

Materials Needed

- Salt (non-iodized salt works better)
- Spoon heat proof
- Water (hotter water works better)
- String, yarn or something similar (frayed string works better)
- Small glass or other heat proof container
- Straw, cotton swab or stick (popsicle, etc.) that is longer than the width of the glass top
- Microwaveable cup, or stove top container, suitable for boiling hot water
- Optional: Large heat proof container

Grade Range

3-8

Topics/Skills

Science; Crystallization; Experimentation; Observation

Learning Standards

NGSS: [Structure and Properties of Matter](#)

Duration

5 minutes daily

Prep Time

5-10 minutes

Salt Crystals

Create a crystal with conventional salt



Snowflakes, table salt, and diamonds are all examples of crystals. They are valued for their beautiful colors, geometric shapes, and/or physical properties such as hardness. Crystals are found in nature and can also be grown at home.

Activity Challenge

Using materials found around the home, grow a salt crystal.

Preparation

1. Cut a piece of string with a length equal to the height of the small glass.
2. Tie one end of the string to the middle of a straw or stick.
3. Using the microwaveable cup in a microwave, or stovetop container on a stove, heat the water until bubbles form. If desired, pour the hot water into a larger heatproof container. **This should all be done under adult supervision!**

To Do

1. Quickly add salt to the hot water and then stir to dissolve the salt. Stop adding salt when some undissolved salt remains visible after repeated stirring. This indicates a saturated salt solution has been created.
2. Put the straw (or stick) across the top of the glass, with the string hanging down into the middle of the glass.
3. Slowly pour only the liquid saltwater into the smaller glass container, being careful not to transfer any of the undissolved salt. Pour the water to wet the string so it will hang in the water.
4. Place in a safe space where the glass will not be tipped over. Cover the glass and check on it daily.

Observations

Draw a table with 7 columns and 4 rows. Label each column with a day of the week. Label each row with the week number (e.g., week 1, week 2 etc.) Daily observe the glass and sketch what is seen into the corresponding blank space (cell) on the table.

Extensions

Art Challenge

- How can you create a colored crystal?
- How can you use the crystal to create a piece of jewelry?

Language Challenge

- What common phrases and descriptions contain the word crystal?
- How would you explain crystal formation to a younger sibling or friend?
- After researching crystals, write 3-5 sentences describing how a crystal can be formed.

Math Challenge

- Redo the experiment and record the exact amount of salt and water used. Try different amounts of each and compare the outcomes.

Research Challenge

- Why is glassware sometimes called crystal?
- What is the hardest crystal?
- How, and why, can a certain crystal be used to make an AM radio?

Science behind the Activity

Crystals can form naturally at high temperatures and pressures like diamonds, geodes, and quartz crystals. Symmetrical atomic and molecular arrangements are usually far too small to see. A large crystal can give us the ability to see the symmetry. We can grow large crystals from materials that can dissolve in a liquid. A hotter liquid will allow more of a material to dissolve in it. For example, when boiling water has as much material dissolved into it as possible, the solution is called supersaturated. As the solution cools, the material comes back out of the solution, and it grows crystals on a rough surface like a fuzzy string. Molecular forces cause the growing crystals to have regular patterns.