

Colorado National Monument

Environmental Education

National Park Service
U.S. Department of the Interior



Lesson Plan: Layers of Time?

Unit Name: Fossils

Grade/Subject: Fourth/Life Science

Evidence Outcomes:

- a. Use evidence to develop a scientific explanation for:
 1. What fossils tell us about a prehistoric environment
 2. What conclusions can be drawn from similarities between fossil evidence and living organisms (DOK 1-3)
- b. Analyze and interpret data to generate evidence about the prehistoric environment (DOK 1-2)
- c. Evaluate whether reasoning and conclusions about given fossils are supported by evidence (DOK 1-3)
- d. Use computer simulations that model and recreate past environments for study and entertainment (DOK 1-2)

Lesson Learning Targets: Students will be able to align organisms in the different strata of rock according to when they lived.

Vocabulary: Strata: In [geology](#) and related fields, a **stratum** (plural: *strata*) is a layer of [sedimentary rock](#) or [soil](#) with internally consistent characteristics that distinguish it from other layers. The "stratum" is the fundamental unit in a stratigraphic column and forms the basis of the study of [stratigraphy](#).

Extinction: In [biology](#) and [ecology](#), **extinction** is the end of an [organism](#) or of a group of organisms ([taxon](#)), normally a [species](#). The moment of extinction is generally considered to be the death of the last individual of the species, although the [capacity to breed and recover](#) may have been lost before this point.

Materials: Computer and LCD display camera.

Background information: Scientists can tell when a fossil lived by examining the different rock layers, or strata, that the fossil is found in.

Learning Sequence: What will happen during the lesson? Include *differentiation strategies, materials needed, and 21st Century Skills* that may be included.

Into(Launch): Show the students several fossil examples. Ask them if they can tell when these organisms lived? Explain that as scientists find fossils they record not only what the fossil is, but where they found it so they can determine its age as well as many other facts.

Use the computer to visit the following web site:

<http://www.amnh.org/explore/ology/paleontology#>

Use this site to navigate to the menu item; Layers of Time: a fossil game.

After reading the introduction to the game with the students you will find there are three levels to this game.

Gradual Release: I Do: Go over the directions to play this game. As you play the first level, think out loud what your strategies are to help you decide what order the different layers of rock should go in. You will continue the last few layers in the I Do You Help Section.

Assessment: How will you know if they got it?

The assessment for this lesson will be the worksheet the students complete while watching the film.

I Do You Help: After the first couple, you can have the class help you make the last few decision. Be sure to have them explain why they think the layers go in that order.

You Do I Help: After the first game, you can go to level two. During this game you can have the students give you answers to what layers go where and you can put them there. Always be sure to have them give reasons for their decisions. You can play this entire level with You Do I Help

You Do I Watch: After you have completed level two you can move to level three. If there are enough computers for the students to work in pairs they can do this level by themselves as you circulate and evaluate their work. If you will continue working on one computer, you can elicit answers from the students.

Closure: Have a discussion with the students about how knowing what layer fossils were found in help us determine what the environment might have been like when these rocks were being formed.

Differentiation:

Beyond(Independent project/practice):

Reflection: What worked well? Didn't? How will you proceed with the next lesson based on your formative assessment?