

Borax Crystal Sun Catchers

Simple borax can be used to make beautiful decorations. Watch as complex solid crystals form from a solution.

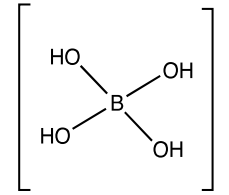
Experimental Steps:

1. You can twist your pipe cleaner into any shape you want. We have shown how to make a snowflake but you can use your imagination!
2. If you would like to make a snowflake, cut the pipe cleaner into three equal lengths. Twist the three pieces together in the middle to form a six-pointed snowflake. Trim the ends if needed to make them even or so that it fits inside the jar.
3. Tie one end of the string to the pipe cleaner.
4. Tie the other end of the string to the wooden stick. The string should be short enough that the pipe cleaners don't touch the bottom of the jar.



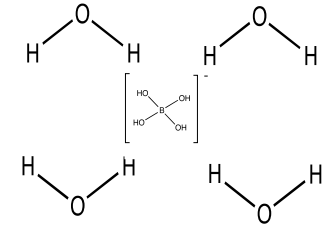
5. With help from an adult, fill the jar with boiling water.
6. Add borax to the jar, one table spoon at a time, and stir to dissolve. Add approximately three tablespoons of borax for each cup of water. There may be undissolved borax left in the bottom.
7. You can add food coloring at this point to tint your crystals whatever color you would like.
8. Hang the pipe cleaner in the jar. It should be fully submerged in the liquid and not touching the sides or bottom.
9. Leave the jar undisturbed overnight. The longer you leave the pipe cleaners in the solution, the larger the crystals.
10. Remove the crystals from the jar and hang on the tree or in a window to catch the sunlight.
11. You can add a new pipe cleaner shape to the solution and leave overnight again. There should be enough borax in the solution to make 2-3 crystal snowflakes (depending on their size).

Borax Crystal Sun Catchers: Scientific Explanation

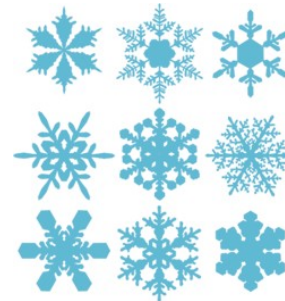


Borax is a negatively charged molecule made of oxygen, hydrogen, and the element boron.

Mixing the borax with water makes a solution. Borax dissolves easily in water due to its negative charge and the structure of water. Water is a polar molecule with positive hydrogens that are attracted to the borax causing it to dissolve.



Hot water dissolves more borax than cold water. As the water cools, the borax solid comes out of solution. The most likely place for the solid crystals to collect is on the pipe cleaners. Chemists call the place a crystal forms a nucleation site. You see this occur every time it snows outside! The solid borax forms crystals the same way that a snowflake forms.



Snowflakes are beautiful crystals of frozen water. When the air gets cold enough, water vapor crystallizes and forms snow. It is said that no two snowflakes are the same. One thing that all snowflakes do have in common is a six-fold symmetry. That means that you can cut a snowflake into six identical pieces. This has to do with the unique way that water molecules interact.