

Sari on Science: Make your own crystal “snowflakes”

Only parts of Arizona see real snow, but with this activity, you can enjoy your very own crystal snowflake anywhere!

 Sari Custer November 27, 2018

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Snowflakes (more scientifically, snow crystals) are made when water vapor freezes inside a cloud. Only parts of Arizona see snow, but with this activity, you can enjoy your very own crystal snowflake anywhere!

Supplies

- 2 cups boiling water
- 6-8 tablespoons borax
- Large spoon
- 1-2 pipe cleaners for each snowflake
- Scissors
- String
- Glass jars — large enough so a snowflake can hang inside and not touch the sides or bottom; one jar per snowflake is best.
- Pencil or stick — big enough to span the jar opening

Directions

1. Cut the pipe cleaners into three equal-length pieces. Twist them all together to make a snowflake shape with six arms. (Optional: cut 1- to 1.5-inch sections of pipe cleaner and twist onto the ends of your snowflake arms to create branches.)
2. Cut a 12-inch piece of string and tie it to the end of one arm. Form a loop to make it easier to hang your snowflake later.
3. Test the size of your snowflake inside your jar by hanging it from the pencil. If it touches the sides, find a wider container or trim the pipe cleaners. Set snowflake aside.
4. Make sure your jar will safely hold boiling water. Then, pour 2 cups boiling water into the jar.
5. Add 6 tablespoons borax. Mix until all borax is dissolved (Note: Borax can be harmful if inhaled, ingested or splashed into one's eyes. Gloves should be worn if you are sensitive to borax. Wash hands after handling).
6. If all borax is dissolved and none has settled on the bottom, add 1-2 tablespoons of borax and stir until no more borax can be dissolved in the solution. A little borax at the bottom will not affect your snowflake.
7. Carefully lower your pipe cleaner snowflake into the solution until fully covered and let sit overnight. The longer it sits undisturbed the better.
8. After about 12 hours, carefully lift your snowflake from the solution, remove it from the pencil and carefully set it on a paper towel to dry.
9. Then, hang up your new beautiful crystal snowflake and enjoy!

What's happening?

You created a supersaturated solution. Heating water causes water molecules to speed up and spread out, allowing for more borax to be dissolved than with water at room temperature. As the solution cools, the water molecules slow down and get closer together, causing the borax crystals to get pushed out of the water and cling to any surface – in this case the pipe cleaners. The longer the solution sits, the more the borax will build up in a repeating pattern, creating larger and larger crystals. Use a magnifying glass to compare the borax crystals to other crystal substances in your home, like salt and sugar. What differences or similarities do you see?

Did you know?

While snowflakes come in many shapes and sizes, the classic snowflake form is called a “stellar dendrite” for its branching star shape. It always has six arms and can grow as large as half an inch!

