GENERATIONGENIUS
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LESSON PLAN

FOSSILS AND EXTINCTION

GRADES 3-5

SUMMARY

In this lesson students learn about what fossils are, how they form, and what we can learn from them. The also focus on what it means for a plant or animal to be extinct.

NEXT GENERATION SCIENCE STANDARDS CORRELATION

3-LS4-1. Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago.

Science & Engineering Practices	Connections to Classroom Activity
Analyzing and Interpreting Data	• Students use logical reasoning to explain how their observations of fossils provide evidence to support what the fossils can tell them about the past.

Disciplinary Core Ideas	Connections to Classroom Activity
LS4.A: Evidence of Common Ancestry and Diversity • Some kinds of plants and animals that once lived on Earth are no longer found anywhere. (Note: moved from K-2) • Fossils provide evidence about the types of organisms that lived long ago and also about the nature of their environments.	• Students study plant and animal fossils. • Students think critically about how fossils can provide evidence about organisms and their environments. • The type of teeth an animal has can help us understand what it eats.

Additional DCI addressed by this lesson:
LS1.A: Structure and Function

- Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction. (4th grade)

Crosscutting Concepts	Connections to Classroom Activity
Scale, Proportion, and Quantity **Connections to Nature of Science** **Scientific Knowledge Assumes an Order and Consistency in Natural Systems**	• Fossils, which are observable phenomena, exist from very distant time periods. • Learning from fossils requires making comparisons between life today and life in the past.

DURATION

One to two 45-minute classroom periods (more than one if field trip is involved or for plaster drying time).

PRE-ASSESSMENT QUESTIONS

Please see Discussion Questions located under the video. These can be discussed as a group or answered individually in student science notebooks.

MATERIALS

- Fossil example (or picture, preferably local)
- Science notebooks
- Pencils
- Whiteboard with markers

DIY Activity Materials

- Modeling clay
- Plaster of Paris powder
- Water
- Cold cup of coffee
- Paintbrush
- Toy dinosaur
- Plastic gloves (optional)
- Plastic knife or wooden dowel

ENGAGE

Show students the example of a fossil that you brought in (a picture can also work). Have them examine it and ask them to make observations in their science notebook (circulate and help students understand the difference between observations and inferences—e.g. sharp and pointy are observations, it is a tooth is an inference or claim). What kind of questions does observing this fossil make them want to ask? Make a list in their science notebooks, or as a class on the board, about what questions you might want to investigate related to this fossil.

EXPLORE

Engage students in a discussion about what we can learn from this fossil and how/why. List all the observations the class has made about the fossil on one side of the board (or in science notebooks); then on the other side of the board, list what that might tell us about the fossil and/or its environment. For example, if it is a shell fossil we can say it might have come from the ocean or water. Why can we say this? Shells we see today are found in the ocean or other water bodies. If inferences or claims without evidence are made, place them in a separate category away from the other lists.

EXPLAIN

WATCH THE *GENERATION GENIUS FOSSILS & EXTINCTION* VIDEO AS A GROUP. THEN FACILITATE A CONVERSATION USING THE DISCUSSION QUESTIONS.

ELABORATE

If possible, find a location in your region where fossils are found and/or studied. Discuss examples of plants and animals found in your region and what we can learn about them by looking at the fossils. What was life like in your area long ago? What evidence is there to support this claim? Are any of these animals extinct?

EVALUATE

Make up a drawing of a "fake" fossil. Ask students what they can tell you from observing this fossil. Explain that they must use evidence from their observations to back up what they think they know. For example, maybe they think the animal ate meat because it had sharp teeth. This can be done individually in science notebooks, or as a group game.