

TRACE FOSSILS

BACKGROUND

Fossils are traces or remains of organisms that have preserved in rocks and sediments. Fossils are a useful tool to study the evolutionary history of life. By comparing different fossils and determining their age, it is possible to deduce how plants, animals and other organisms evolved.

Paleontologists are studying ancient life by using fossils. It is possible to determine the age of fossils by estimating the age of rocks using radiometric dating. The oldest sediments are over 3 billion years old!

There are many types of fossils. **A body fossil** is formed when an organism is buried in sand, mud or sediment. Some parts, such as bones and shells, become replaced by minerals. **A trace fossil** is a track of ancient life, most often a footprint, a burrow or the remains of feces.

In this task you're going to examine a trace fossil. Some insects became stuck in a soft mud layer and left traces in it. Eventually the mud layer hardened and became mineralized. In addition, another layer of mud filled the traces and became mineralized.



Image 1: Trace fossils in sandstone. CC-BY-SA 3.0, Ballista / WM Commons

QUESTIONS BEFORE THE TASK

- Most fossils represent organisms that have become extinct. Do you know any extinct species?
- Where have you seen fossils or other remains of ancient organisms?
- How do we know that dinosaurs existed tens of millions of years ago? What happened to them?

EQUIPMENT

- A synthetic rock containing trace fossils (see additional instructions how to make “a trace fossil”).
- Screwdrivers / chisels / knives
- A hammer

INSTRUCTIONS

1. Take a small piece of a rock which contains trace fossils.
2. Find the interface of mineralized mud layers.
3. Use a knife or a chisel to separate the layers. If you can't separate the layers easily, you can also use a hammer. Remember to use the hammer with care!
4. Compare the trace fossils in different layers. What kind of traces did you find?

QUESTIONS AFTER THE TASK

- There are also some other kinds of fossils. Search the web to find more information about them.
- What happens in mineralization? How is it possible that only a part of remains (such as bones) are fossilized?
- What do fossils tell us about evolution?



Image 2: A synthetic trace fossil.