"EDIBLE" IGNEOUS

OBJECT OR PURPOSE:

Students will observe how some hot liquid substances turn to a solid when cooled as an example of how igneous rocks are formed.

Level one
TIME: 45 minutes
CURRICULUM FOCUS:
Earth Science

SKILLS/PROCESSES:
Observe
KEY VOCABULARY:
Igneous, magma, metamorphic, sedimentary

MATERIALS REQUIRED:

- Picture of earth, showing its interior
- Candle
- Matches
- Pie pan
- Supplies and ingredients for making lollipops (see attached recipe)
- Samples of ingenuous rocks

Lollipop Recipe

- 18 lollipop sticks
- ¼ cup butter or margarine
- ½ cup light corn syrup
- ¾ cup sugar
- Few drops food coloring
- Lightly butter baking sheet, 15-1/2 X 12 inches.
- Heavy 1 qt. sauce pan
- Metal pie pan

  Arrange lollipop sticks on the baking sheet. Combine butter, corn syrup, and sugar in heavy 1-quart pan. Heat the mixture to boiling over medium-high heat, stirring occasionally. Reduce heat to medium. Stir frequently, cook to 270 degrees on candy thermometer or until a few drops of syrup dropped into very cold water separate into threads which are hard but not brittle. Stir in food color.

Drop mixture by tablespoonfuls over end of each stick. Cool thoroughly before removing from baking sheet.

PROCEDURE OR INSTRUCTIONS:

Ask the students the following questions to assess their knowledge and to stimulate interest in the activity:

Do you think the center of the earth is hot or cold?

Did you know that temperatures in the earth reach up to 7,500 degrees Fahrenheit, hot enough to melt rock?

1. Show the picture of earth's interior. Discuss that many minerals are found in igneous rocks and that igneous rocks are formed by the cooling of hot magma.
2. Light a candle and let the melted wax drip onto a pie pan (To speed the cooling, you may want to place the pie pan in the freezer for a little while before the experiment.) Explain that the candle is in the solid state but the heat changes it to a liquid state. When it is cooled, however, it changes back to solid state.
3. Make lollipops to demonstrate how a hot liquid turns to a solid when it cools. Show a few drops of the syrup cooling quickly as they are dropped in a cup of cold water. Point out that sometimes bubbles of air are trapped when the liquid is poured, leaving holes when it cools.
4. Explain that different colors in a rock are like different colors of syrup being poured and cooled together. Have students look at various samples of igneous rock. Eat lollipops!

EVALUTION:

Knowledge of early geologic processes is important in understanding how mineral resources are formed.

TEACHER TIPS:

Have students think of other examples of things that are in a liquid state when hot but solid when cooled. Have them illustrate their examples.

Consult your school or local library for books, pictures, and videos on volcanoes.