

Parent Outline: 3-5

March: Rocks & Fossils

Welcome/ Staff/Volunteer Names

Introduction: **Today's Topic-Rocks & Fossils** **Question: What can the study of rocks tell us?**

Ice Breaker/ **Daily Geology** (Blobsbaum)-Have students pair up and figure out what
Game: products from the Earth they have used in the last day.

Background/ **Geology**-Greek for the study of the earth.

Exploration: **Rock**-Substance made up of crystals and particles of minerals.

Examples include granite, limestone, sandstone, quartzite

Mineral-A naturally occurring inorganic solid substance with a consistent chemical make-up and a characteristic crystal shape. May include one or more elements.

More than 2500 kinds. Examples include gypsum, calcite, galena, & quartz.

Element-A pure substance made up of one kind of atom.

Examples include gold, carbon, copper, iron, neon, & oxygen

Types of Rock and their formation: **Igneous, Sedimentary, & Metamorphic**

Volcanoes-add gases to atmosphere, add water to oceans, build mountains, islands, soil formed from volcanic rock, lava forms rocks

Activity: **Eruption model**

Earth's Geologic Features-Show a poster of the layers of the Earth.

The Earth's crust is made of large pieces, or plates, which slowly move along on the molten magma underneath.

Activity: **Plate Tectonics**-Students move graham crackers on frosting to model Earth plates.

Fossils-preserved remains, impressions, or traces of plants and animals that lived long ago. Hard parts preserve best-bone, shell, tooth. Rapid burial also helps.

Mold-shape of an ancient animal/plant. **Cast**-mold is later filled with material.

Look for fossils where there is sedimentary rock-stream/river banks, shorelines.

Older fossils are usually found underneath younger ones, in shallower rock layers.

Activity/Snack: Iowa Geology pizza-make a "pizza" with fruit or veggies to illustrate layers of rock & mineral in our state. Cut and eat when finished.

OUTDOOR Look for nearby landforms and places to find fossils.

EXPLORATION: Go to creek mouth & study limestone erosion control pieces and river rocks.

Look for fossils in river rock.

Closing: The study of rocks helps us understand nature, as well as many materials & items used in everyday life.

Places to visit -Rock & Mineral Show (March)

-Bluestone Rock Shop (Mt. Vernon Rd.)

-Devonian Fossil Gorge (Coralville)

-Museum of Natural History, U of I, McBride Hall

Send Off: Goodbye!

Next Month-Soil: It's Alive!

Take Home: Parent Outline

Fossils

Vocabulary

Mineral, rock, element, fossil, geology, inorganic, organic, igneous, sedimentary, metamorphic, volcano, magma, tectonic plates, earthquake

Background and Activity References for Naturalists and Parents

www.rahul.net/infodyn/rockhounds/rockhounds.html

<http://www.angelfire.com/ia3/cvrms/>

<http://midamericapaleo.tripod.com/>

Rockhounds Information Page

Cedar Valley Rocks and Minerals Society

Mid-America Paleontology Society

Blobaum, Cindy. 1999. *Geology Rocks! 50 Hands-on Activities To Explore the Earth*. Williamson Publishing, Charlotte, VT.

Caves in Iowa

A cave is a natural opening in rock 25 or more feet long.

Things required for cave formation:

Land that has a thin layer of soil over rock that has lots of vertical and horizontal cracks in which water can flow (limestone).

Water-lots of it, must flow through the cracks in the rocks.

Land with hills and valleys.

Time-thousands of years

How are caves formed (three stages):

- 1) Carbon dioxide gas from rotting plant material on the surface is dissolved in water to make Carbonic Acid.
- 2) The weak acid travels through the cracks and crevices in the underlying rock, slowly dissolving the rock, creating passageways.
- 3) Water continues to flow through the cave passageways. It carries minerals (calcium) that are deposited on the roof, walls, and floor of the cave.

Types of formations include: stalactites, stalagmites, soda straws, columns, pillars, draperies, flowstone, ribbons, and rimstone

Cave temperature – Iowa's caves 42 – 52 degrees F.