

# LESSON STUDY PLAN

## Science

**Maria Regina College, Naxxar**  
**FIRST LESSON (FIRST CYCLE)**

<i>Lesson Title:</i>	Fossils
<i>Subject:</i>	Integrated Science
<i>Teachers involved:</i>	Audrey Vella Bondin, Angie Borg, Annemarie Cefai, Ritianne Grima, Anne Mangion, Anna Quattromani, Marianne Zammit.
<i>Facilitator:</i>	Audrey Vella Bondin – HOD
<i>Teacher:</i>	Marianne Zammit
<i>Year Group:</i>	Year 7 – a class of 12 students
<i>Date:</i>	14 <sup>th</sup> November 2018
<i>Time and duration</i>	13:30 – 14:50 (1hr 20 mins)
<i>Lesson purposes:</i>	Students will: <ul style="list-style-type: none"><li>• Associate fossils with the way they were formed.</li><li>• Create their own ‘fossils’ using modelling clay and plaster of Paris.</li><li>• Work in a small group activity where they analyze a text and answer questions related to the text.</li></ul>
<i>Learning Outcomes:</i>	<ul style="list-style-type: none"><li>• I can understand the significance of fossils and be aware of the theory of evolution.</li><li>• I can describe that living things change over time and that this change is an ongoing process.</li></ul>

*Lesson overview:* This lesson links to the subject focus 'Life on Earth' through the Year 7 Unit 'Living Things and the Environment'.

Students will take a close look at what the word 'fossil' means. In groups they will try their hand at producing 'fossils' with modelling clay and plaster of Paris.

They will after be presented with a text giving an account of an actual local fossil discovery through which they will probe into the significance of such a discovery.

In the closing activity students will share their insights and be encouraged to ask/discuss implications which would pertain mostly to the realms of science and religion.

*Promoted practices:* We included **group work** as it has several benefits mainly:

- Students engaged in group work, or cooperative learning, show increased individual achievement compared to students working alone.
- Student group work enhances communication and collaboration.

We included an activity that encourages **critical thinking** as it has these benefits:

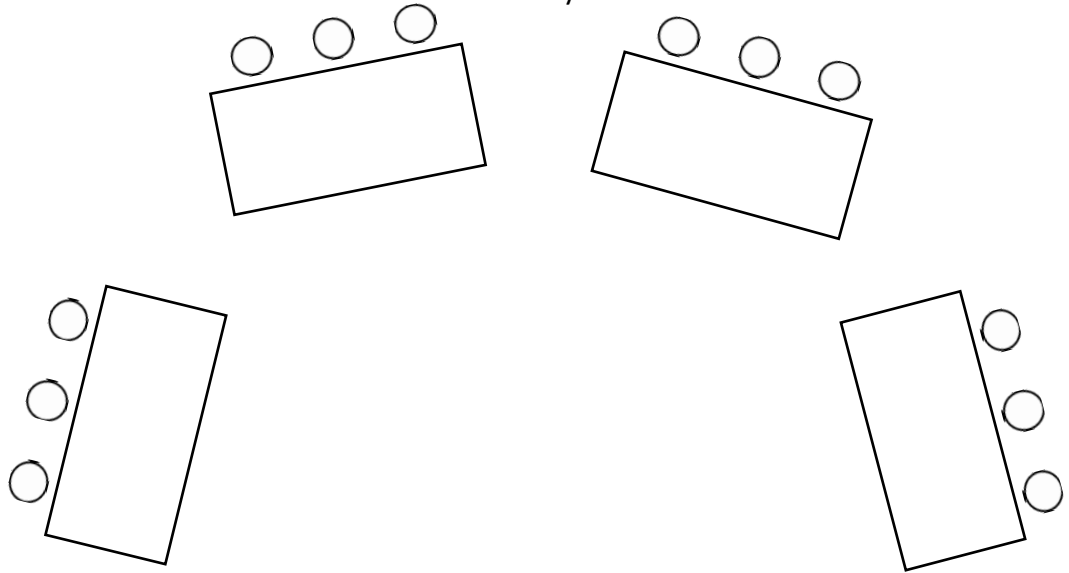
- The students actively participate in their learning process.
- The students gain ownership of what they have learned during the lesson.
- The students learn to use evidence to make judgements.

*Resources:*

- Video clip 'What's a Fossil?'
- Interactive whiteboard with 6 flipcharts containing a quiz style activity to match fossils with their type of formation and pictures of tube worms to correspond with the text activity.
- Some real fossils
- plaster of Paris, modelling clay, small beakers, small plastic bowls, brown paper, stirring rods, spatulas, Vaseline, shell and bone specimens to be used in producing 'fossils' made of plaster of Paris, timers, disposable gloves
- some exemplars of the above process
- handouts with text and questions for discussion.

*Classroom organization*

Students are seated in four groups of three students each.  
The work area for the hands on fossil activity will be at the lab benches.



<b>Part 1</b>	<b>Teacher says:</b> Good morning!
<i>Lesson introduction</i> 5 mins	We are going to be talking about fossils today. Do you know what a fossil is? (Accept suggestions and write them down on the iwb).
<b>Part 2</b>	Show video 'What is a Fossil?'
<i>Imparting knowledge to the class</i> 15 mins	After the video review what a fossil is, showing the definition on the flip chart, namely: 'Fossils are the remains or traces of plants and animals that lived long ago'.  Guide students to be aware that there are various types of fossils. For simplification these can be listed under the following three headings: (Make use of the next flipchart for this). <ul style="list-style-type: none"><li>• <b>Mould and cast-</b> after being buried under sediment that hardens into rock, the hard parts of an animal, such as bones/teeth/shell, are dissolved away by water and replaced by minerals from the ground water.</li><li>• <b>Preserved remains-</b> an organism is preserved almost in its original state when it is buried in ice, amber or tar.</li><li>• <b>Trace fossils-</b> traces of activities that are left in the rock. They might be footprints, egg shells, tooth marks, faeces...</li></ul> As a resume use the flipcharts showing a total of six remains wherein students identify the type of fossil. Show some real fossils and discuss how these might have been formed.

**Part 3 Explanation: How to make a fossil...**

*Group work activity*

'How about making our own fossils?'

You will be using modelling clay to make a 'mould' of a bone or shell. When the mould (shape) is ready we will pour the plaster of Paris into the empty mould and leave it there to dry. When it is dry (we will have to wait until another lesson to see this) we will 'excavate' it (by breaking away the modelling clay) – and see our own fossils. The fossils will look like this (show the prepared exemplars at this point).

*25 mins*

Steps for activity (it might be a good idea if a demo is done concurrently):

- Assign working areas with all implements ready.
- Work must be done over a sheet of brown paper.
- Take a piece of modelling clay - knead it and flatten it out, leaving it rather thick.
- Get your specimen and smear it generously with Vaseline.
- Press the specimen down into the clay to get an impression.
- Gently pull away the specimen to leave a mould in its shape.
- Prepare the plaster of Paris – in a small beaker measure 20ml of water and pour this into the little plastic bowl. In another small beaker measure out 40ml of plaster of Paris powder.
- Carefully sprinkle the powder over the water without stirring it.
- After one minute stir the mixture and leave for another minute.
- Pour this mixture into the mould, being careful to fill out all the spaces.
- Leave the plaster of Paris to dry for at least 24 hours.

**Part 4**

*Reading and analyzing a short text*  
*10mins*

Have student back at their desks in groups and give out the text 'Millions of Years Old Fossils Discovered in Two Great Rocks near University Entrance'.

Introduce the activity:

'This paragraph we are handing out to you is about a recent discovery in Malta. Read it carefully and answer the questions listed below the text.

The pictures on the iwb help you to understand what tube worms are and what fossilized tube worms would look like'.

*Sharing of suggested answers.*  
*5mins*

After the students have read and answered the text, answers are shared verbally.

Expected answers:

1. Plant or animal species that no longer exists.
2. The islands were once under the sea.
3. Fossils help us to understand forms of life that once existed.

**Part 5** A question to stimulate a follow up discussion to the activity above could be:

*Whole class discussion and conclusion*  
*20 mins* 'If species become extinct, does this mean that millions of years ago there were many more different forms of life?'  
(For example, are there less species of tubeworms living today than there were millions of years ago?)

Students are encouraged to give opinions and to ask questions.

A discussion ensues wherein the students are introduced to the theory of evolution and made aware that living things are constantly changing.

The underlying note to this discussion is to be that, when properly understood, the theory of evolution does not come into conflict with the Creation account found in the Bible.

At the end of the lesson make a concluding statement that praises the students for their participation.