Crystal Creations

Post Lesson 1

Age: Grades 3-5

Setting: Classroom

Standards: Science and Technology: 3.5.4.A(1,2), 3.5.7.A(2,3,4), 3.5.4.B(2), 3.1.4.C(1), 3.1.7.C(1,2)

Objectives: The student will be able to:

- recognize through observation that crystal shapes of a particular substance will be similar in appearance.
- identify minerals by their crystal form by comparing and contrasting salt and alum crystals.

Overview: This lesson will give students the opportunity to watch two different types of crystals grow. It will then allow them to observe, through a magnifying glass, how these two types of crystals differ in form.

Materials:

- Rock salt
- Alum
- Boiling water
- String
- Pie pans and/or aluminum foil
- Magnifying glasses
- Art paper, 9” x 12”
- Crayons

Procedure:

1. Start by asking the following questions to determine your students’ prior knowledge: What is the most common, recognizable crystal found in nature? Do you know how crystals are identified?
2. Make halite (rock salt) crystals by dissolving rock salt in boiling water (1 ounce of salt per cup of water).
3. Pour the solution into a pie pan. You may want each student to grow his own crystals by pouring some of the solution in individual “pans.” These individual pans can be made by molding aluminum foil around the base of a small bowl or container.
4. Place a string in the pan with one end resting on the edge of the pan. In a few days, as the water evaporates, tiny crystals will form along the string in the pan.
5. Grow alum crystals using the same method as described for making salt crystals.
6. A few days later have students use magnifying glasses to look at the crystals. Compare the color of the crystals. Compare the shapes of the crystals. Salt crystals will be cubical. Alum crystals will be more triangular. Have students notice that crystals made of the same mineral are different sizes, but they retain the same shape.

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Assessment: Have students demonstrate the growth of crystals with the following art project:

1. Give each student a piece of 9" x 12" art paper.
2. Have each student select a geometric shape and draw it one inch tall in 7 – 10 places on the paper.
3. Have the students select a different color of crayon. They are then to outline the shapes over and over again. As the shapes grow larger, they will touch each other. (Don't, however, allow the outlines to cross each other, although the lines may overlap.)

Extension: You can "grow" sugar, borax, or any other crystal forms that will dissolve. Compare the results grown in a warm place to crystals grown in the refrigerator.