

Fossil Rubbings – Instructor’s Guide

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Background:

Paleontology is the study of ancient life from the geologic past. Paleontologists study a variety of aspects of ancient life including fossilized animals and plants and classify fossils based on their shape, structure, evolutionary patterns and relationship with other ancient life. These fossils are found in ancient rock layers that were once deposited in sedimentary environments such as rivers, marshes, oceans and tidal flats. When the organisms die, their remains get preserved in the fossil record as they are buried and then the original material (wood, bones, teeth, etc) are replaced by other minerals to form fossils. Trace fossils are the preserved activity of ancient life, such as dinosaur footprints or worm burrows. A variety of methods can be used to record fossil findings including fossil rubbings (classically done with carbon), collecting casts and producing moulds from them, or extracting the fossils from the rock.

Restrictions on fossil collecting:

In Atlantic Canada, there are many locations where you can find fossils in sedimentary rocks, especially from Carboniferous rocks like at Joggins Fossil Cliffs in Nova Scotia. However, fossils may be protected under provincial regulations that do not allow for collection without proper permits. Please ensure that you check your local provincial regulations before setting out to do any collecting. This activity allows teachers and students to take a record of their fossil finds while leaving them in place. Alternatively, teachers may have purchased collections of fossils that students can use.

Activity Objective: appreciate the complexity of fossils and make a non-destructive record of them.

Materials:

- Fossil specimens
- Crayons or pencil crayons
- Fossil Rubbings worksheet

Instructions:

- Students securely hold the paper on top of their fossil specimen and carefully use a crayon or pencil crayon to create a rubbing that show the features of the fossils.
- There are four boxes provided so that each student can produce four fossil rubbings.
- Students should then label each fossil as animal, plant or trace fossil.

Expansion:

For upper elementary and middle school students, they can use fossil guides and online resources to help them answer the following:

- What type of fossil is it?
- Can you label some of the parts of the fossil? (e.g. jaw bone, bark, teeth)
- What is the possible age of the fossil? (a geology map could provide this answer)
- What type of environment did the organism live in? (e.g. a deep ocean)
- What may have caused the organism to die?
- What type of mineral may have replaced the original fossil? (e.g. carbon, quartz)