

MAKE YOUR OWN SEDIMENTARY ROCK

STANDARDS

See summary of National Science Education Standards.
 Original: <http://books.nap.edu/readingroom/books/nses/>

Standard Concept	General standard	Specific standard	General standard	Specific standard	General standard	Specific standard
Grade Level		K-4		5-8		9-12
Science as inquiry (A)	Abilities ... to do ... inquiry	A.1.4.1	Abilities ... to do ... inquiry	A.1.8.1	Abilities ... to do ... inquiry	A.1.12.5
		A.1.4.2		A.1.8.8		
	Understandings about ... inquiry	A.2.4.1	Understandings about ... inquiry	A.2.8.1	Understandings about ... inquiry	
		A.2.4.2				
Physical Science (B)	Properties of ... materials	B.1.4.2				
Earth Science (D)	Properties of Earth materials	D.1.4.1	Structure of Earth system	D.1.8.3		
		D.1.4.3		D.1.8.4		



MAKE YOUR OWN SEDIMENTARY ROCK

INTRODUCTION

Rocks are classified in three general categories according to the way they formed: sedimentary, igneous, and metamorphic. Sedimentary rocks may be readily modeled.

OBJECTIVES:

Students will

- 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 (teacher instructions):

- 1) Tear off a piece of waxed paper for each student.
- 2) Have students place the waxed paper on a mold or on a paper plate.
- 3) Place a selection of "sediments" on each desk or table. Place several plastic spoons on each desk or table.
- 4) Have the students place a few spoonfuls of sediments on the wax paper.
- 5) Pour glue onto the sediments.
- 6) Have the students stir the mixture of glue and sediments with a plastic spoon.
- 7) Allow the "rock" to set.

EVALUATION

- 1) Have students observe some real sedimentary rocks and compare them to the "rock" just made.
- 2) Have the students discuss how their "rock" and the sedimentary rock are alike or different.
- 3) Have the students draw the newly made "rock" or a real rock, and have them



- label the drawing to identify the components that make up the rock.
- 4) Have the students measure the rock, the fossil, or any other feature large enough to be measured. Have the students label that same measurement on the drawing.
 - 5) If there is a “fossil” in the rock, have the students write a short story about it, or tell the class about the fossil.

TEACHER’S NOTES:

Although 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.cof.edu/ete/modules/mse/e/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>

