Understanding Geologic Time

Activity for Grades 5–8

Introduction

Geologists at the American Museum of Natural History study rock layers and the plant and animal fossils found in them. They use radiometric dating to help establish the age of rocks. In doing so, they also establish the age of the fossils found in rocks. From the evidence they gather, geologists can piece together the physical history of the Earth.

GEOLOGIC TIME

ERA	PERIOD	EPOCH	MILLIONS OF YEARS AGO
Cenozoic	Quaternary	Recent	0.01
		Pleistocene	1.8
	Tertiary	Pliocene	5
		Miocene	24
		Oligocene	38
		Eocene	54
		Paleocene	65
Mezozoic	Cretaceous		141
	Jurassic		210
	Triassic		250
Paleozoic	Permian		290
	Pennsylvanian		320
	Mississippian		360
	Devonian		410
	Silurian		440
	Ordovician		500
	Cambrian		543

Precambrian: 4,500–540 Million Years Ago

Objective

Students may be able to tell you how long ago dinosaurs lived, but it is difficult to conceptualize that enormous amount of time. The following activity will help students gain an understanding of geologic time.

Materials

- Chart paper
- Magic markers
- Reference books and resources

Procedure

1. Begin by asking students to share what they know about geologic time. Ask the following questions: How old is the Earth? How long did dinosaurs live on Earth? How long have people lived on Earth? How do scientists learn about the history of the Earth? Discuss students' responses.
2. Tell students that they will make a timeline showing they history of the Earth. They will identify where on the timeline the Earth was created, when different plants and animals appeared, and when major extinctions took place. Have students work in groups. Each group is responsible for creating the timeline for one of the following eras: Precambrian, Paleozoic, Mesozoic, or Cenozoic. Explain that each era is further divided into periods, which should also appear on the timeline. Divide a bulletin board into four sections, one for each era. Have students use reference books, the internet, and library resources to research their era.
3. When groups are finished have them present their portion of the timeline to the rest of the class. Have students note how long humans have been on Earth in comparison to how long dinosaurs lived on Earth.