

Salt Crystal Garden

Recommended Ages: 4-12

Do you ever wonder how crystals grow? You can grow crystals right at home with some simple ingredients. **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 substance whose molecules reform into new geometric shapes. **Saturation** happens when a mineral like salt is dissolved in water. The water can only hold a certain amount of the salt. The water is *saturated* when the maximum amount of salt is dissolved in it. Hot liquids can hold more substances than cold liquids.

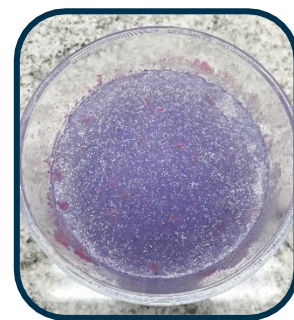
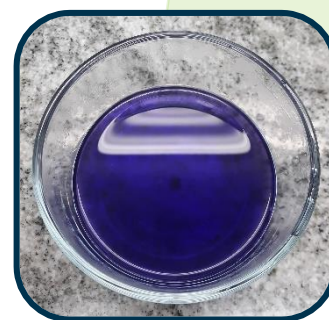
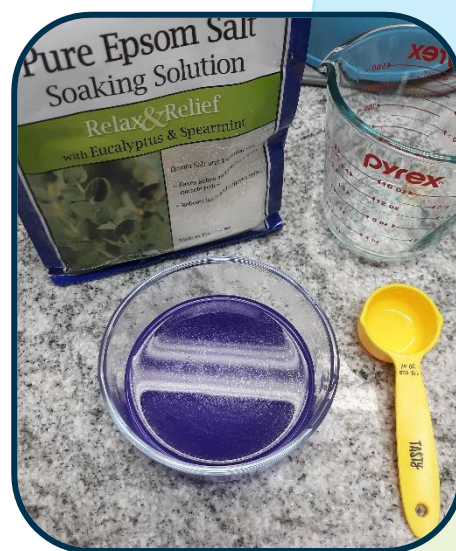
Materials:

- Glass Cup, Jar, or Bowl
- Spoon
- ½ Cup Epsom Salt
- Food Coloring (optional)
- ½ Cup Hot Water

**An adult must help with this activity.
You will be using hot water.**

Procedure:

1. Prepare your hot water and pour it into your bowl.
2. If you are using food coloring add it to the hot water now. Stir until the food coloring is mixed in well.
3. Add the Epsom salt to your bowl with hot water. Stir the Epsom salt and water for at least 1 minute or until most of it is dissolved. *Not all of the salt will dissolve. We are making a saturated solution meaning the water cannot dissolve any more Epsom salt. If you don't see any extra Epsom salt, add a little more and stir again.*
4. After stirring your solution, place your bowl in the refrigerator. Let your solution sit for a few hours (wait at least 3 hours for really good crystals to form!).



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5. Now, it is time to check your crystals! Pour out any remaining liquid and you should be able to see your crystals clearly!

Try repeating the experiment to grow yourself a crystal garden of different colors!



What happened? Depending on the temperature of the water, different amounts of Epsom salt will dissolve. Because we used very hot water, a lot of Epsom salt was able to dissolve. When the water cools, there is less space for the dissolved Epsom salt and some of it reforms – or crystalizes. This happens because hot water is less dense and has room for other things like dissolved Epsom salt but cold water is more dense and doesn't have room for other things.



DID YOU KNOW?

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