



Science Unit: *Fossils and the Changing Earth*

Lesson 6: *Making Fossils*

School Year: 2016/2017

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Grade level: Presented to grade 6-7; appropriate for grades 4 - 7 with age appropriate modifications

Duration of lesson: 1 hour

Notes: This lesson has different art activities at 3 stations; having some helpers in the class is useful, especially with younger grades.

If time is short, the water taste test could be done separately

Objectives for students:

1. Understand the concept of dissolved minerals in water by comparing the taste of a pure water and a mineral-rich water
2. Gain insight into the process of fossilization by making models of three types of fossils: encasement fossils (amber), casts, and molds.

Materials:

- **Water Taste test:** 1 liter water with no or very low mineral content (distilled water or Vancouver tap water) 1 liter mineral water with high mineral content (like Evian), paper cups, taste test [handout](#)
- **Amber station:** Small plant parts to encase, Mod podge in squeeze containers dyed with turmeric, molds coated in a small bit of vaseline, jewelry findings, bottle caps, hot glue gun.
- **Casting station:** Molds, either bought or made from fossils using Amazing Mold putty, coated with a bit of vaseline, Crayola quick dry clay
- **Molding station:** small items to make molds from, like small shells, pine cones, seeds, plastic animals, or a small fossil, Large container or Amazing Mold Putty
- Example fossils of each fossilization type
- Fossil-making [Station instructions](#)

In the Classroom

Introduction: Science Activity - Water Taste Test.

- What is groundwater?
- Groundwater is often rich in minerals, dissolved from the surrounding soil and rocks
- Tell students you will give them a sample of pure water and groundwater to taste. Can they taste a difference?
- Hand out the observation sheet and two cups of water to each student. Give them 5 minutes to complete the exercise.
- Wrap-up: Could students taste a difference? Which water did they prefer?



Introduction: How Fossils Form

- Explain to students [some of the ways that fossils can form](#), and show examples
- Explain activity. Students rotate around [3 stations](#):
 - o **Amber station.** Students simulate amber fossils by using coloured mod podge to encase a small plant part in a mold, or by using a hot glue gun to encase a small plant part in a jewelry finding or bottle cap.
 - o **Casting station.** Using quick dry clay, students make casts from fossil molds.
 - o **Molding station.** Students use Amazing Mold Putty to make molds of small textured items, such as shells, pine cones, pieces of coral, fossils, plastic animals
- Students can be split into 3 groups and rotate on a set schedule, or visit each station on their own schedule.



Molds of an ammonite and a crinoid stem made from Amazing Mold Putty, and the amber station (right)

Wrap-up discussion

- Which type of fossil preserves the most detail about an organism?
- How long does it take for a real fossil to form?
- In which environments are fossils more likely to form?
- [Is it a fossil?](#)

Vocabulary:

Amber:	Hardened tree resin; usually a golden colour
Cast and mold	A fossil in which an animal or plant dissolves away, leaving a space (mold), which is then filled with minerals (cast)
Encasement	A fossil in which an animal or plant is surrounded by a preserving material, such as amber, tar, or ice.
Groundwater	Water found underground in the spaces in soil and rock
Permineralization	A process in which minerals deposit in the tiny spaces of a plant or animal and harden it



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Extensions

1. If students enjoy art/science lessons, you can grow crystals on a string, pipe cleaner, or piece of sponge suspended in a saturated solution of borax, alum, table salt, or epsom salt. This will reinforce the concept that minerals can precipitate from groundwater. Growing crystals in a piece of sponge is a good model for permineralization, another type of fossilization.
2. Students could write or draw the story of how one of the “fossils” they made in this lesson became a fossil.

References

1. Hansen, Thor, and Slesnick, Irwin. 2006. *Adventures in Paleontology*. NSTA Press.
2. <<http://www.ucmp.berkeley.edu/education/explorations/tours/fossil/index.html>> Getting Into the Fossil Record. University of California Museum of Paleontology, [Slide show for students on the fossil record and fossilization] Accessed March, 2017.
3. <<http://www.livescience.com/37781-how-do-fossils-form-rocks.html>> How do Fossils Form? Live Science [article on different types of fossils] Accessed March, 2017.
4. <<http://www.bbc.co.uk/nature/fossils>> Fossils. BBC Nature [discussion of different aspects of paleontology] Accessed March, 2017.
5. <<http://www.ucmp.berkeley.edu/paleo/fossilsarchive/permin.html>> Fossils. Windows to the Past. University of California Museum of Paleontology. [description of different types of fossils].