

The Earth

Its Structure & Its Changes

Investigation #1 – Orange You Going to Map the Earth?

Gather These Things:

Whole Orange
Fruit peeler
Plastic knife
Black marker
Green marker
Flat map of the world
Globe (if available)

Investigation #2 – Composition of the Earth

Gather These Things:

Modeling clay in four colors
Toothpicks
Water
Strips of paper
Shallow pan or bowl
Measuring cup
Paper towels (for cleanup)
Reference book on the structure of the Earth
Cornstarch
Glue

Investigation #3 – Why is Everything Moving?

Gather These Things:

Map of the world
Internet or other resources about plate tectonics
Scissors
Colored marker
Metal knife (not sharp)
Hardboiled egg

Investigation #4 – Earthquake

Gather These Things:

Large piece of coarse sandpaper
Wooden block covered with coarse sandpaper with a hook screwed into one end (about 10 cm in length – longer is okay)
Sturdy rubber band
Clear adhesive tape
Heavy string or cord
Safety glasses (for all observers)
Heavy paper (or cardboard)
Fine sandpaper (optional)
Masking tape
Popsicle stick
Tape measurer

Investigation #5 – Living with Earthquakes

Gather These Things:

Map of the world
Red marker
Yellow marker
References for finding locations of places on Earth
References for finding the major tectonic plates on the Earth
Safety glasses (for the optional Part B)

Investigation #6 – Volcanoes

Gather These Things:

Several film canisters
Effervescent tablets
Water
Cup to pour from

Investigation #7 – Mountains (Folding and Faulting)

Gather These Things:

Four colors of clay
Four layers of Styrofoam
Colored markers
Pencil

Investigation #8 – Pardon the Intrusion**Gather These Things:**

Three or four slices of loaf bread with crust trimmed off (of layers of cake)
Peanut butter and jelly mixed together (or dark icing)
Butter knife
Knife to cut the ice layers
Colored toothpicks
Rolled wafers with a dark filling (or narrow flat wafers)

Investigation #9 – Mapping a Mountain**Gather These Things:**

Clay (enough to make a model of a mountain – see recipe in teacher's book)
Small plastic ruler with metric units
A few blocks of wood, all with the same thickness
Paper
A copy of a topographic map showing contour layers
Marker

Investigation #10 – Growing Crystals**Gather These Things:**

Three ounces of powdered alum
Three pint-size glass containers
Three small clear glasses
Hot water
Three pieces of thread, about 30 cm
Three small metal washers (nuts or rocks will also work)
Tape
Dark paper
Magnifying lens
Stirrer

Investigation #11 – Minerals

Gather These Things:

Variety of rock and minerals
Small plastic bags that can be closed easily
Permanent marker
Magnifying lens

Investigation #12 – Rocks That Fizz

Gather These Things:

Limestone rocks (You may be able to find limestone rocks, because they are common rocks in many places. They can also be purchased in plant nurseries or garden shops.)
Various other kinds of small rocks
Eyedropper
Small clear containers
Vinegar
Paper towels
Paper plates
Water
Magnifying glass

Investigation #13 – Rocks Have an ID

Gather These Things:

Backside of ceramic tile (unglazed side)
Collection of rocks (at least 12)
White paper
Colored paper
Copper penny
Iron nail
Empty egg carton (with 12 holders)
Writing pen
Rock and mineral identification charts on the internet or in other references to help identify or classify the rocks in your collection

Investigation #14 – How Little, Tiny Things Settle Out of Water to Become Rocks

Gather These Things:

Quart jar with lid
Soil
Gravel
Sand
Very small, dry pieces of twigs
Water

Investigation #15 – How Rocks and Dirt Catch a Ride

Gather These Things:

Rectangular pan or cookie sheet
Aluminum foil (optional)
Paper cup and a toothpick to poke holes in it
Water
Books
Large pan
Small, dry twigs, leaves, pine straw or mulch
Sand or dirt
Paper towels

Investigation #16 – Physical and Chemical Weathering

Gather These Things:

Empty aluminum soft drink can
Disposable, plastic quart-size jar with screw-on lid
Water
Salt
Small margarine tubs
Vinegar
Handful of rocks from outside
Several hard pieces of candy (rounded or cylindrical, at least 1 cm thick with no outer coating)
Limestone rocks (garden or landscaping store)

Steel wool pad (remove any soap)

Investigation #17 – Holes in Rocks

Gather These Things:

Six clean empty tin cans, same size, with lids removed
Container about three or four times larger than the paper cup
Dry sand
Wire strainer
Small to medium size rocks
Metric liquid measuring cup
Small paper cup
Sturdy toothpick

Investigation #18 – Caves, Sinkholes, and Geysers

Gather These Things:

Disposable aluminum pie pan
Clay made from flour, salt, water, and oil (see teacher's book)
Nail to punch holes in the pan
Potting soil
Plastic knife
Container to catch water

Investigation #19 – Glaciers

Gather These Things

Small plastic container
Medium plastic container
Large flat container
Water
Sand and dirt
Small rocks
Paper towels

Investigation #20 – Toiling in the Soil

Gather These Things:

Garden spade for digging

Magnifying glass

Four sturdy sticks

String

Pencil

Metric tape measure

Notebook