

Connecting the Rocks for Primary Grades v.6/08

Introduction

Collecting rocks and shells is a favorite pastime for elementary students, and provides a natural jumping off point for beginning a study of the Earth. Noticing cool things in the soil or beach is the first expression of a student's growing observational ability, and leads to many excellent questions a teacher will have to answer in a developmentally appropriate manner. At the primary level, the emphasis is on exploration, simple classification, and an exposure to some basic processes of forming and eroding Earth materials. If used thoughtfully, the primary student's natural interest in paleontology can be linked to concepts which will be important later in their science study. The goal at this age is to keep the innate interest strong for later studies of Earth systems.

What do primary students need to know?

According to the NH State Curriculum Frameworks, K-2 students should:

ESS1.2.1 Recognize that solid rocks, soils, and water in its liquid and solid states can be found on the Earth's surface.

1.2.2 Use observable properties, such as color and texture, to classify and organize rocks and minerals.

1.2.3 Recognize that Earth materials have a variety of properties, including size, shape, color, and texture.

1.5.1 Recognize that some changes are too slow or too fast to be easily observed.

1.6.1 Explain that large rocks can be broken down into smaller rocks.

1.6.2 Describe rocks and soils in terms of their physical properties.

4.3.1 Differentiate between natural and man-made materials.

4.4.1 Recognize that some jobs/careers require knowledge and use of Earth Science content and/or skills (ex: geologist, paleontologist, environmental scientist, builder).

There is a natural cross connection with other frameworks:

LS3.1.1 Recognize that some living things which lived on Earth long ago, are now extinct, such as dinosaurs, mammoths, giant tree ferns, and horsetail trees.

PS1.1.1 Recognize that objects can be composed of different types of materials, such as wood, metal, and paper [and earth materials!].

PS1.2.1 Identify the observable properties of different objects, such as color, size, shape, weight, and texture.

4.3.2 Provide examples of items that are manufactured or produced [such as aluminum cans, gold and diamond jewelry, concrete, etc.].

Science Skills:

- * Observe and explore materials and events using all their senses.
- * Describe, draw, count and/or measure.
- * Record data using various tools (balance)
- * Construct and label concrete-object graphs (pictographs, bar graphs, circle graph).
- * Explain that scientists (geologists, paleontologists, engineers) try to learn about the natural world.

Activities

Rock and mineral collection sort

Life of a rock - story telling

Fossil/artifact 'dig'

Making crystals

Breaking geodes

Using microscopes to examine sand, salt and sugar

Sand from around the world

Sponsor a rock and mineral show

Vocabulary

erode: when nature breaks down rocks into smaller pieces/parts

texture: how something feels

crystal: a pure form of a mineral which grows slowly and has a special shape

rock: a natural solid formed in the Earth – usually a mixture of minerals

gem: a mineral crystal which is rare and beautiful, often polished or cut for jewelry

fossil: a rock, footprint, or bone which shows something which lived long ago

mineral: a natural solid which is made from pure ingredients from the Earth which were never alive

geologist: a scientist who studies the Earth and Earth materials and how they are made

paleontologist: a scientist who studies fossils and rocks to understand how animals and plants lived long ago

states of matter: the materials which make up the Earth can be solid, liquid, or gas

Links

<http://library.thinkquest.org/J002289/act.html> This site is probably best for grades $\frac{3}{4}$ or a very motivated grade 2 student. Some of the quiz links have expired, but overall there are a few worthwhile resources.

<http://www.fi.edu/fellows/payton/rocks/act/index.html> Rock Hounds is a good resource for activities in the primary range. Everything can be modified for K-5...some internal links have expired (rock swaps), but most of the info is worthwhile.

<http://home.howstuffworks.com/rock-and-mineral-activities-for-kids.htm> This appears to be a 'Lowe's' sponsored site, but it has a good collection of activities/ideas to look over, including a crystal garden recipe and 'paint' making activity.

<http://home.howstuffworks.com/activities-with-rocks-and-stones.htm> This is another set of good activities from a sponsored site, focusing on rocks.

<http://edtech.kennesaw.edu/web/rocks.html> The ultimate link of links...includes some of those listed above.

This document and all activities presented are available at www.lmnts.org Click the 'modules' button and then click 'Connecting the Rocks' to access materials.