



# WEATHERING AND EROSION

**GRADE LEVEL:** 4 -6

**TIME REQUIRED:** One class period

**SETTING:** Classroom, science lab, or outdoors

**GOAL:** To create a landform by using weathering and erosion processes

**OUTCOMES:** At the end of this lesson the student will be able to:

- define and give an example of mechanical weathering,
- define and give an example of chemical weathering,
- define the process of erosion,
- and list at least two types of sedimentary rocks.

**KERA GOALS:** Meets KERA goals 1.3, 1.4, 2.1, 2.2, 2.4, 5.1, 5.3, 5.4, 6.2

## BACKGROUND INFORMATION

The earth is a dynamic body. Earth movements cause elevation of the surface while opposing processes wear it down. The wearing down processes include weathering and erosion.

**Weathering** - is the disintegration and breakdown of rock near the earth's surface.

**Mechanical weathering** occurs when rocks are broken into smaller and smaller pieces. This process can occur when plant roots break rocks apart, or when freezing and thawing produce wedges in rocks.

**Chemical weathering** occurs as water combines with other elements to alter rocks. An example is carbonic acid. Water combines with carbon dioxide to produce a weak acid called carbonic acid. The carbonic acid then dissolves rock by chemical weathering.

**Erosion** - is the transportation of this material, usually by water, wind, or ice.

The products of mechanical and chemical weathering constitute the raw material for sedimentary rocks. Weathered debris is eventually deposited in lakes, river valleys, seas, and oceans. Over long periods of time these sediments are cemented together to form solid rock.

Since sediments accumulate at the earth's surface they contain indications of past environments. Layering is the most characteristic feature of sedimentary rock. As each layer accumulates it records the nature of the environment at the time. The layers are called strata and are separated by bedding planes. Generally, each bedding plane marks the end of one deposit period and the beginning of another.

Sandstone is the name given to rocks when sand grains predominate. Limestone is the result of cemented shells and bone fragments. Shale consists of silt and mud.

## MATERIALS NEEDED

- One frisbee for each group
- Two pieces of sandstone and two pieces of limestone for each group
- Small bottle of vinegar with dropper for each group
- Dirt and small rocks
- An assortment of leaves, rocks, shells, twigs
- Small plastic containers with holes punched in the bottom (to form a "rain cloud"). NOTE: Containers from frozen lunches make excellent clouds
- Water
- Paper and pencil
- "Weathering and Erosion Worksheet"

