Make Your Own Sedimentary ROCK

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Time: 15 minutes
Grades: K-3
Objectives:

- Understand that sedimentary rocks may be composed of pieces of minerals or pieces of other rocks
- Consider how a sedimentary rock forms of loose sediments.
- Observe the size of the sediments.
- Observe the shape of the sediments.
- Understand that fossils are a kind of sediment.

Materials:

- School glue (water-soluble glue) or Elmer's Glue
- Assorted sediments—all should be clean, such as aquarium sand, craft sand or sandbox sand:
- Gravel (less than ½ inch)
- Coarse clean sand
- "Fossils" such as sea shells, twigs, or plastic dinosaurs
- Wax paper
- Molds such as plastic bowls, margarine tubs, or small paper plates
- Plastic spoons
- Sedimentary rocks, especially conglomerates and sandstones
- Magnifying glass
- Ruler

Procedure:

- Tear off a piece of wax paper for each student.
- Place on a mold or on a paper plate.
- Place a selection of "sediments" on each desk or table with plastic spoons.
- Have the students place afew spoonfuls of sediments on the wax paper.
- Pour glue on the sediments.
- Stir with plastic spoon.
- Allow to set.
- Observe sedimentary rocks and compare to the rock just made.
- Discuss how your "rock" and the sedimentary rock are alike or different.
- Draw the newly made "rock" or a real rock. Label the drawing.
- Measure the rock, the fossil, or any other feature large enough to be measured. Label some measurement on the drawing.
- If there is a "fossil" in the rock, write a short story about it, or tell the class about the fossil.

Teacher's notes:

While the standards do not call for the rock cycle to be taught until Fifth Grade, a basic understanding of the difference between rocks and minerals will tend to lead into the concept of the rock cycle.

Here is a short discussion of the rock cycle, with a diagram:
http://www.cotf.edu/ete/modules/msese/earthsysflr/rock.html

Note that igneous rocks crystallize from molten rock so that the crystals interlock. Sedimentary rocks that are composed of bits of older rock are "glued" together by natural cements.

A sedimentary rock composed of sediments that have been sorted out by water or wind, such as sandstones that are cemented-together sand dunes, will have particles that are nearly all the same size and shape. Sedimentary rocks composed of sediments that have not been sorted, for example, sediments that have accumulated at the base of a steep slope or near the beginning of a river, will have a variety of sediment sizes and shapes.

Sediments that have been tumbled around in water or wind tend to be rounder and smoother (all the corners have been knocked off). Sediments that have been cemented together before being rounded will be more broken and jagged.

See how each sedimentary rock tells a story about its origin!

GeoMan's Rock Identification Chart:
http://jersey.uoregon.edu/~mstrick/MinRockID/RockID/RockIDChart.html

GeoMan's Mineral and Rock Glossary:
http://jersey.uoregon.edu/~mstrick/MinRockID/MinRockGloss.html