



# STEM @ Home: How to Grow Your Own Crystals

## Background

Crystals are beautiful. They come in many shapes, sizes, and colors. Crystals are used in modern technology, like solar panels. We also use salt crystals made from our ocean water to eat in our food. While salt crystals can be really fun to make, they can take multiple days to grow. This is a lab that allows you to grow your own crystals in as little as one hour.

## Understand the Science

- ★ Crystals form when molecules of a pure substance that are floating in a fluid lock together to create a 3-D structure.
- ★ The shape of the crystals depends on the strength and location of the atomic bonds of the molecules.
- ★ In this lab, crystals form as a hot super-saturated solution of borax ( $\text{Na}_2\text{B}_4\text{O}_7$ ) cools to a point at which its molecules begin to stick together.



## Materials:

- ☐ 1 piece of thread
- ☐ 1 pipe cleaner
- ☐ 1 cup of water
- ☐ 1/4 cup of borax
- ☐ 1 saucepan
- ☐ 1 glass jar
- ☐ 1 craft stick

## Step 1:

Take a colorful pipe cleaner and bend it into a fun shape.



## Step 2:



Bring one cup of water to a rolling boil in a small saucepan. Then mix in one quarter cup of borax. Turn off the heat and stir carefully until the powder dissolves completely.



## Step 3:

Carefully pour the mixture into a jar and hang the pipe cleaner from a thread connected to a craft stick. Leave space between the pipe cleaner and the sides/bottom of the jar.



## Step 4:



Now for the hard part... LEAVE IT ALONE! You should see tiny crystals forming within a few minutes. After an hour, your artwork should be well covered with beautiful cubic crystals.