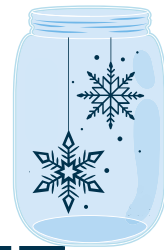


DIY Holiday Crystals

Let's celebrate De-STEM-ber and make a holiday ornament with science!

You will need an adult's help for this activity



Materials:

- Borax
- Pipe Cleaners
- String
- Small Glass Jar or Cup
- Spoon
- Measuring Spoon
- Hot Water

Procedure:

1. Bend your pipe cleaner(s) into a shape of your choice. Test the size of it by placing it in your empty jar.

2. Using one or two pieces of string, attach your creation to the stir stick. Make sure the stir stick is laying flat across the top of your jar.

Your pipe cleaner creation should not touch the bottom or sides of your jar.

Remove your creation from the jar.

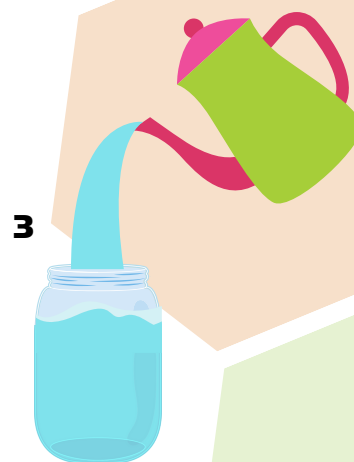
3. With an adult's help, boil or heat water in a heat-safe container. Carefully pour the hot water into the glass jar, leaving 1 inch of space from the top.

Optional: Add a few drops of food coloring to make colored crystals!

4. Before the water cools down, add 2 tablespoons of borax into your jar. Dissolve the borax by mixing it with the hot water.

Have an adult help hold the hot jar while you stir.

5. Suspend your creation in the jar with the hot water and borax. Remember, the stir stick should be laying across the top of the jar while your creation hangs in the jar.

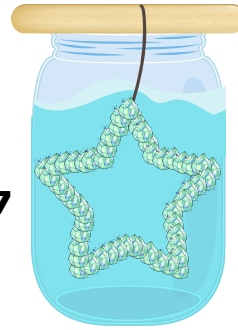


DIY Holiday Crystals

6. *Patience is key!* Let your jar sit overnight to get the crystals going. Check back on it whenever you like, to see the progress.

7. The next morning, once your crystals have grown, take your creation out and lay it on a paper towel to dry. Once it is dry, you can display it however you want!

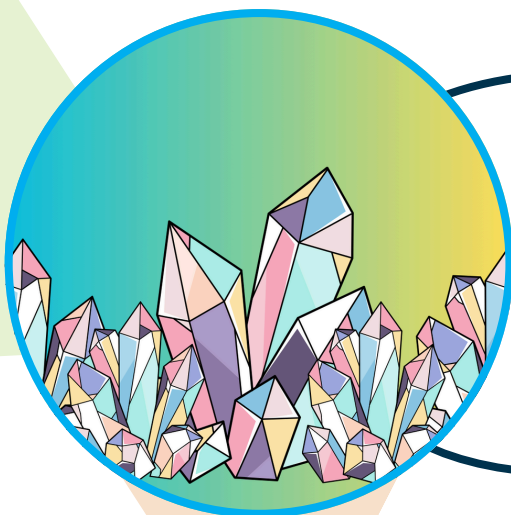
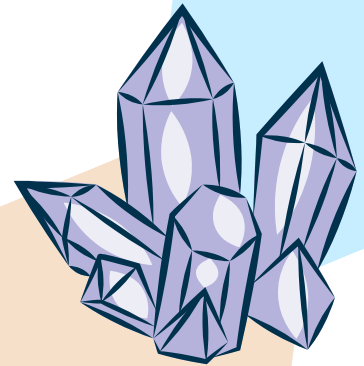
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WHAT'S HAPPENING?

Crystals are a type of material that is formed by patterns of repeating molecules that appear to have flat surfaces and facets. Crystals form when a liquid cools very slowly and/or when water evaporates from a chemical mixture leaving behind a solute whose molecules reform into new geometric shapes. **Solute** is a substance that dissolves in another substance.

Saturation is when a mineral like borax (the solute in this project) is dissolved in water. The water can only hold a certain amount of the solute. A liquid is saturated when the maximum amount of solute is dissolved in it. Hot liquids can hold more solute than cold liquids, which is why we needed boiling water!



DID YOU KNOW?

A **crystallographer** is someone who studies the properties and structures of crystals. If you liked exploring this activity, maybe crystallography is for you!