Focus: The Earth acts somewhat like a cook, forming rocks and minerals with pressure, heat, and motion.

Challenge: Bake a batch of oatmeal chocolate chip cookies. Can you draw an analogy between the cookies and rocks made of different types of ingredients or minerals?

Procedure:
1. Work together as a class to make the batter and bake the cookies.
2. Display the assortment of rocks. Examine them closely, noting the variety of different crystals in each rock. Explain to your students that these different ingredients are analogous to the different ingredients in the rocks.
3. Look at the mineral samples, and try to match these samples to crystals in the rocks.
4. After the cookies have cooled, give each student two cookies, one to study and one to eat. Break open the cookies and compare them to the distinct crystals in the rocks previously examined. Explain to the students that, like their cookies, rocks have ingredients too. The Earth acts like a cook and mixes ingredients to make rocks.
5. Once the students see that some ingredients are still recognizable after baking and that some are not, ask them in what ways the ingredients have changed. The effects of heat and chemical change could be discussed at this point.

Materials and Equipment:
- An assortment of rocks that clearly show different crystals
- Mineral samples
- Two large bowls
- A spatula
- A wooden spoon
- Measuring spoons
- Several large cookie sheets
- Oven mitts
- Cooling racks
- One paper towel or napkin

Questions:
1. Which ingredients can you identify after the cookies have been baked? Can you taste the individual ingredients?
2. How does the process of cooling and baking cookies compare to the formation of different types of rock?
Further Challenges:

Using a rock that will show different crystals or grains, such as granite or sandstone, wrap the rock in cloth, and hit it with a hammer. Give the students hand lenses to examine the pieces of broken rock and have them examine the shape, size, and color of the fragments and describe the inside and outside appearances of the rock. Ask them why the inside looks different from the outside and how many "ingredients" they see.

References:


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