

Important Concepts . . .

Preview Review



Science

Grade 7 TEACHER KEY

W3 - Lesson 5: Fossils

Important Concepts of Grade 7 Science

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W1 - Lesson 2	Nutrient Cycles, Energy Flows, and Changes in Ecosystems
W1 - Lesson 3A	Environmental Impacts of Human Activities
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W3 - Lesson 5	Fossils
W3 - Quiz	

Materials Required.

Textbook:
Science in Action 7

Science Grade 7
Version 5
Preview/Review W3 - Lesson 5 TEACHER KEY

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Preview/Review Concepts for Grade Seven Science

TEACHER KEY



*W3 - Lesson 5:
Fossils*

OBJECTIVES

By the end of this lesson, you should be able to

- describe and name the various types of fossils
- explain how fossils form
- explain how the ages of fossils are determined
- explain and use the Principle of Superposition

GLOSSARY

absolute age - exactly how old something is

fossil - the remains of an ancient living organism

index fossil - the fossil of an organism that was plentiful and lived in a specific, known time

principle of superposition - in an undisturbed bed of sedimentary rock, the oldest layer is at the bottom and the youngest at the top

relative age - the age of something compared to that of something else

W3 - Lesson 5: Fossils

Fossils capture the imagination of people. They are found in sedimentary rock in many parts of the world. Some areas are hotbeds of discovery, for example, the Alberta Badlands. Read pages 410 to 412 of your text.

1. Use your knowledge of how rocks form to explain why fossils are found in sedimentary but not igneous or metamorphic rock?

The conditions that form igneous and

metamorphic rock would destroy the fossils.

2. What places in the world are known for their fossils?

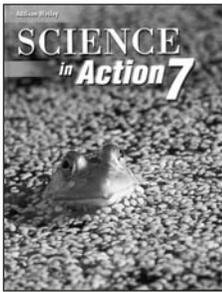
southern Alberta

Gobi Desert - China

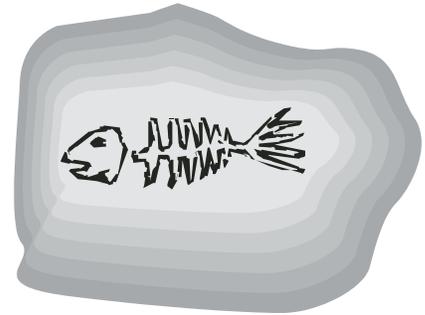
3. What is a paleontologist?

A scientist who studies fossils.

Fossil Types and How They Form



Refer to page 413 to 418 of *Science in Action 7*. To become a fossil, part of an organism must be preserved from decomposition. The best chance to do that comes when it is rapidly buried, for example, in the sediment of a lake or sea.



Is there more than one type of fossil? Think of a dinosaur bone, a footprint in stone, and a fossil seashell. Each of these is made in a different way and is, therefore, a different type.

The dinosaur bone is **petrified**. Dissolved minerals crystallize in and replace the original material. The footprint (a **mould**) was not filled in, but the sediment it was in changed to stone. The seashell made a mould. When the mould was filled in by sediment, a **cast** that looked like the outside of the shell was formed.

- Why are hard parts of an organism more commonly fossilized than soft parts.

They do not decompose as easily as the soft parts.

- How was the fossil leaf in the picture on page 413 of the textbook likely formed?

It fell into soft mud and formed an impression/mould.

The mud was turned to rock over time.

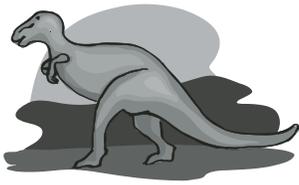
- Based on fossil evidence, are life-forms today mostly similar to or mostly different from those in the distant past?

Most of them are different.

7. What is amber, and why is it important to paleontologists?

Fossilized tree pitch/sap. Insects, etc. that became trapped in the sap can now be seen and studied in the amber.

The Geologic Time Scale



The time since the Earth was formed has been divided into different segments. One long type of segment is the era. Each **era** covered a certain time period and has specific events and organisms associated with it. For example, dinosaurs were dominant during the Mesozoic era. See pages 419 to 421 of your textbook.

8. During what time period did the first insects appear?

Paleozoic Era - 600 - 225 million years ago.

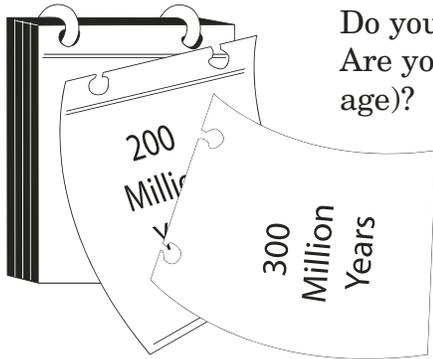
9. Is it possible for humans to have hunted dinosaurs?

No. Dinosaurs lived in the Paleozoic era; humans developed later in the Cenozoic era.

10. When was the Precambrian era?

4600 - 600 million years ago

Deciding the Age of a Fossil



Do you want to know exactly how old a fossil is (its **absolute** age)? Are you satisfied to know approximately how old it is (its **relative** age)?

You can find answers to these questions in different ways.

One important concept is the **Principle of Superposition**. It states that, in an undisturbed sediment bed, the oldest layer is at the bottom and the youngest is at the top.

To find a fossil’s relative age, a scientist might note that it was found in a layer of sediment between two other layers containing fossils of a known age. The fossil could then be said to be between the ages of the two other fossils. Or the fossil could be in the same layer as the known-age fossil. **Index fossils** are often used for this purpose. They are fossils of organisms that were plentiful and lived in a specific known time.

Absolute dating requires the radioactive dating of igneous rock above and below the fossil. Read pages 414 to 415 in your text.

11. What would be the relative age of a fossil found in the same layer of rock as a trilobite?

300 - 600 million years old

12. A sedimentary bed was examined and fossil A was found nearest the top, fossil B nearest the bottom, and fossil C between them. List the fossils in order from oldest to youngest. Why did you order them this way?

B-C-A (Principle of Superposition)

13. If you found a fossil and wanted to determine its age, what process would you go through?

Note where it was found, the rock layer it was in, if possible look for index fossils in same rock, determine the age of igneous rock above and below it.

Take some time to review what you learned this week. You will write a quiz on it before you leave.

