Author: Cristina Imoscopi

Lesson plan:

The bone's composition

School	• Primary ○ Middle ○ High
Year / Class	○ 1 ○ 2 ○ 3 ○ 4 • **5**
Subject : science	**Topic: the skeletal system**
CLIL language	

Teacher / Teaching team profile	Teacher's role:	• Main Teacher ○ Co-teacher ○ Other: _____	Subject taught: **science**
	Teacher's role:	○ Main Teacher ○ Co-teacher ○ Other: _____	_____ Subject taught:

Student group profile (general)	CEFR Level:	• A1 ○ A2 ○ C1 ○ B1 ○ B2 ○ C2
	• Experiences of CLIL 14 ○ English mother tongue • Other mother tongue 1 (Philippine)	○ Migrant background • Special Educational Needs 1 ○ Other: _____

Timetable fit	○ Module • Lesson	This lesson is presented during the second term. Before this lesson the students have already studied: - The different types of bones (flat, long and short) - How to classify the different bones - The functions of bones - How to recognise their function
		Future lessons: The students will observe the experiment result and they will summarise it on the worksheet. Moreover, they will complete a template about the structure of bones and a worksheet of the experiment and they will stick them on their lapbook. (*Attachment* 7)

Resources & tools	- Mappamondo (children's book) - a scientific text - a worksheet and a grid - interactive whiteboard - lapbook for each child (*Attachment* 1)

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	Subject	Language
Students' prior knowledge, skills, competencies	The students already know: To name the body parts To name and point the organs that form a body system THE GROUP CLASS ALREADY KNOW How to work in small group How to build a lapbook How to work individually	The vocabulary related to the topic The correct pronunciation of the words Present tense Must and could The comparative forms The -WH- question words.

Learning Outcomes expected for this lesson	At the end of the lesson students should achieve specific aims connected to the oral and written competences: - Use a specific vocabulary in order to talk about science topics. - To form correct and clear sentences and questions using specific vocabulary with an right and accurate pronunciation. - To use the first conditional, in this case, to predict the result of an experiment - To select the important information and vocabulary from a specific texts. - To form useful questions that can help students to study a specific topic.

Methodology	- Pairs work - Cooperative learning methodology - Use of technology and visual aids - A positive feedback - Constructivism

Introduction

The proposal consists of eight sessions, this lesson is the fourth.

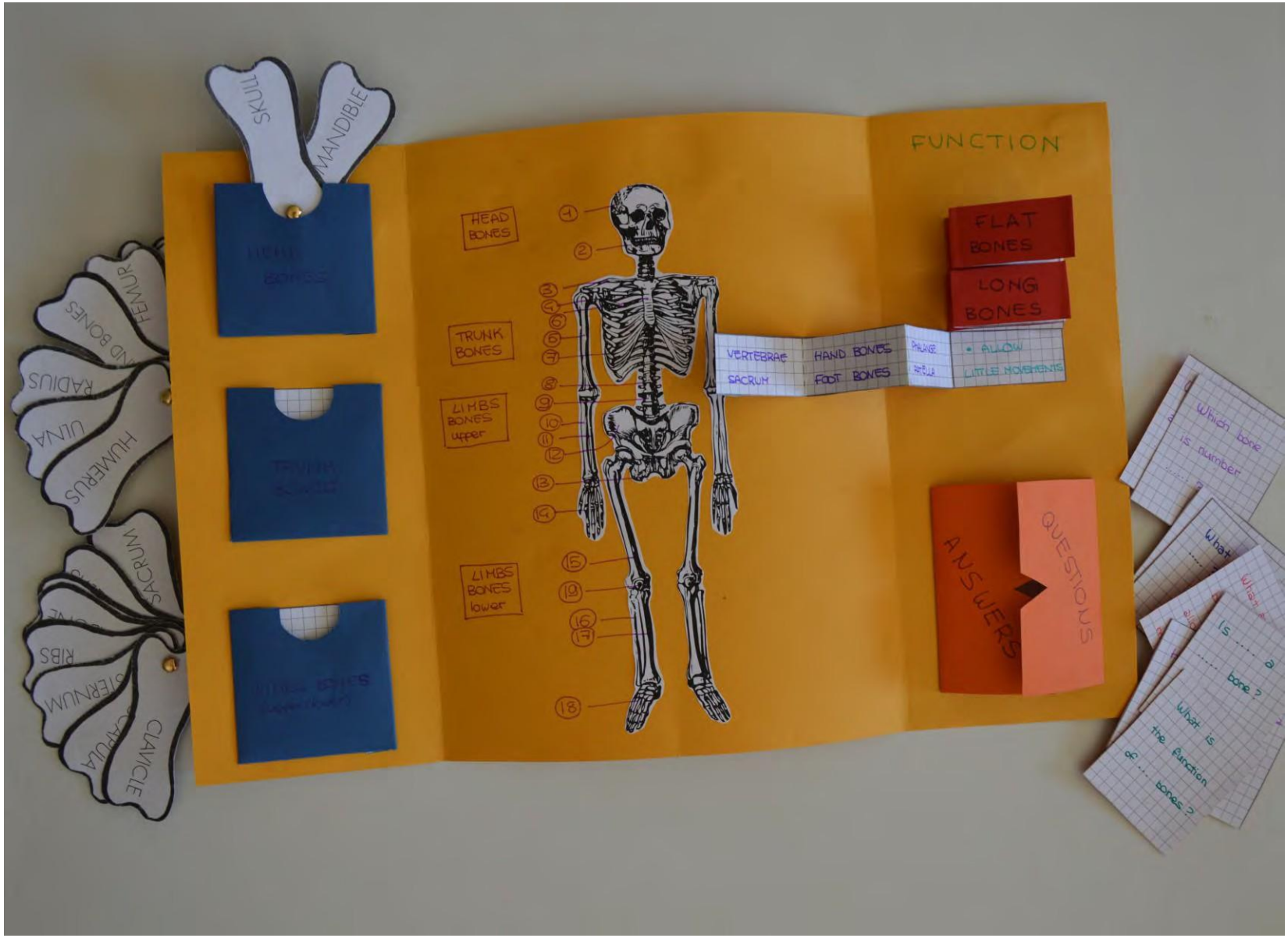
- FIRST LESSON: the children learn the name of the bones.
- SECOND LESSON: children classify the bones in head, trunk and upper and lower limbs.
- THIRD LESSON: the children classify bones in flat, long and short and discover the different function of the bones' shapes reading a specific text and complete a Venndiagram.
- FOURTH LESSON: the children find out the composition of the bones and they observe an experiment.
- FIFTH LESSON: the children observe the experiment.
- SIXTH LESSON: children learn how the bones are connected (joints).
- SEVENTH LESSON: children in pairs write a text to sum up what they just have studied.
- EIGHTH LESSON: summative assessment.

In each lesson children build a part of their lapbook and they use it to study and to interact with classmates in pair and in group.

Activity	Activity aims	Activity Procedure		Language	Interaction	Materials (please cite all sources)	Timing	Assessment
		T's Role T= Teacher	Ss' Role S= Students					
1	Warm up Recall the names of the bones **Classify** the bones in head, trunk and limbs or flat, long and short.	T. gives the instruction, then listens to the children while they are speaking.	S.A asks question S.B answers to the question , then they swap the roles.	Speaking activity using questions and answers. Children have to form correct and clear sentences with a right pronunciation.	*Pair work*	Template question, answer of the lapbook (Attachment.2).	5 mins	Peer assessment. The student that are asking questions take notes on how many answers are correct, at the end they write the mark (6 out of 6). Each child writes his mark and the date on the back of the lapbook.
2	Read a scientific text (specific for children) about the composition of bones. **Analyse** the information. **Reflect** on the function of the elements.	T. Introduces the activity and explains what they have to do: Read the text and underline the 5 elements that form the bones. Write the elements in the grid and explain their function. Look at the picture, that can help you.	S. organize the group (reader, writer, speaker, helper). Read the text, complete the grid. Each group has 3 helps to play whenever they don't understand a word (what does …. mean) or when they need further explanations.	Reading	Group work The children find under their chairs a coloured post-it, then form the group according to it: all the red coloured group together and so on.	Worksheet (Attachment 3). A grid (Attachment 4).	15 mins	The teacher observes if the children respect the roles in the group, if they collaborate and if they speak using the target language.

3	Summarise and check the previous work **Define** the function of each of the 5 elements	T. asks for each picture, what each element could be. One picture for each group and one definition for each group.	S. (speaker) answer the question. The picture/definition must (100% sure), could (50% sure) be the (ossein, periosteum, water, mineral salts, bone marrow). S. (helper) connects the picture/ definition on the interactive whiteboard. S. (writer) puts a tick on the grid if the work is correct.	Speaking *Mineral salts have the function to make the bone strong and resistant* *Water has the function to hydrate the bone.* *Bone marrow has the function to produce the blood cells.* *Ossein has the function to make the bone elastic and resistant.* *Membrane (periosteum) has the function to reconstruct the bone, when it is broken.*	Whole class	Interactive whiteboard activity prepared with learningapp. https://learningapps.org/3450637	10 mins	Ongoing assessment: the child (writer) has to check the work on the grid and correct the mistakes. At the end the children check what they have written in the grid.
4	Homework	T. explains the homework, giving them all the necessary information	Ss. listen to the teacher and write what they have to do on their diary.	Listening	Whole class	Worksheet (Attachment 5).	5 mins	

5	Experiment with a chicken bone. **Hypothesis** the result of an experiment	T. shows to the children the experiment. T. writes the student's hypothesis on a poster. The students have to use the first conditional to form the hypothesis. The teacher writes the first conditional with different coloured pencils on the poster.	Ss. listen and observe the teacher while she is making the experiment. Then, they complete the template describing the experiment and they write the hypothesis on the template.	Listening and writing. *T: What will happen, after a week, if I put the bone in the vinegar and wait for a week?* *S: If I put a chicken's bone in the vinegar for a week the bone will (disappear; become shorter/ longer/ harder/softer; change colour)…..*	Whole class Individual work	A glass, a chicken bone water and vinegar. Template for the experiment (Attachment 6)	10 mins	
6	Write questions about the lesson. **Creative thinking**: invent questions to write in the template for studying. The questions will be the starting point for next lesson.	T. asks children to write questions. T. Checks and corrects the language	Ss. discuss, choose and write questions about the topic of the lesson.	Writing using WH question words. - *What are the bones made of? The bones are made of ……. What is the function of ……? The function of … is to …*	Group work	Template question/answer	10 mins	T. takes note of the children's writing mistakes, to show them next lesson.



Attachment 1

Template question/answer

In this template there are cards (5 cm x 6 cm) in which there are examples of question on the front and answer on the back. The children use these cards in order to study and to interact with other children.

So far we have these questions in the template:

1. How many bones are there in the human body?
   There are____in the human body.
2. What bone is number____(2) ?
   Number____(2) is_____.
3. Which number is the____(skull) ?
   Number____is the skull.
4. In which part of the body is the____(rib) ?
   The____(rib) is in the____(trunk)-
5. Which bones are there in the____(upper limbs)?
   In the____(upper limbs) there are_____.
6. Which bone is connected to the____(femur)?
   The____(patella) is connected to the____(femur).
7. Which are the____(flat) bones?
   (Flat) bones are____.
8. What is____(femur)?
   (Femur) is a____(long) bone.
9. What is the function of____(short) bones?
   The function of____(short) bones is____.

THE COMPOSITION OF THE BONES

If you see a real skeleton in a museum, you think that all bones are dead. The bones in museums are dry and hard, the bones in your body are different. The bones that make up your skeleton are all alive, growing and changing all the time like other parts of your body.

The bones are strong in order to support the body, but also elastic so they (the bones) don't break easily.

The surface of bone is called the periosteum. It's a thin, dense membrane that contains nerves and blood vessels. This membrane covers the bone and if the bone breaks the perosteum reconstructs the bones.

In the centre of the bones is a softer substance called bone marrow. Bone marrow is important because this is where our body produces red and white blood cells. When we are born, all of our bones have bone marrow. By the time we are adults only long bones have bone marrow.

The bone tissue is formed of two parts:

- salts like calcium and phosphorus. These salts make the bone strong and resistant.
- a substance in the bone called ossein makes the bone elastic.

The bones of children are more elastic because they contain more ossein.
The bones of an adult contain less ossein, this is why the bones of an old person break more easily.

In the bones there is also water that keeps the bones hydrated.

Attachment 3

Complete the grid with the bone's elements and their function

ELEMENT	FUNCTION

Attachment 4

Label the picture with the name and the function

*Insert picture here

	MINERALS	Makes the bone elastic and resistant
	WATER	Calcium and phosphorus make the bone strong and resistant
	BONE MARROW	It hydrates the bone
	OSSEIN	If we break a bone, it helps to reconstruct the bone
	MEMBRANE periosteum	It produces blood cells

SCIENTIFIC EXPERIMENT

TITLE

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QUESTION

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HYPOTHESIS

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.....

• **WHAT DO YOU NEED?**

_____ _____

_____ _____

_____

• **WHAT DO YOU DO?**

FIRST.....

.....

SECOND.....

.....

THEN.....

.....

• **WHAT HAS HAPPENED?**

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CONCLUSION

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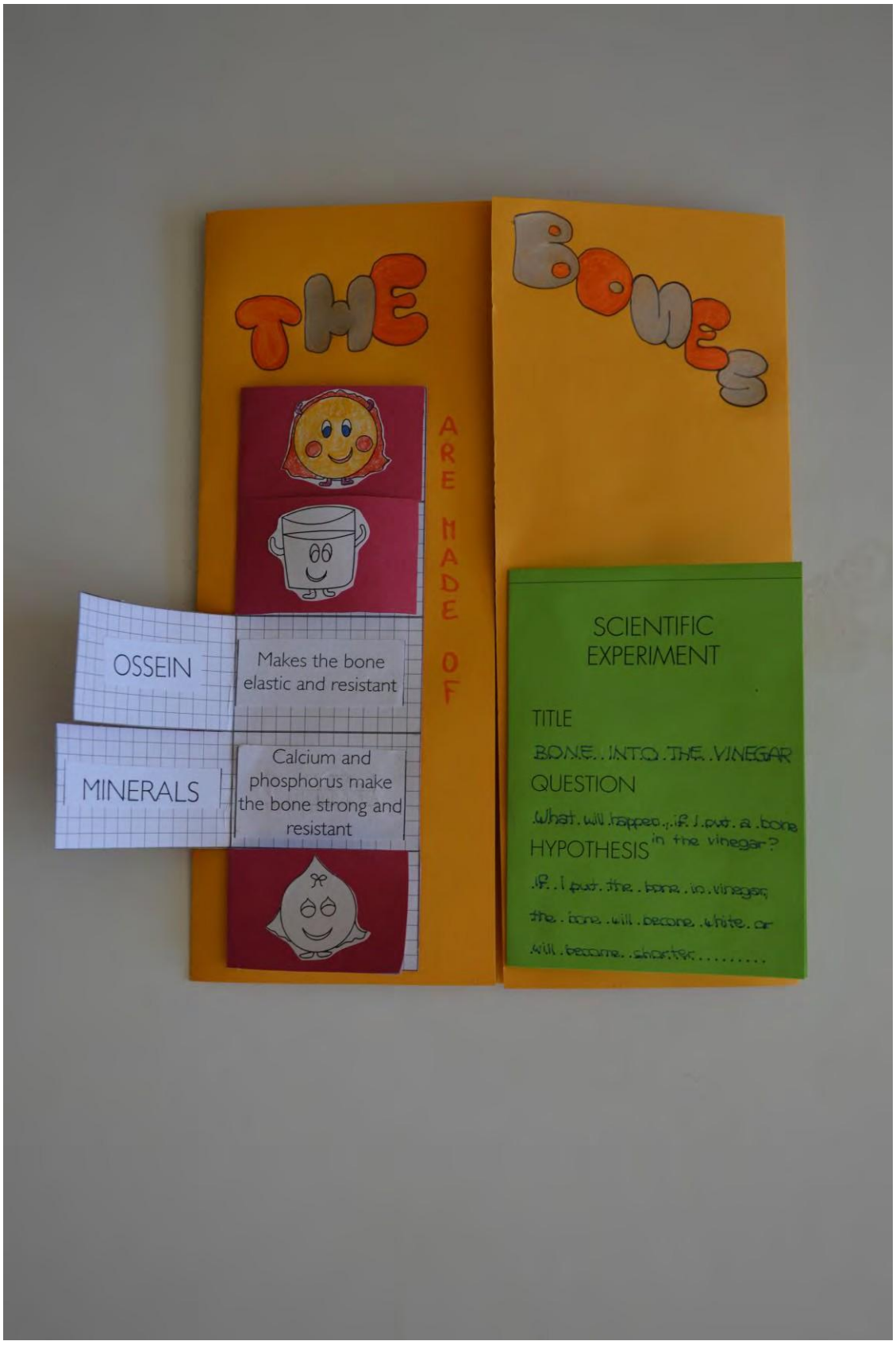

Attachment 7