A Rock'n Earth

Purpose

Students will explain that sedimentary rock, when buried deep enough, may be reformed by pressure and heat, perhaps melting and recrystallizing into different kinds of rock.

Materials

For the teacher: transparency of Black Line Master (BLM) *A Rock'n Earth*, overhead projector, sample of each type of rock in rock cycle
For each student: copy of BLM *A Rock'n Earth*, science journal, pencil, goggles
For each group of students: ruler, scissors, heavy duty aluminum foil, different colored crayons, crayon sharpeners, heavy book, tongs, Bunsen burner

Activity

A. Pre-Activity Discussion

1. Explain that there are three types of rocks classified by petrologists: sedimentary, metamorphic, and igneous.
2. Show students each sample of rock and pass each around the room.
3. Display the overhead transparency of the BLM *A Rock'n Earth* and explain the rock cycle to the class.

B. Activity

1. Divide students into groups and distribute a ruler, scissors, crayons, crayon sharpeners, goggles, a heavy book, tongs, and aluminum foil to each group.
2. Distribute a copy of the BLM to each student.
3. Explain to students that they will use the materials they were given to model the rock cycle. Instruct them to refer to the diagram of the rock cycle on the BLM when modeling each part of the cycle.
4. Instruct students to cut two square pieces of aluminum foil, 20 cm × 20 cm, and to lay one piece on top of the other.
5. Tell students to sharpen various colored crayons and collect the shavings on the aluminum foil sheets. Ask students: "Which kind of rock do the crayon shavings represent? What process does the sharpening represent?"
6. Discuss how the crayon shavings represent sediments and that the sharpening represents the weathering process that produces them.

(continued)

connecting across the curriculum

Visual Arts
Have students look at different types of rocks under a compound microscope and create a piece of "abstract art" based on what they see.

EXTENDING THE ACTIVITY

Direct students to collect and bring in various rocks from their home or the schoolyard. Use field guides to help them identify which are sedimentary, igneous, and metamorphic.

Standards Link
7.3.8

Activity (continued)

7. Tell students to continue collecting shavings until they have a pile approximately three centimeters high.
8. Direct each group to fold the aluminum foil into a packet, being sure that all of the *sediment* is sealed inside the packet.
9. Ask students: "Do you think you could turn your sediment into *sedimentary rock*? How?"
10. Have students place the sediment packet underneath a heavy book and apply a small amount of pressure.
11. Tell students to open the foil packet to observe the contents. Direct them to write their observations in their science journals.
12. Instruct students to close the foil and apply pressure to the packet with their hands. Tell students to move their hands slightly to create heat against the packet as they continue to apply pressure.
13. Direct students to examine their rocks again and to write their observations in their science journals.
14. Tell students to rewrap the rock, put on goggles, and use the tongs to hold the packet over a lit Bunsen burner. Direct them to hold the packet over the flame for a few minutes and then to let it cool.
15. Tell students to open the foil packet to observe the contents and write down their observations in their science journals. Ask the students: "What type of rock does this represent?"
16. Review the rock cycle again using the transparency. Ask students to identify which parts of the activity modeled the formation of sedimentary rock, metamorphic rock, and igneous rock.
17. Ask students how they could continue the cycle using their newly formed rock.

Classroom Assessment

Basic Concepts and Processes

At the end of the activity, ask questions, such as the following:

📖 Explain the processes involved in the rock cycle.

📖 How does an igneous rock become a sedimentary rock?


How did you model each process with the crayon shavings?


Can you think of another way you could model the rock cycle? What materials would you use?

Name: _____

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