

# Non-Edible Crystals DO NOT EAT!



**Directions:** Follow these instructions to create your very own salt crystals and learn along the way. Answer all questions on a separate sheet of paper, please. You will need an adult to make this with.

**First You Need to do a Little Bit of Background Research on Crystals Themselves.**

1. What are crystals?
2. What can crystals found in nature be made of?
3. Where can crystals be found in the natural world?

**Now for the Recipe (and a Couple of Additional Questions Along the Way)**

### YOU WILL NEED:

- 120 ml (1/2 cup) of water (distilled water works best but tap water is also ok)
- At least 60-120 ml (1/4-1/2 cup) of preferably non-iodized table salt
- A glass jar (Such as a mason jar)
- A pencil or butter knife or straw
- String
- Clear nail polish (Optional)
- Large pan or bowl for boiling water and making the solution
- Coffee filter, paper towel, or piece of toilet paper
- A spoon for stirring
- 1 paperclip
- 2 drops food coloring (Optional)

### How to Make Your Salt Crystals

**BEFORE YOU BEGIN:** You don't want dirty crystals! Please wash your jar well with hot water and some soap.

1. Cut your string the length about seven cm longer than the height of the jar and tape it to the pencil securely. Tie a paper clip to the very bottom of the string. Place the pencil across the lip of the jar and wind it until the lower end of the string is hanging about 2.5 cm (1 inch) from the bottom of the jar. The paper clip should touch the bottom of the jar in order to weigh it down and help it stand straight.
2. Have an adult bring the water to a slow boil (Until the water just begins to bubble)
3. Stir in the table salt (non-iodized table salt forms better crystals but iodized table salt will still form crystals), one teaspoon at a time. Add the table salt until it no longer dissolves (break down in) and starts to pile at the bottom of the pan. Too little table salt = little to no crystal growth. You do not want all this work done for nothing!

Lesson inspired by:

<https://www.wikihow.com/Make-Salt-Crystals>

<https://www.sciencecompany.com/Simple-Crystals-on-a-String.aspx>

**Quick Learning Break** - Google or any search engine are excellent resources to look to answer the following questions.

A: What elements are in table salt?

B: What is the chemical formula of table salt?

You can now add 2 drops of food coloring. Stir so the food coloring and flavor evenly spreads throughout your pan.

4. Please **let the salt mixture cool for about 10 minutes because it is HOT!** Once it has cooled down, pour it into your glass jar.
5. Place the pencil over the jar and allow the string to hang into the liquid.
6. Put the jar in a calm place and you should place something light such as a coffee filter, paper towel, or piece of toilet paper to prevent dust from gathering.
7. It may take anywhere from 2-5 days for your crystals to start growing. The crystals will keep growing until the solution evaporates or until they reach the length that you would like them to.
8. If you like, once your crystals dry, you can brush and coat nail polish onto all sides of your crystals to protect it from wearing apart over time.
9. If you would like to make different forms/shapes/types of crystals the website <https://www.wikihow.com/Make-Salt-Crystals> is an excellent resource!



### Record your data

1. Measure, in cm, to the best of your ability, the length of your crystals after a day or two of growth. Afterwards, measure once a day until you end your experiment. **Measure with a ruler or tape measure on the OUTSIDE of the glass jar. DO NOT PUT THE RULER INSIDE THE JAR/SOLUTION.** Record your data on a separate sheet of paper.
2. Describe the formation of your crystals. In other words, what does they look like? Do your best to sketch a drawing of it each day so you can track its changes.
  - a. Do crystals always form in this way? Will they always look the same? Think of where else in nature you may see crystal like forms. I'll give you a hint. You see a lot of it in winter.
3. Once you have taken the string with the crystal out of the solution, measure in cm one final time and record your data on a separate sheet of paper.

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