HANDS-ON LAB

# MAKE YOUR OWN MINERAL CRYSTALS

NAME: _____ DATE: _____

Mineral crystals form as magma cools and turns to a solid. Crystals can also form when a solution, such as water full of dissolved salts, goes through changes. Sometimes large crystals form and sometimes tiny crystals form. You will model crystal growth using borax, a mineral made up of atoms of sodium, boron, hydrogen, and oxygen.

A borax solution can be made by slowly stirring small amounts of borax powder into hot water until no more dissolves. Borax crystals can grow when the water cools if there is a surface or object to begin growing on. For example, you could suspend an object, such as a shape made from a chenille stem, in a jar filled with borax solution. One end of a string can be tied to the object. The other end of the string can be tied to a craft stick that is placed over the jar opening so the object hangs in the borax solution. Variables in this investigation include how long it takes the solution to cool, the amount of borax used, and what material or shape the crystals grown on.

## Materials

- beaker or large jar, about 250 mL (3)
- borax
- craft stick (3)
- gloves, heat resistant
- objects to act as crystal nuclei, such as chenille stems
- spoon
- string
- water, very warm
- aluminum foil (optional)
- thermometer (optional)

## Procedure

**STEP 1** Read the lab introduction and develop a procedure to grow the largest crystals you can. Keep in mind the materials that are available. Hot water will be prepared by your teacher and provided to you in beakers or jars. You will then make the borax solution. Be sure to include information about which variables you will test and which variables you will hold constant.

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**STEP 2** Check your procedure with your teacher and make any necessary change before you begin.

**STEP 3** Gather materials and safety gear, build your objects to aid crystal growth, and label your jars or beakers before hot water is added. On a separate sheet of paper, make a table to record observations and results.

**STEP 4** Conduct your experiment. Always take care with hot water to prevent burns.

## Analysis

**STEP 5** What variable did you test? Describe whether or not the variable you tested relates to crystal size.

**STEP 6** Describe whether your results were as expected. Did anything surprise you? If you could, what would you try to make even larger mineral crystals?