METAMORPHIC SQUISHEE!

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.1.12.1
		A.1.4.2		A.1.8.2		A.1.12.2
		A.1.4.3		A.1.8.3		A.1.12.3
		A.1.4.4		A.1.8.4		A.1.12.5
				A.1.8.8		
	Understandings about … inquiry	A.2.4.1	Understandings about … inquiry	A.2.8.1	Understandings about … inquiry	A.2.12.1
		A.2.4.2		A.2.8.3		A.2.12.4
		A.2.4.3				
Physical Science (B)	Properties of … materials	B.1.4.1				
		B.1.4.2				
Earth Science (D)	Properties of Earth Materials	D.1.4.1	Structure of Earth system	D.1.8.4		

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INTRODUCTION

Rocks are categorized into three basic groups according to the way they were formed: sedimentary, igneous, and metamorphic. Metamorphosis of rocks involves heat and pressure.

OBJECTIVE

To model the metamorphic process that makes layered rocks (i.e., slate, schist, and gneiss).

MATERIALS (per table)

- Play-Doh
- Wax paper
- Plastic knives
- Ruler
- Paper
- Colored pencils
- Metamorphic rocks such as slate, schist, and gneiss.

PROCEDURE (teacher instructions)

1) Have students roll out “snakes” of Play-Doh.
2) Have students cut the “snakes” into pieces so that they are about as long as they are wide.
3) Have students press the pieces together to make “sandstone.”
4) Have students measure the individual little pieces that were pressed together to make the model sandstone, and have students measure the whole “rock.”
5) Have students draw the rock, showing the little pieces, and label the drawing.
6) Have the students predict what will happen if the “rocks” are squashed.
7) Write the predictions on the black board.
8) Have the students gently press down on the “rock.”
9) Have students measure the little pieces of the “rock,” and measure the whole “rock.”
10) Have the students draw and label the resulting “rock.”

EVALUATION

1) Lead a discussion of what happened to the “rock.”
2) Have students compare the Play-Doh model to actual metamorphic, layered rocks and to other rocks (sedimentary such as sandstone, and igneous such as granite).

NOTE FOR TEACHERS:

Metamorphic rocks form from the original rock without ever melting. Metamorphosis takes burial under other rocks, heat, pressure, and time. The change is accomplished by the original minerals in a rock being forced by changed conditions to

undergo chemical reactions to form new minerals that are stable under the new conditions. This is much too complicated for young children to understand. The point of this activity is to practice important scientific skills: prediction, observation, recording observations, and communicating observations.

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