementation of sheltered instruction techniques and evolved into a lesson planning and delivery approach with 30 features of instruction grouped into eight components” (Kareva V. and Echevarria J. 2013:240).

It can be used by teachers from different backgrounds from elementary classroom teachers to teacher education faculty and bilingual teachers. It can be implemented at all levels of the education process from kindergarten to the sixth grade, secondary and further education.

The SIOP model became a way for teachers to present curricular content concepts to second language learners through strategies and techniques that make new information comprehensible to the students. At the same time, teachers help students improve academic language skills across the domains of reading, writing, listening, and speaking.

Teachers need to be well-prepared for this methodology since many times failures are due to lack of preparation rather than deficient methodology or materials. This protocol consists of thirty features that must appear in all lessons.

Generally speaking, Echevarría, Vaught and Short (2007) defined SIOP as consisting of 30 features that are applicable to the evaluation of lessons:

LESSON PREPARATION

1. Content objectives clearly defined, displayed and reviewed with students
2. Language objectives clearly defined, displayed and reviewed with students.
3. Content concepts appropriate for age and educational background
4. Supplementary materials used to a high degree
5. Adaptation of content to different levels of student proficiency
6. Meaningful activities that integrate lesson concepts with language practice

BUILDING BACKGROUND

7. Concepts explicitly linked to students' background experiences.
8. Links explicitly made between past learning and new concepts
9. Key vocabulary emphasized (e.g. introduced, written, repeated and highlighted for students to see).

COMPREHENSIBLE INPUT

10. Speech appropriate for students' proficiency level.
11. Clear explanation of academic tasks.
12. A variety of techniques used to make content concepts clear.

STRATEGIES

13. Ample opportunities for students to use learning strategies.

14. Scaffolding techniques consistently used assisting and supporting student understanding.
15. A variety of questions or tasks that promote higher-order thinking skills.

INTERACTION

16. Frequent opportunities for interaction and discussion.
17. Grouping configurations support language and content objectives of the lesson.
18. Sufficient wait time for student responses consistently provided.
19. Ample opportunity for students to clarify key concepts in L1.

PRACTICE/APPLICATION

20. Hands-on materials and/or manipulatives provided for students to practice using new content knowledge.
21. Activities provided for students to apply content and language knowledge.
22. Activities that integrate all language skills.

LESSON DELIVERY

23. Content objectives clearly supported by lesson delivery.
24. Language objectives clearly supported by lesson delivery.
25. Student engaged approximately 90% to 100% of the period.
26. Pacing of the lesson appropriate to students' ability levels.

REVIEW AND ASSESSMENT

27. Comprehensive review of key vocabulary.
28. Comprehensive review of key content concepts.
29. Regular feedback provided to students on their output.

30. Assessment of student comprehension and learning of all lesson objectives throughout the lesson.

The SIOP protocol contains eight components that are worth considering in order to ensure a successful lesson (Echevarria et al. 2013):

1 PREPARATION. Students need to have an adequate level of the foreign language to be able to follow the class. For that reason, teachers should provide them with a list of classroom language with common expressions such as “I don’t understand”, what is the most important part?” etc. The emphasis is on meaning not on grammar perfection since the stages of learning foreign languages are diverse starting with the silent period.

2 BUILDING BACKGROUND. It is connected to significant learning since children learn best when they establish relationships between what they learn and what they knew before either through studying or personal experiences. At this point, some kinds of activities are particularly helpful: pre-reading, predicting, labelling, charts, vocabulary. Regarding the later, new words should be presented in the correct way to learners: a definition, a context sentence, visual support, realia, students’ own dictionaries, etc, we should use all the necessary strategies for learners to understand them; if necessary, use the mother tongue.

3 COMPREHENSIBLE INPUT. Teachers should make themselves understandable using the necessary strategies for that: TPR, vocabulary charts, video, web resources, etc.

4 STUDENTS STRATEGIES for success. With time, students should develop the learning strategies that better suit them and their learning style: questions in a can (students ask questions to the partners as they appear at random and a partner has to answer them), gallery walks (students work in groups, they move around the classroom sharing ideas, looking at pictures, documents, problems and quotes in order to answer some questions about a particular topic), similarities and differences in a Venn diagram and so on.

5 INTERACTION both with the teacher and with other learners. Some considerations for it are the following: the learner may be given enough time to answer the questions posed by the teacher or another student, there should be activities that implied reaching group consensus, games which consist in finding their partner looking for synonyms or definitions for instance.

6 LESSON DELIVERY keeping a balance between language and content, so the learners are engaged at least 90% of the lesson.

7 PRACTICE. At this stage students really use the learnt language to do something with it, they have some purposes to communicate in the foreign language: bingo, concept webs, vocabulary card games, pizza pieces, etc.

8 REVIEW AND ASSESSMENT. Teachers give the students the chance to demonstrate mastery but trying to avoid failure and frustration: find a person who knows, round table, check my work, ...

Genzuck (2011) also studied the protocol and he stated some strategies that should always be present:

- **Increase wait time, be patient.** Students need time to process the information, to understand the question and tasks and to think for an answer. This time differs from one student to another, teachers should not press them.
- **Respond to the student's message, don't correct errors (Expansion).** The most important matter is communication and the desire to use the foreign language, so fluency may be emphasized rather than accuracy. Mistakes are considered normal in the learning process, they will be corrected with the passing of time so teachers may not correct them as such but rather remodel the student's original sentence.
- **Simplify teacher language.** Avoid function words and use more lexical terms, that is, nouns, adjectives and verbs. Gestures and body language also convey meaning so they favor understanding.
- **Don't force oral production.** It will come out when students are ready for it; teachers can check understanding by means of orders for students to fulfill if they understand, or by means of drawing.
- **Demonstrate, use visuals and manipulatives.** Understanding input is the key to language acquisition, so teachers must present new language in context with the aid of pictures, realia and so on.
- **Make lessons sensory activities.** Students may have the opportunity to use the five senses in the class, it favors understanding and retention.
- **Adapt the materials to student's language level, maintain content integrity.** The content can be adapted to students of all level; it is not necessary to lower the level since context and visual support convey meaning and, hence, understanding.

- **Build on the student's prior knowledge.** It is easier for students to start from what they already know and establish links with the new information because they see connections and usefulness.
- **Support the student's home language and culture; bring it into the classroom.** An important goal should be to encourage the students to keep their home languages as they also acquire English. It is a great opportunity to learn different habits and ways of life and to appreciate that differences are natural and acceptable.

Regarding the first heading of the thirty features, LESSON PREPARATION, the objectives should be oriented towards both the language and the contents; the former should be in consonance with the topic dealt with in the unit. They must be clearly enunciated and not be numerous. The objectives and the contents must be related to real-life situations as much as possible and they can be related to different aspects of the language such as communication, linguistic skills, vocabulary, phonetics, etc. Last of all, the objectives must be able to be assessed. (Echevarria, Vaught and Short, 2007).

The contents must be coherent with the students' level of the language. Some strategies help to lessen the gap between their language and the real one: use of graphics and pictures, summaries, translated texts, etc.

The materials used are decisive in the teaching-learning process since they are the vehicles that present the language and the contents to the students so they may be attractive and accessible. If the materials are supported by supplementary media learning is enhanced. They are sometimes a way to establish connections between prior knowledge and new contents. Within the category of supplementary different kinds are included: graded readers, multimedia, demonstrations, realia, and so on.

Benítez Castro (2007: 47) exemplifies all the Lesson Preparation SIOP features in detail in the design of two Science lessons related to the digestive system. He explains the principles behind SIOP: that the learning of foreign languages is improved by the learning of contents using that language. The four language skills (listening, speaking, reading and writing) may also be part of the non-linguistic teaching process but having the students' mother tongue as reference, that is, the degree of proficiency of those skills. The students' first language must not be completely forgotten, it can be used when necessary. Finally, the activities must be meaningful since this way students feel

that the language has a real function, they do things with the language rather than just learning a foreign language. Benítez Castro (2007) proposed two lessons that fulfill all the conditions SIOP instruction requires.

5.2 Tool Kit

There are other authors who have paid attention to different aspects of CLIL materials and their devising. For instance, Coyle, Hood and Marsh (2010) devised what they called “the tool kit”. It consists of three stages: a shared vision for CLIL; analyzing and personalizing the CLIL context; and planning a unit. The first stage means that if the school has not applied CLIL before, everybody involved in it must meet to share ideas and reach agreements about what they think CLIL is and how it should be applied. The second stage requires that teachers agree on how to apply the ideas discussed in stage 1 to their particular school considering its size, number of students, numbers of teachers who will participate, etc. The last stage consists in putting the other two into practice where teachers really decide what kind of materials to create and how to apply them in the classroom. The 4C’s must be always present (content, communication, cognition and culture). These authors advise teachers to create a mind map of the main parts of the units in order not to forget any C (culture is often forgotten), as figure 3 shows.

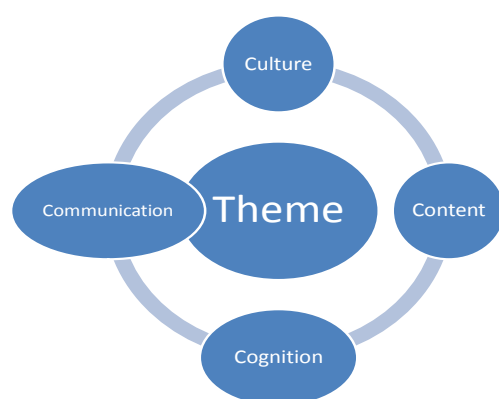


Figure 3: Mind map template (adapted from Coyle et al, 2010:56)

This last stage, lesson planning, is made up of four steps:

1. The first one is the selection of contents. The teachers may look at aspects such as the existence or not of a curriculum to follow, if there is a logical connection with previous learning, if the content helps in the acquisition of the general objectives of the unit, the students' learning style, etc.
2. The second step is the connection of content and cognition, that is, how thinking skills¹ or creativity are related to the contents, with questions such as what kind of thinking skills are present, how will activities develop them, how will teachers assess what the learners have indeed learnt, which are the linguistic demands of the questions, etc.
3. The next point is communication which is related to the tryptich already discussed (language of, through and for learning). Creating a language corpus is quite helpful at this stage since learners can become familiar with their class language and, therefore, with the kind of language they are required depending on the activities. Teachers should consider aspects such as the language needed and how students can access it, the definition of key terms, grammatical structures, how to teach the language of learning, what are the language functions required and their metacognitive strategies.
4. The last step is the development of cultural awareness, an aspect that has been analyzed in detail in previous sections. The teachers have to pinpoint ideas like different cultural views, if there are curriculum links with other subjects.

The tool kit includes two more stages which are monitoring and evaluating the process and reflection and inquiry. Figure 4 shows a mind map of a complete unit designed with the help of tool kit. This example is the intended for a unit dealing with ecosystems.

¹Thinking skills have been described and categorized by Bloom (1956). He distinguished between lower-order processing (remembering, understanding and applying), high-order processing (analyzing, evaluating and creating) and knowledge dimension (factual knowledge, conceptual knowledge, procedural knowledge and metacognitive knowledge). The same skills were revised by Anderson and Krathwolf, 2001:67-68.

- Unit Title: Ecosystems

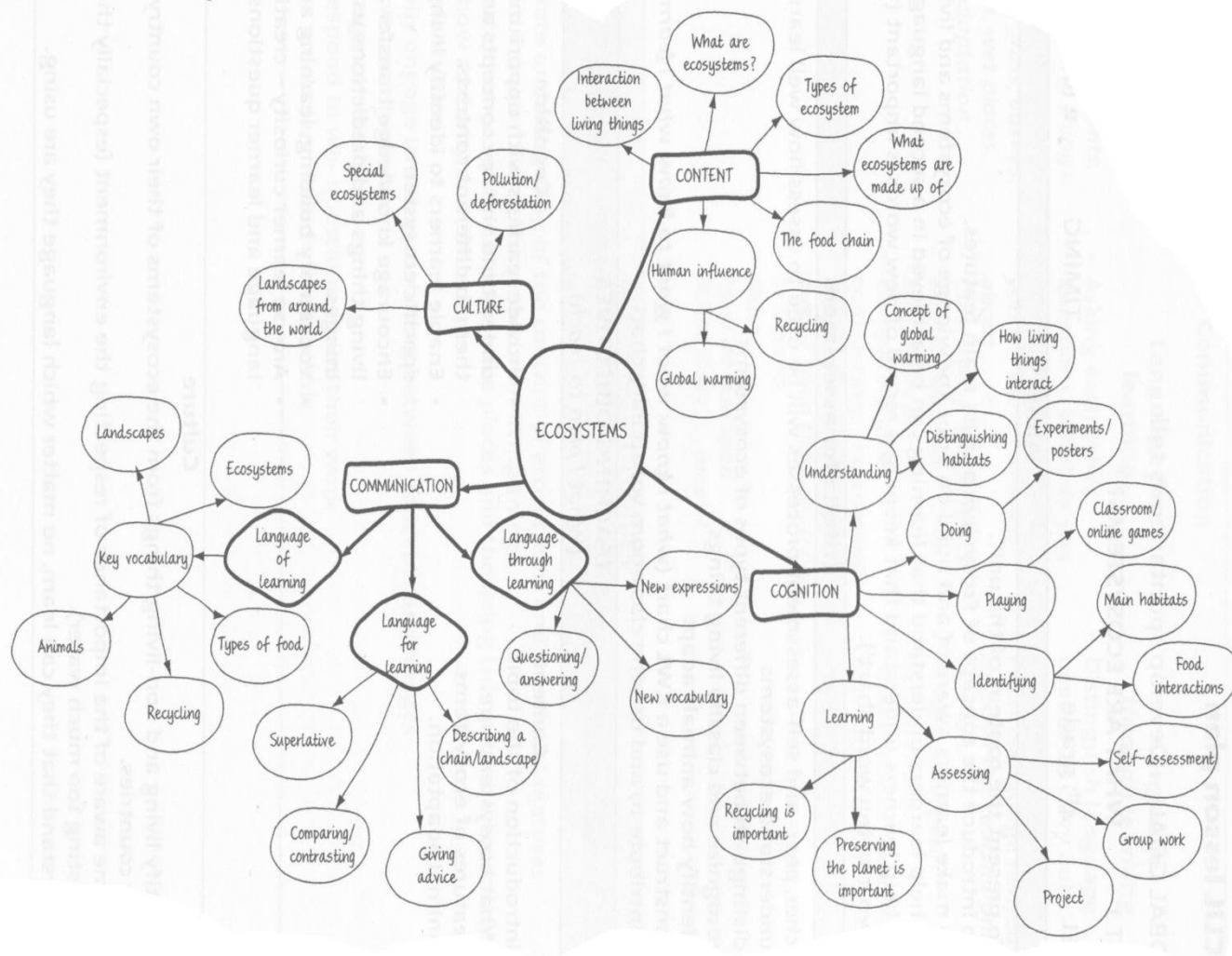


Figure 4: Mind map for a lesson on ecosystems (Coyle et al.2010:79).

5.3 Other methodological procedures

So far, two different conceptions about how to create and organize bilingual education materials and lessons have been presented. However, teachers must know that there is no single CLIL pedagogy, that no one is better than another. Even when choosing one, some adaptations will be necessary to adapt the materials to the specific students and the specific contexts in which they will be applied. The important point is to consider the content subject, that is, the input, and what they do while learning, the process. Apart from that, when designing materials for CLIL lessons, teachers will have to take into account the same aspects as teaching materials in general, regardless of the methodology they follow. Some of these points are the following:

Interaction patterns: Obviously, CLIL methodology requires student-centred approach so different pair and group work dynamics may be present. Good examples are webquests since they demand active students who look for information on the Internet and explain their findings to the others. Communication is crucial.

Motivation and anxiety: since the former is the key for learning to take place. Dorney (2001b) distinguishes between integrative and instrumental motivation. The former is like intrinsic motivation, a desire to learn the culture and country where the foreign language is spoken; in contrast, instrumental motivation is external, some desire to pass an exam, to have better job opportunities, etc. On the other hand, anxiety should be kept to the minimum since it prevents children from learning; game-like activities help to reduce learners' stress and fear; cooperation and collaboration among the students and the acceptance of mistakes as normal parts of the learning process are good strategies.

The use of some materials is conditioned by the activities in which they will be used, or the nature of the content to be taught or the available media. Nowadays, education has changed (many ideas have already been pinpointed) and it needs to adapt to the surrounding circumstances. Technologies have improved a lot and they are indeed progressing so the educative process may adapt to those changes and use the ICTs as common materials in the classroom. In fact, they are sometimes more motivating, attractive and useful than conventional materials since students are really familiar with their use. For instance, children and teenagers find information on the Internet more quickly and easily than on some encyclopedia. Again, context is the decisive factor in the devising process when talking about teaching materials for the CLIL classroom.

Cognition is the last aspect to consider. Comprehensible input is fundamental for learning, as Krashen (1981) stated. It helps to develop and increase communicative competence. But not only is the input important for cognition but also task design since the materials will determine how students use the language and the way they use it. The Internet is a great source of materials for the CLIL lessons but some adaptations will be essential to make them accessible to students.

Considering everything said up to now, this essay will present an example of material design for a CLIL lesson on science trying to mix the two models mentioned before: the SIOP protocol and the 4Cs of the tool kit.

6. DIDACTIC PLAN.

6. 1 The teaching context

The present proposal is an example of a science didactic unit integrated in the CLIL methodology. It is intended to be carried out in the fifth year of primary education. With this unit both science and foreign language contents (in this case, English) are combined which is the main purpose of Content and Language Integrated Learning. All the theories and ideas presented in the theoretical framework will be applied to practice since this unit follows SIOP protocol while trying to be coherent with the 4C's ideas

This unit has been designed for a group of twenty two **students** in the fifth grade in an urban school in Extremadura. The average students belong to the middle and upper-middle class. Many of them have parents who are teachers, so they are quite concerned with their sons and daughters' future, valuing the study of English highly and being really involved in their education. These data contribute to the children's high motivation towards learning and towards the English language in this bilingual school.

In fact, this school is not a conventional bilingual school since it depends on an agreement between the Ministry of Education and the British Council. This affects the contents in some ways. In the first place, the two main content subjects taught in English (Science and Art) follow the British **curriculum** rather than the Spanish one. In the second place, the linguistic subject is called Literacy and it is taught by native English teachers who teach in the same way as British children learn their mother tongue. In the third place, children take a British Council exam at the end of primary education similar to the Spanish evaluation at the end of this stage. This test is also done by British children at the end of "k-12" to assess their knowledge on the 3R's: reading, writing and Arithmetic. The students at this school can continue their secondary education in a neighboring high school that also enjoys the same agreement with the British Council, so at the end of this stage, pupils obtain two certificates in secondary education, the Spanish and the English ones. For all these reasons, the study of English is really interesting and important at this school.

The unit here presented deals with a non-linguistic subject, Science, and the contents are related to health and the prevention of accidents.

This unit is built around the principle of significant learning since it connects new information with **what the students already know** about the topic. According to the British Curriculum this school is organized around, children have already learnt the parts of the body both external and internal, healthy food and how important it is for a healthy life, the prevention of some healthy problems and accidents.

The British Curriculum gives especial importance to administering fair tests (activities in which students use the language for real communication in real contexts: simulation of circus, fair, Olympics etc where everybody speaks English but showing the knowledge of what they have learnt in the non-linguistic subjects) and to carrying out experiments because in this way children can use the language for a purpose, they express what they learn and do by using the foreign language.

6.2 Objectives

This didactic unit is organized around the objectives set in the British Curriculum and the Curriculum for Extremadura (Decree 103/2014 of 10th April).

General objectives

- f) To acquire, in at least one foreign language the communicative competence necessary to express and understand simple messages and to carry out daily activities.
- h) To know fundamental aspects of the Sciences of Nature, Social Sciences, Geography, History and Culture of the immediate context.
- k) To value hygiene and health, accept one's own body and the others', to respect differences and to use sports as a way to develop personal and social development.

General objectives of Science (year 5 of primary education)

- To make predictions about what is going to happen.
- To write a brief essay about an investigation.
- To improve communication on the parts of the body, nutrition and health

General objectives of the Foreign Language

- To describe people, objects, situations.

- To express messages with cohesion and coherence, adjusting them to the typology of texts.
- To formulate hypotheses.
- To show a positive attitude toward the foreign language, its speakers and its culture.

Specific content objectives

- To learn about different parts of the body.
- To understand the importance of avoiding danger and, hence, some accidents.
- To become aware of the importance of physical exercise and healthy food in order to have good health.
- To use the foreign language to express one's own ideas about how to be healthy.
- To listen to some cultural differences between the foreign country and one's own with respect to emergency phone numbers.
- To increase pupils' cultural awareness with respect to Mediterranean diet and sleeping habits.
- To describe the main infections the human body can suffer and their causes.
- To know the medicines that can cure some of the illnesses that affect them.
- To know the different groups of food and which ones are healthier.
- To answer questions about emergency services.
- To match words related to medicine with their definitions.

Specific language objectives

- To write about how to prevent home accidents.
- To read and understand short texts dealing with the human body and health.
- To learn and autonomously use vocabulary dealing with illness.
- To investigate about Fleming and his importance for medicine.
- To use the present simple to communicate opinions.
- To describe pictures and images using the present simple.
- To exchange information about research.
- To discuss the Spanish healthy/unhealthy habits.
- To listen to some information about vaccines and how they prevent some illnesses.

6. 3 Procedures

They refer to the type of activities and techniques used in the lesson and they are organized around the SIOP protocol and Coyle's 4 C's theory.

The main features observed in the SIOP protocol are covered here:

1. Preparation: adaptation to content; links to past learning; links to background and strategies incorporated.
2. Integration of processes: reading, writing, listening and speaking but in an interrelated way, that is, although an activity may essentially be a reading one, students will have to participate in an after-reading discussion, for instance.
3. Scaffolding: modeling; guided practice; independence practice and comprehensible input.
4. Application: hands-on; meaningful; linked to objectives and promotion of engagement.
5. Grouping options: whole class, small groups, pair work and individual work.
6. Assessment: individual, written and oral. It is done through the whole teaching-learning process during the lesson since class observation is an important form of assessment.

But Coyle's theory of the 4 C's is also followed: content, communication, cognition and culture.

Content: the contents studied in this unit refer to health: diseases (their types, causes and prevention), diet, sleeping, and sport.

Communication: it is highly promoted during the 10 sessions the unit lasts. Some of the activities imply directly speaking and listening since they involve a debate, a discussion question/answer exchange or expressing their opinions. Some others consist in watching some videos or sketches and talking about them later on. And finally, other activities present a text to be read but they have to discuss some aspects later on. So communication in the foreign language is present through all the sessions. In fact, without communication learning is unlikely to happen

Cognition: the tasks proposed involve the use of the language for real purposes, for instance looking for information on the internet or listening to real information about

medicines. The key is that students learn the language but they do not realize they are in fact learning the language, they think they are just learning Science contents. They will find words and structures they did not know before but that will be clarified by the teacher when necessary.

Culture: students will learn different cultural aspects so the unit helps to increase their socio-cultural competence. In this unit three different cultural references are focused: the emergency phone number, which is 112 in Spain and Europe and 111 in England (although 112 also works there); the importance of the Mediterranean diet, which includes fresh fruit and vegetables, meat, fish, cereal, dairy products and olive oil (this information will be learnt with an activity about the good eating plate); and, finally, the importance of sleeping enough hours at the proper time and the consideration of the fact that different cultures have different sleeping habits.

6.4 Unit sequence

The timing for it to be developed is about ten sessions of 45 or 50 minutes depending on the day of the week (the LOMCE says that lessons are of 45 minutes or more depending on the needs of each school) but taking into account tolerance and flexibility to adapt to the students' rhythm and pace of learning.

6.5 Evaluation

Evaluation is another element of the school curriculum. It takes three forms: initial, continual and final. In this unit, the initial evaluation helps the teacher to revise the parts of the body and some vocabulary pupils already know while presenting the new topic they will study. Continual evaluation is done through the whole process of learning since the teacher will take notes of the students' participation, attitude, work and collaboration. He/she can also take notes of the most frequent mistakes to focus his/her attention to them. The final evaluation will be done by means of a test (see appendix 20).

The grading criteria of the unit are the following:

- a. Interest and participation: 10%
- b. Continuous assessment (compositions and oral presentations): 40%
- c. Test: 50% (see appendix 20).

The teacher should also evaluate the success or failure of the didactic unit to introduce changes and innovations if necessary.

6.6 Unit Development

SESSION 1

Activity 1(Warm up): the teacher will show a picture that contains a doctor and a patient at a surgery surrounded by medical instruments. Then, the teacher will explain the objectives of the unit so children can predict what the unit is going to deal with. The teacher will suggest some questions such as giving reasons for visiting the doctor, what instruments can you find in a surgery, etc.

Grouping: teacher to whole class.

Objectives: to grasp attention towards the unit and to guess the students' previous knowledge on the subject as well as to recall vocabulary.

Material: the picture, poster size (appendix 1).

Skills: listening and speaking.

Timing: 15 minutes.

Activity 2

Children will listen to and, afterwards, read a text dealing with vaccines and how they prevent some diseases and infections. The text is adapted, so it is written using the present and past tenses and vocabulary already known except the new terms they are going to learn which appear in bold (see appendix 2).

Grouping: whole class while listening, but individual while reading and doing the exercise.

Objectives: to present new words in a context that makes their meaning clear and to read and understand a written text.

Materials: a photocopy with the text (see appendix 2) and the blackboard for explanations.

Skills: reading and listening.

Timing: 10 to 15 minutes.

Activity 3

Children will do a matching activity related to the text of the previous activity. They have some of the new words dealing with medicines and their definitions. They have to match both. Context is great help so they can predict meaning. Furthermore, many technical terms used are of Latin origin so they resemble Spanish terms (vaccine, injection, virus, infection) (see appendix 3).

Grouping: individual work.

Objective: to present new words in context that makes their meaning clear so students can understand them.

Material: the same photocopy with the text and the blackboard for explanations.

Skills: reading but also speaking since the correction will be oral.

Timing: 5 minutes.

Activity 4

Information on illnesses is presented. The teacher will show a powerpoint presentation on the digital whiteboard in which children will see people suffering from different health problems (toothache, stomachache, a cold) (see appendix 4). The teacher will invite kids to talk about the symptoms each person has. One volunteer will write down on the blackboard the ideas suggested.

Grouping: teacher to whole class

Objective: to make children think and to express themselves fluently. Accuracy is not so important since the purpose is communication.

Materials: computer, digital whiteboard and blackboard.

Skills: listening and speaking.

Timing: 10 minutes.

SESSION 2 (in the ICT classroom)

Activity 1 (Warm up)

The teacher will show pictures containing viruses, fungi and bacteria seen from a microscope. The teacher will encourage guesses from the students about what kind of organism each picture represents. Maybe they have no idea at the beginning since they are not used to seeing this kind of organisms. The teacher will make them understand they are studying illnesses and guide them to the correct response (see appendix 5).

Grouping: teacher to whole class

Objectives: to catch students' attention towards the next activities and to learn some new words that will appear in a subsequent reading text.

Materials: photographs.

Skills: listening and speaking.

Timing: 10 minutes.

Activity 2

The teacher will ask the students questions about the contents studied in the previous session (eg: "how can we prevent diseases?") so they remind what they already know. Students will go back to the text they read the previous day because now they are going to do a written activity. It consists in writing about what kind of illness they think those people suffer and then, write if they have suffered the same diseases once, how they felt, how they recovered etc.

Grouping: individual work.

Objectives: to use the foreign language autonomously in the written form; to check if they learnt the vocabulary of the text.

Materials: their notebooks.

Skill: writing.

Timing: 10 minutes.

Activity 3

Students will use the computers. They have to search the Internet to find out what infectious agents can cause illnesses such as cold, flu, tetanus and salmonellosis.

Grouping: pair work

Objectives: to be able to find information on a specific topic using the ICTs; to use the foreign language in the real world, with real purposes.

Materials: the computers that are located in the ICT classroom.

Skills: reading and writing.

Timing: 15 minutes.

Activity 4

Each pair selects a spokesperson who will be in charge of presenting their findings to the class. They will compare results with the rest of pairs and reach conclusions.

Grouping: whole class.

Objectives: to be able to express themselves orally in the foreign language; to be able to reach an agreement.

Materials: their notebooks where they wrote their findings.

Skills: reading, listening and speaking.

Timing: 15 minutes.

SESSION 3

Activity 1 (Warm up)

The teacher will show some pictures of animals (snake, bee, scorpion, jellyfish) (see appendix 6). He will encourage students to think about possible connections between animals and health.

Grouping: whole class.

Objective: to make students predict the contents of what they are going to study.

Materials: the pictures.

Skills: listening and speaking

Timing: 5 minutes.

Activity 2

The teacher will present two texts dealing with diseases, one about infectious diseases and the other non-infectious. Students will do individual silent reading and after that finally they will take turns to read aloud. They will highlight those words whose meanings they do not know or cannot infer from context (see appendix 7).

Grouping: whole class and individual.

Objectives: to get an approximate idea to the notion of diseases and their causes; to read two texts dealing with real information; to practice pronunciation through reading aloud.

Materials: handouts with the two texts.

Skills: reading and listening.

Timing: 15 minutes.

Activity 3

They work with the two texts now doing some comprehensive activities: name three infectious agents, how do they enter our body, name causes for non-infectious illnesses.

Grouping: individual.

Objectives: to check understanding from a written text and to make students learn the differences between infectious non-infectious diseases.

Materials: handouts with the two texts and their notebooks.

Skills: reading and writing.

Timing: 10 minutes.

Activity 4

Children will see more pictures, now about non-infectious diseases. They have to discuss in small groups the type of illness they suffer from and the causes (see appendix 8).

Grouping: small group.

Objectives: to apply the knowledge they have acquired and to express themselves in English; to develop communication skills such as speaking and listening while others are speaking.

Materials: computer and overhead projector

Skills are listening and speaking.

Timing: 15 minutes.

SESSION 4

Activity 1 (Warm up)

The teacher shows again the pictures of the viruses, bacteria and fungi on the whiteboard. He/she will ask children what they are with the aim of remembering their names. Afterwards, he/she will give each student some clay of different colors. They have to create a microorganism and explain what kind it is and if it is dangerous. They have to give a name to it, explain if it is infectious and what kind of disease it transmits.

Grouping: whole class for the presentation and then individual work.

Objectives: to review contents of the previous days; to develop creativity; to motivate the students.

Materials: photographs, digital whiteboard and clay.

Skill: listening.

Timing: 15 minutes

Activity 2

Children present to the class the result of their work with clay. They explain the kind of organism it is, the name they have given to it, and if it is infectious or not; in case it is, what kind of disease it transmits.

Grouping: whole class.

Objective: to express themselves orally;

Material: clay.

Skills: listening and speaking.

Timing: 15 minutes.

Activity 3

The teacher will explain that there are other types of diseases, not only infectious and non-infectious. They will listen to the CD explaining some of them. The CD will be played three times so that students can understand general information and some details. The teacher will explain some unknown terms after the listening (see appendix 9).

Grouping: whole class

Objectives: to listen for general information; to enlarge their knowledge on diseases.

Materials: a CD, the computer and loud speakers.

Skill: listening.

Timing: 7 minutes

Activity 4

Students will do some follow-up activities. They will answer some questions related to the information they have just listened to. It will be done orally so if one student has not got the answer, another one can help giving some clues to make him/her think (see appendix 10).

Grouping: whole class

Objectives: to show understanding of a listening text; to help classmates; to develop oral skills; to consolidate knowledge on diseases.

No required material.

Skills: listening and speaking.

Timing: 5 minutes

Activity 5

The teacher will use his mobile phone to pretend to call 112. He will ask children if they know where he is calling to.

Grouping: whole class.

Objective: to check if students know the emergency number in case they have an accident or they witness one or if someone needs help. They will memorize it.

Material: a mobile phone (realia).

Skills: listening and speaking.

Timing: 4 minutes

SESSION 5

Activity 1 (Warm up)

The teacher will bring to the class some supermarket leaflets containing food sales. He will invite children to say aloud the names of all the products they know and will write them down on the blackboard. Afterwards, he will encourage children to group them into different kinds, whatever the criteria (see appendix 11).

Grouping: whole class

Objectives: to check their knowledge on the topic of food; to arise interest for the contents they are going to deal with.

Materials: supermarket leaflets.

Skill: speaking.

Timing: 15 minutes

Activity 2

The teacher will show a classification of food items into groups: fats, carbohydrate, dairy products, fruits and vegetables and protein. He will explain the main features of each group and how much we should eat (see appendix 12). The students will copy that information presented about the group of food on their notebooks so that they can have access to that information wherever they need it in order to carry out some activities.

Grouping: whole class and individual work when copying.

Objectives: to learn how to carry on a healthy diet; to learn new vocabulary dealing with diet.

Materials: computer and digital whiteboard, students' notebooks and pens.

Skill: listening and writing.

Timing: 15 minutes

Activity 3

Students will prepare their menu for a whole day. They will do as they were preparing the good eating plate. They will be given a plastic dish and the same supermarket leaflets of previous activities. In groups, they should cut out the food they want to eat and stick it onto their plate. The teacher advises them that using all the ingredients they need for each recipe is a good option in order to have more items in each group: more vegetables, more cereals, more dairy products and so on.

Grouping: small group.

Objectives: to assimilate the contents of healthy food; to work cooperatively.

Materials: supermarket leaflets; plastic dishes, scissors and glue.

Skill: speaking.

Timing: 10 minutes

Activity 4

Students will play an interactive game called “quick shopping”: they have 60 seconds to buy healthy food in an interactive supermarket. They win points depending on the food they add to their trolley: healthy food or junk food. They play in small groups of three or four players. The teacher will explain how the so-called “Mediterranean diet” is known worldwide since it is really healthy. The winner is the player who gets more points.

Grouping: small group.

Objectives: to learn about Mediterranean diet and to increase their cultural awareness.

Materials: computer and digital whiteboard.

Skills: listening and speaking.

Timing: 10 minutes.

SESSION 6

Activity 1 (Warm up)

The teacher promotes a debate for students to give ideas about healthy life: importance of practicing sports, healthy food, hygiene and sleeping. The students will give their reasons for those good habits. They can also discuss if those habits are common among Spanish people and if they have them.

Grouping: whole class.

Objective: to become aware of how important those practices are to carry out a healthy life-style in order to avoid diseases.

No materials are needed for this activity.

Skills: speaking and listening.

Timing: 10 minutes

Activity 2

The teacher gives some handouts with a text about healthy habits in order to avoid accidents and diseases. The students will read through it to get a general idea of what it is about. Then, they read aloud with the help of the teacher (see appendix 13).

Grouping: individual.

Objectives: to promote autonomous learning; to get information on different healthy habits they should acquire.

Material: handouts.

Skill: reading.

Timing: 5 minutes

Activity 3

The students will answer some questions related to the text they have just read. First of all, they have to look at some people doing different actions and discuss how they prevent illnesses (see appendix 14). Then, they have to answer some questions about self-esteem and illnesses.

Grouping: pair work.

Objectives: to check understanding of the text; to perceive how easy and important healthy habits are.

Materials: photographs and photocopies with the questions.

Skills: reading and writing but also listening and speaking for the correction.

Timing: 15 minutes

Activity 4 (in the ICT classroom)

Students will do an ICT activity. They will look for some information on the Internet. The teacher will write the questions on the blackboard; when students find the data, they take notes on their notebooks to compare results when all the groups have finished (see appendix 15).

Grouping: small group.

Objectives: to motivate the students to know more about how to be healthy; to use the Internet to look for information.

Materials: the students' computers.

Skills: reading and writing but also listening and speaking for the correction and for communicating in pairs.

Timing: 10 minutes

Activity 5

The student will see some short sketches from Youtube that show people from different nationalities while they sleep. They will see that Spanish go to bed later than the rest and that they are the only ones that take naps; by contrast, British people go to bed earlier and sleep for more hours every day. The students are expected to comment on those different patterns.

Grouping: whole class.

Objectives: to motivate the students to know more about how to be healthy; to increase their cultural awareness.

Materials: the computer, the digital whiteboard and the loud speakers.

Skills: listening and speaking.

Timing: 10 minutes

SESSION 7

Activity 1 (Warm up)

The teacher will ask the students if they sometimes go to the doctor; he will encourage children to talk about doctors, their jobs and workplaces.

Grouping: whole class.

Objectives: to motivate the students; to introduce the topic of doctors and medicine.

No materials are needed for this activity.

Skills: listening and speaking.

Timing: 10 minutes

Activity 2

The teacher will present a text dealing with medicines and disease treatment. This time, the students will listen to that text before reading it. They will underline the difficult words so the second time they listen to it, they can pay attention to those difficulties. Then, they will take turns to read through it aloud (see appendix 16).

Grouping: whole class.

Objectives: to understand an oral text; to follow silent reading.

Materials: computer, CD, speakers and handouts with the text.

Skills: listening and reading.

Timing: 10 minutes

Activity 3

Students will practice checking comprehension. They will answer some questions dealing with the text (see appendix 17). They have to do it using their own words as much as possible.

Grouping: individual.

Objectives: to extract general and specific information from a text; to solve some problems autonomously.

Materials: the handouts with the text, the handouts with the comprehension questions and their notebooks.

Skill: writing and listening.

Timing: 10 minutes

Activity 4

The teacher will promote an oral activity in which children are encouraged to discuss about how medicine affects them: if they take some medicines, if they have undergone surgery, if they receive some medical treatment, if someone in their families does, etc.

Grouping: whole class.

Objectives: to develop oral skills, to develop fluency, to follow the social norms for oral communication.

No specific material is required.

Skills: listening and speaking.

Timing: 15 minutes.

Activity 5

The teacher will use again his mobile phone but this time he will dial 111. He will ask children where they think he calls now. He will explain that this is English emergency number although 112 also works there.

Grouping: whole class.

Objective: to increase their cultural competence by introducing British emergency services.

Material: a mobile phone so realia are included in the class.

Skills: listening and speaking.

Timing: 4 minutes.

SESSION 8

Activity 1 (Warm up)

The teacher will bring two posters to the class, one dealing with medicine in the past and another with the present. He will introduce the session by explaining that medicine

has changed a lot with the pass of time, that now there are more treatments and medicines to cure illnesses. Then, he will show some pictures and children may decide if they stick them in the past poster or in the present poster (see appendix 18).

Grouping is whole class.

Objectives: to develop oral skills, to develop fluency, to motivate them, to increase their curiosity, to develop their cultural awareness.

Materials: the poster and the photographs.

Skills: listening and speaking.

Timing: 10 minutes.

Activity 2

The teacher will propose the reading of a text that deals with the advances medicine has undergone. Children will read through it to get some knowledge on that. The teacher will use the blackboard to explain unknown words after an attempt on the students' part to infer meaning from context. With this text they will also learn about the existence of public and free medical services for everybody both in Spain and in the United Kingdom so cultural competence will be improved. After reading the text the student will answer some comprehensive questions about it which consist of matching some definitions with some words.

Grouping: whole class.

Objectives: to increase their knowledge on the changes of medicine through the centuries and to increase their cultural competence.

Materials: the texts and the blackboard.

Skill: reading.

Timing: 5 minutes.

Activity 3

The teacher encourages the children to classify the pictures used in the warm up activity into the different types of research they have just read about. They can propose more they can think of (eg: X-ray).

Grouping: whole class.

Objectives: to put into practice the contents they have just acquired; to be reflexive about the role of medicine in our lives.

Materials: the posters with the pictures on them.

Skills: listening and speaking.

Timing: 5 minutes.

Activity 4

The teacher proposes a research activity. They will go to the library to investigate about the origin of antibiotics, the person who discovered them, the first type, what it was made of, etc. They will take notes of their findings, and then, as homework, they will write a report to be presented in front of the whole class.

Grouping: small group.

Objectives: to obtain information from encyclopedias; to integrate the use of the library in this subject; to learn about Fleming and his importance.

Materials: the encyclopedias, their notebooks and the materials they need for the oral presentation.

Skills: reading and writing.

Timing: 20 minutes.

SESSION 9

Activity 1

The groups will present orally to the class the information they gathered the previous day about antibiotics.

Grouping: small group and but also class group.

Objectives: to develop oral skills: to present some information to other people.

Materials: whatever they have prepared: posters, photographs, powerpoint and computer.

Timing: 50 minutes (10 minutes each group).

SESSION 10

This last session deals with assessment. The teacher will administer a test for the students to complete so all of them can check the degree of achievement of the objectives and assimilation of the contents. It consists of different activities and questions dealing with all the points studied in class(see appendix 20).

Grouping: individual work.

Objectives: to evaluate the students' progress and the success or failure of the unit.

Materials: the tests the teacher will hand out.

Timing: 50 minutes.

7. CONCLUSIONS

This essay has tried to answer the questions posed at the beginning about bilingual education in our country and how teachers can contribute to make it successful. A general overview on CLIL methodology has been presented from its origin to the present day, along with the need to involve teachers in this methodology. New materials are needed in the same way as teachers need to recycle their teaching practice. With more formation and interest, it can be done. Fortunately, more and more teachers are interested in applying CLIL methodology to their classes, since more and more schools are becoming bilingual.

The truth is that not everything that is called bilingual is such; there are some schools that just use the foreign language for the contents of some non.-linguistic subjects but they do not do it in the proper way. Most of the time, the teacher has not got the adequate level of competence in that language; on other occasions, the school lacks

information about how to organize bilingual programs; and, finally, other times, the contents are presented in the mother tongue more than it is prescriptive. CLIL experts are searching for solutions to these and to many other problems concerning bilingual education.

The first solution may come from government policies; they should set clear the objectives of bilingual programs and organization of schools because, although some regulations have been passed, they are ambiguous or schools do not take them seriously. Another option is to provide teachers with courses about bilingualism and about how to create materials. It is true that designing materials is a time consuming activity, but if teachers were given extra time for this task, they would be pleased to carry it out. Moreover, all those teachers could have a bank of resources at their disposal so they could use in their classes the materials other teachers had created.

Another solution is the one presented in the unit sequence explained in this essay. The school in which it will be applied has an agreement with British education policies so the linguistic subject is taught by native teachers in the same way in which British children learn their mother tongue. They learn the phonic sounds from infant education so they start reading English at an early age. It is difficult but not impossible to try programs like this one in public schools.

The government should make a greater effort on bilingual education to propose solutions for its improvement. Changes have in fact appeared but many more need to be studied about the application of CLIL in Spanish schools.

8. REFERENCES

- Alberich, J. (2007). *English through Science*, Nottingham, University of Nottingham.
- Anderson, L.W. and Krathwol, D. R. (2001). *A Taxonomy for Learning, Teaching and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives*. New York: Longman.
- BarrosoJ.M (2007). *First-ever European strategy for culture: contributing to economic growth and intercultural understanding*. Retrieved 8 September2016, from <http://europa.eu/rapid/pressreleasesaction.do?reference=IP/07/646>.
- Benítez Castro M.A (2007). Teaching Science in CLIL: a sample lesson plan for the non-linguistic areas. *GRETA Journal*, 15:47-59.
- Bloom, B.S. (1956). *Taxonomy of Educational Objectives, Handbook I: Cognitive Domain*. New York: Longman.
- Brown, H.D. (1980). *Principles of Language Learning and Teaching*. Englewood Cliffs, NJ: Prentice Hall.
- Coyle D., Hood P. and Marsh D. (2010). *Content and Language Integrated Learning*. London: Cambridge University Press.
- Dalton-Puffer, C. (2007). *Discourse in Content and Language Integrated Learning (CLIL) Classroom*. Amsterdam: John Benjamins.
- De Bot, K. (2002). "Relevance of CLIL to the European Commission's Language Learning Objectives" in Marsh, D (ed.), *CLIL/EMILE-The European Dimension: Action, Trend and Foresight Potential*. Strasbourg: European Comission, Public Services Contract DG EAC.
- Dörney, Z. (2001), *Teaching and Researching Motivation*. Harlow: Pearson Education.
- Echevarría J, Vaught M. E. and Short D (2007). *Making Content Comprehensible. Center for Applied Linguistics*. Washington, D.C.: Pearson.
- Eurydice report (2006). *CLIL at School in Europe*. Brussels: European Commission (Directorate-General for Education and Culture).

Genzruk, M. (2011). *Specially Designed academic Instruction in English (SDAIE) for Language Minority Students*. Multicultural Research Digital Papers Series. University of Southern California: Center for Multilingual,

Halliday, M.A.K. (1978). *Language as Social Semiotic: The social interpretation of Language and Meaning*. London: Arnold.

Krashen, S. (1981). *Second Language Acquisition and Second Language Learning*. University of Southern California: Pergamon Press Inc.

Mehisto, P., Marsh, D., Frigols, M. (2008). *Uncovering CLIL: Content and Language Integrated Learning in Bilingual and Multilingual Education*. Macmillan: Oxford.

Organic Law 2/2006 of 3rd May (BOE 106 of 4th May 2006) of Education (LOE)

Organic Law 8/2013 of 9th December (BOE 295 10th December 2013) of *Mejora de la Calidad de la Enseñanza* (LOMCE).

Pérez-Cañado, M. L. (2011). CLIL research in Europe: past, present, and future. *International Journal of Bilingual Education and Bilingualism*, 15(3):1-27.

Pérez-Vidal, C. (2005). Content and language integrated learning: A European approach to education. In C. Pérez-Vidal (Ed.) *Content and Language Integrated Learning (CLIL). Teaching Materials for Use in the Secondary School Classroom*. Barcelona: Universitat Pompeu Fabra.

Rainer, M. (2010). *Teaching CLIL: Classroom Benefits*. Oxford: OUP.

Royal Decree 103/2014 of 10th June, which establishes the curriculum for Primary Education in Extremadura.

Spencer D. (2014). *Learning is Growing*. Madrid: Anaya.

WEBLIOGRAPHY

A place to learn about microbes. (2016). E-bugs, retrieved on 5th September 2016 from www.e-bug.eu

Campos Acosta, A and Parra A., *Effective Sheltered Instruction* (2016), retrieved on 26 October 2016 from http://www.aieconference.net/docs/presenter%20handouts/Adelita%20Acosta/CLLEN_SI_AIE_PPT_FOR_PRINT.pdf

Center for Applied Linguistics. (2016), retrieved on 29th August 2016 from <http://www.cal.org>

Eight Components of Sheltered Instruction Observation Protocol(2016). Instructional Coach Corner. Retrieved 18th September 2016, from <http://hopemiddle.weebly.com/-8-components-of-siop.html>

Elmes, D (2013): *The Relationship between Language and Culture*. Retrieved 2ndOctober, from <http://www2.lib.nifs-k.ac.jp/HPBU/annals/an46/46-11.pdf>.

Ioannou Georgiou, S .andPavlou, P (2011), *Guidelines for CLIL Implementation in Primary and Pre-primary Education*. Retrieved 30th July 2016, from http://www.schools.ac.cy/klimakio/Themata/Anglika/teaching_material/clil/guidelinesforclilimplementation1.pdf

Kareva, V. and Echavarria, J.(2013).Using the SIOP Model for Effective Content Teaching with Second and Foreign Language Learners.*Journal of Education and Training Studies*, 1(2). Retrieved 2nd November 2016, from <http://dx.doi.org/10.11114/jets.v1i>

Nutrition facts for children.(2016).Texas, Department of State Health Service. Retrieved 3rd September 2016, from <http://www.dshs.texas.gov/kids/lessonplans>

INTERNET SOURCES

[www. Britishcouncil.learnkids.com](http://www.Britishcouncil.learnkids.com)

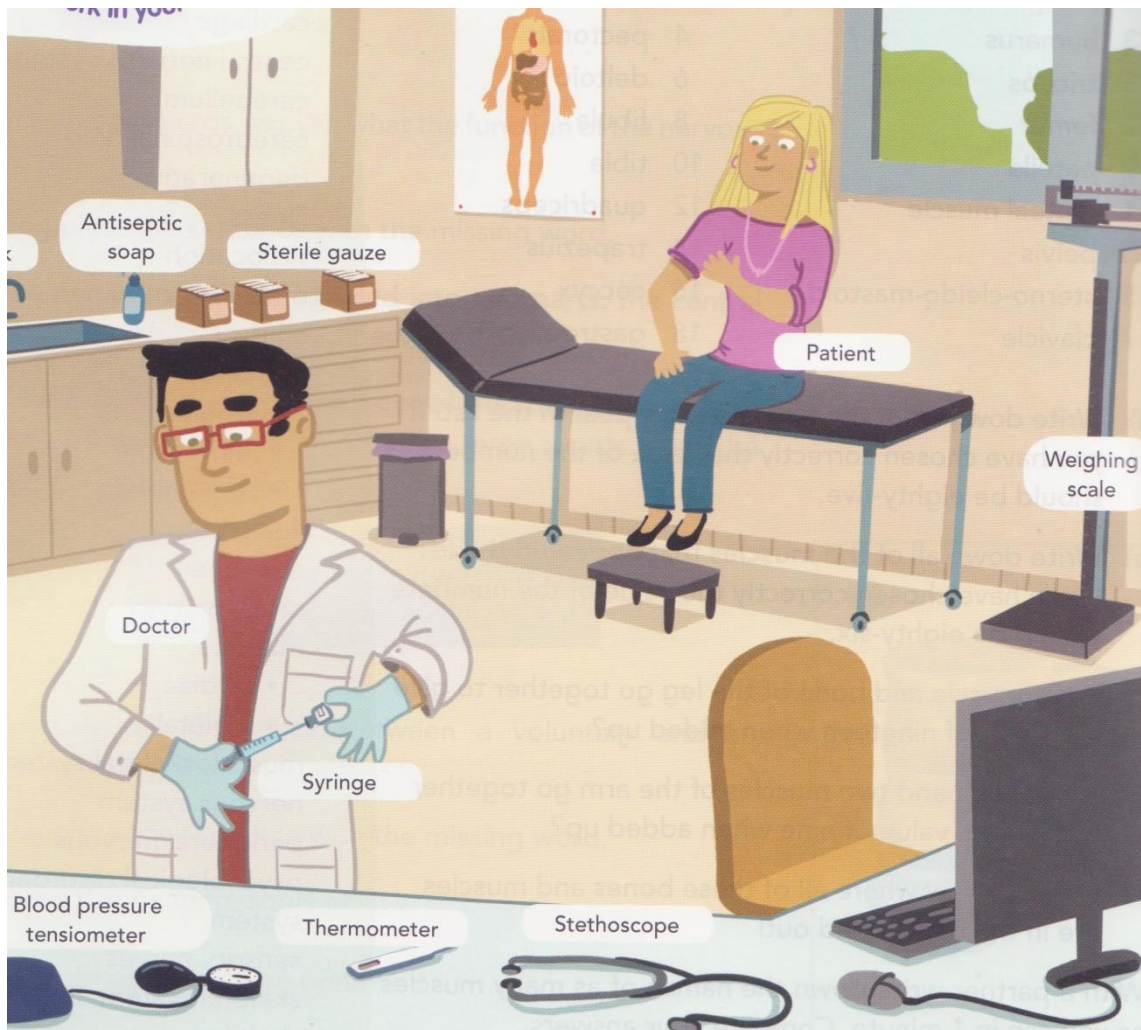
<https://es.pinterest.com/pin/201395414565908231/>

www.CamposLanguageEducationNetwork.com

<https://kids.usa.gov/health-and-safety/health/index.shtml>

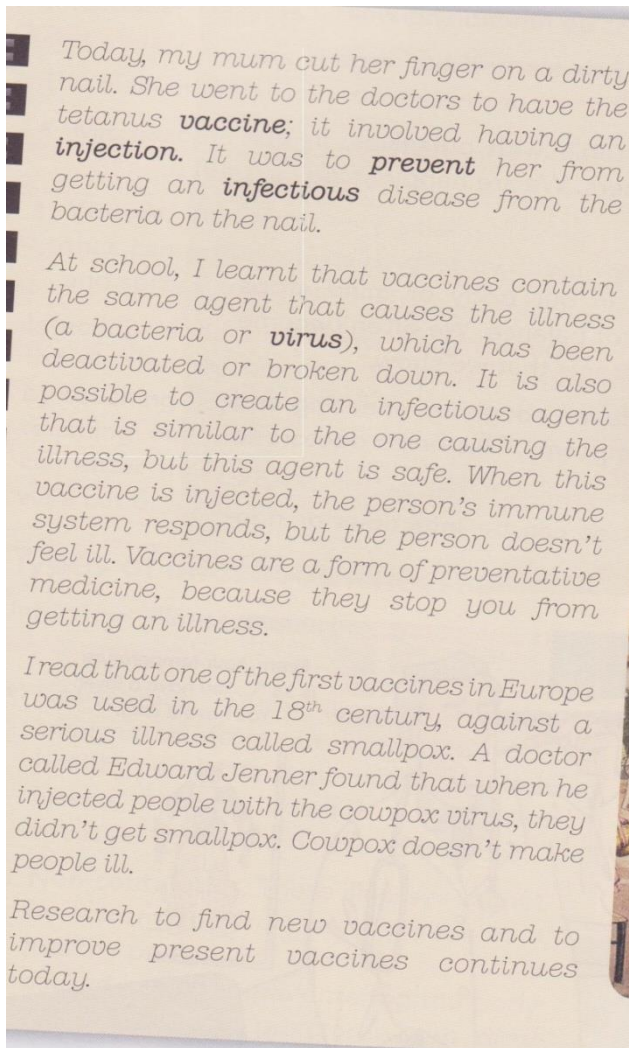
9. APPENDICES

Appendix 1



From Spencer, D.(2014).*Learning is Growing* (p.89). Madrid: Anaya

Appendix 2



Adapted from Spencer, D.(2014). *Learning is Growing* (p.89). Madrid: Anaya.

Appendix 3

Match the words to their definition

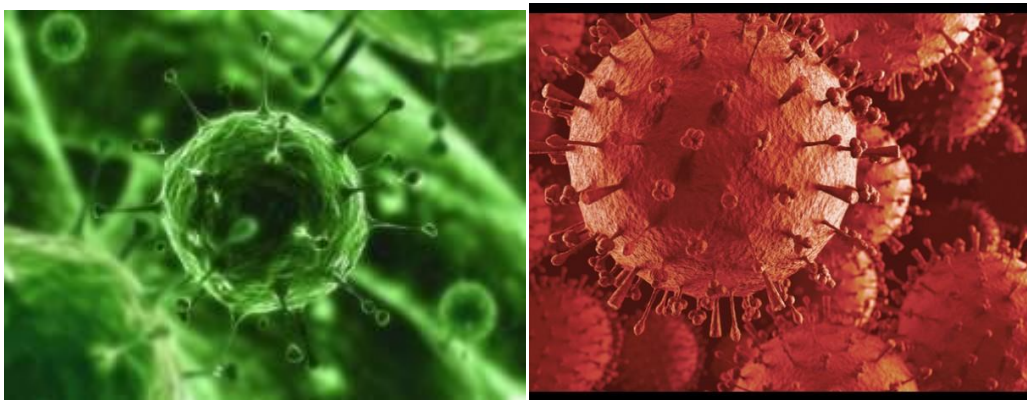
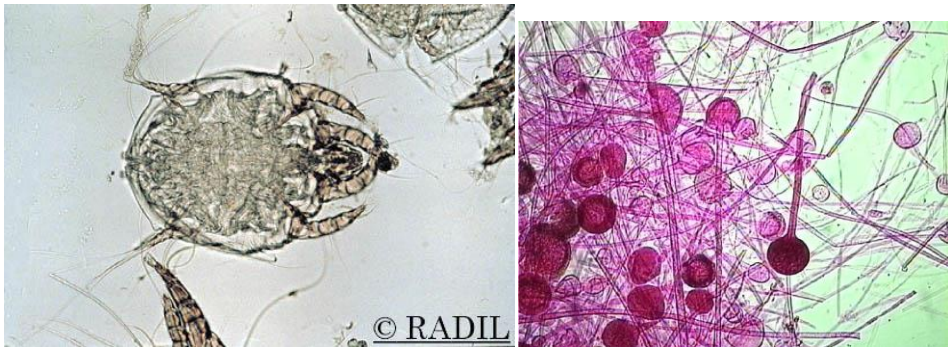
Virus	an infectious agent
Injection	an infection that can be passed from an ill person to a healthy one
Vaccine	a preventative medicine
Prevent	a form of administering a medicine by puncturing the skin
Infectious	stop something from happening

Appendix 4



From www.google.es/search

Appendix 5



From www.google.es/search

Appendix 6



From www.google.es/search

Appendix 7

INFECTIOUS ILLNESSES Infectious illnesses are transmitted by infectious agents entering our body. The main infectious agents are: • Microscopic living beings. For example, bacteria, fungi or protozoa. • Viruses. These are very small particles that can enter our cells, destroy them and spread to other cells. Infectious agents enter our body through the air that we breathe. They also enter by touching objects that they are on, then touching our mouth, eyes or nose. They can enter through our skin, for example, via a cut or a bite or sting. Types of infectious illnesses Infectious illnesses can be contagious or Non contagious • Contagious. These illnesses can be transmitted from an ill person to a healthy person through contact, through insects' bites or through coughs and sneezes. Cold and flu are contagious. • Non contagious. These illnesses cannot be transmitted from an ill person to a healthy person. For example, tetanus is caused by a bacteria entering the body through cuts or punctures with dirty objects.	NON INFECTIOUS DISEASES A non-infectious illness or disease is not caused by an infectious agent; it can have a variety of causes. The most common non-infectious illnesses and diseases are: malnutrition, poisoning, traumas, tumours, allergies, etc Traumas The most common traumas are cuts fractures, dislocations and sprains. These normally caused by accidents or by posture. Poisoning Poisoning occurs when a toxic substance enters our body. This can be from drinking or eating something dangerous, breathing in a poisonous substance, or from the bite or sting of an animal. Malnutrition and obesity Our body needs a balanced diet to obtain all the nutrients it needs. Inadequate nutrition can lead to: • Malnutrition and other diseases that happen when we don't have enough vitamins, minerals or other nutrients. • Obesity, or when we weigh too much. This happens when we eat too much food, or too many sweet things and fats.
---	---

Adapted from *A place to learn about microbes*.(2016). E-bugs

Appendix 8



From www.google.es/search

Appendix 9

Tapescript:

Tumour and cancer: We can get a tumour or cancer if some cells in our body begin to grow abnormally and don't work properly.

Cancer can be caused by radiation, chemical substances or viruses.

Cardiovascular diseases: They affect the heart, arteries and veins of our body. The most common diseases are heart and blood pressure problems.

They can be caused by an unhealthy lifestyle.

Allergies: They are an exaggerated reaction of our body to certain substances like pollen, food, medicines, etc. Some allergies can be very serious; others just cause runny nose and red eyes.

Their cause is not known.

Mental illnesses: The most common are depression, that is, a long feeling of sadness, and anxiety which is excessive worry or nervousness.

They are caused by difficult situations in a person's life or low self-esteem.

Congenital diseases: They are transmitted from one generation to another or can be caused during gestation.

Appendix 10

Answer the following questions after listening to the recording:

- What type of illness can be inherited from our parents?
- What type of illness can affect a person only at certain times of the year?
- What is the name of the disease that makes a person be sad?
- What parts of the body do cardiovascular diseases affect to?

Appendix 11

Beverages & Confectionery...

€1 each Tuc 100g Range Maynards / Bassetts 130g Range Maynards / Bassetts 130g Range	€2 each Spilte / Fanta 4x330ml Haribo Minis 300g - 350g Range Walkers 10pkts
€1.50 each 7Up / 7Up Free / Club Orange / Sprite / Life / Pepsi Max 2ltr Range WAS €2.29 Coody 3pk Bars Double Concentrate 1ltr Range WAS €2.89	€1.69 each Coke / Diet Coke / Coke Zero / Coke Life 2ltr
€3 each Club / 7Up / Pepsi 6x330ml Range Lucasade Sport 4x500ml Range San Pellegrino 4x500ml WAS €3.49 Nature Valley Protein 5pkts	€4 each 7Up / Club / Pepsi 6x330ml Range WAS €5.59 Coca Cola 8x330ml Range WAS €5.49 Kenco Pure Costa Rica / Colombian 100g WAS €5.25 Nescafe Alto Rica / Espresso 100g Lucasade Energy Original 2x2ltr

SUNRISE CITY SUPERMARKET L.L.C

SUNRISE SUPERMARKET L.L.C

1.46	1.28	1.76	2.20	3.48
2.25	6.84	6.75	5.25	4.95
2.95	14.95	10.95	23.95	44.95

FREE HOME DELIVERY

From www.google.es/search

Appendix 12



From *Essential Science Plus 5 Primary*, (2012), page 69. RICHMOND, Santillana

Appendix 13

Rest and sleep

Sleeping well is important for our mental and physical health. The average 10-12 year old should sleep around 10 hours a day. An adult needs about 8 hours sleep.

Getting enough sleep helps us to fight infections. When we sleep, our brain processes what we have learnt and experienced during the day in dreams.

Self-esteem and self-respect

To have good self-esteem means to be comfortable and happy with who you are.

When a person has good self-esteem, they are unlikely to have depression, anxiety and sleeplessness. A happy person generally gets ill less.

Hygiene

Hygiene involves keeping ourselves, our clothes, the objects we use and our homes clean.

A very important aspect of personal hygiene is hand washing, especially before eating or after going to the bathroom.

Good hygiene reduces the risk of infectious diseases and poisoning.

Being responsible

- We must take responsibility for our actions and take care of our own health. We should: Get to know our body and the main symptoms of illness and disease.
- Take precautions to avoid accidents, poisoning or infections.
- Go to the doctor for regular health check-ups or when we feel ill.

Adapted from Spencer, D.(2014). *Learning is Growing* (p.93). Madrid: Anaya.

Appendix 14

Look at these pictures. How are the people helping to prevent illnesses and diseases?

What illnesses can we prevent by having good hygiene?

Can you think of ways we can improve our self-esteem?



From www.google.es/search

Appendix 15

- How long does a person spend sleeping on his/her life?
- How much water does a person drink in his/her life?
- How long can a person survive without water? And without food?
- How long does a person spend eating?



From www.google.es/search

Appendix 16

Medicine and treatment.

Medicine is a branch of science that tries to identify and cure diseases.

Treatment

When the doctor has come to a conclusion based on the symptoms and the results of the tests, he or she then plans a course of treatment.

A treatment is a course of action to try to cure the patient of the illness. Treatments include:

Administering medicines

Medicines are substances that cure diseases, relieve symptoms or prevent the development of diseases. For example:

Antibiotics are used to cure infections.

Painkillers can help to relieve pain.

Vaccines are used to prevent illnesses.

Surgery

This is when doctors operate on the body of the ill person to repair a part of the body that isn't working properly. They can also remove a part of the body that is damaged and replace it with a healthy part. This is called a transplant.

Other types of treatments

Other types of treatments may work better for certain cases. For example:

Rest, massage and physiotherapy can be used to treat injuries.

Counselling and relaxation techniques can be used to treat depression and anxiety.

Radiation may be used on certain cancers.

Adapted from Spencer, D.(2014). *Learning is Growing* (p.95-96). Madrid: Anaya.

Appendix 17

Name three types of medicine and explain what they are used for.

What is a transplant?

What is the woman in this picture doing? Why?



From www.google.es/search

Appendix 18



From www.google.es/search

Appendix 19

Research and medicines

There are public medical services in Spain for everybody; it is called “Seguridad Social”; people in the United Kingdom have got public and free services too; it is called National Health Service. This is the most important change in medical services.

Scientific research is essential to continue finding ways to prevent and cure illnesses.

A better understanding of the body.

Technological developments such as X-rays and scans mean that we can see inside the body without having to open it up. Examples are seeing if a bone is broken by looking at an X-ray and being able to monitor the development of babies as they grow inside the mother’s womb.

Improved analytical equipment.

We can detect and research more illnesses from improved analytical equipment, such as microscopes and equipment that analyses blood and urine samples.

Surgical techniques.

Improved surgical techniques, such as the use of cameras and lasers during surgery, have improved the chances of operations being successful and increased the type of surgery possible.

Medicines.

The discovery of antibiotics and vaccines, for example, has saved and continues to save many lives.

From *Social and Natural Sciences 5*, (2013) Oxford Education.

Appendix 20

NAME:

DATE:

1. Explain why the discovery of antibiotics and vaccines was important (1 mark)
2. Do you know the telephone number of the emergency service? Have you got a first aid kit at home?(1 mark)
3. In your own words, describe what it means to be healthy.(1,5 mark)
4. Fill the gaps to define what a non-infectious disease is (0,5 mark)
A non-infectious _____ or disease is not _____ by an infectious _____; it can have a variety of _____.
5. Complete the sentences, choosing the correct word from the box (0,5 mark)

Symptoms	tests	samples	diagnose
----------	-------	---------	----------

In order to 1.. an illness the doctor studies the patient's 2..... and may take some 3...and conduct some 4...

6. Say if these statements are True or False (1 mark)
 - A trauma is an infectious disease
 - X-rays allow to see inside the body opening it
 - Fleming discovered the salmonellosis
 - A child needs to sleep 7 hours.

7. What is a congenital disease?(1 mark)

8. Which of the illnesses below is not infectious? Explain why (1,5 mark)

Flu a cold poisoning tetanus

9. Match these illnesses with the correct type (0.5 mark)

Obesity

Cancer

contagious

Stomachache

Flu

non-contagious

Salmonellosis

10. Write a healthy menu (1,5 mark)

