

ROCK CANDY MADE FROM SUGAR, NOT ROCKS!

Have you ever tasted rock candy? What did it taste like? How did it feel? It's definitely a candy that offers some interesting sensations, both rough in texture and very sweet as it dissolves on your tongue. You can make rock candy at home and learn a bit of science at the same time, though it does require patience. You'll start to see changes within the first few hours, but it might take up to a week for the rock candy to form.

It's important to have an adult help you with this project because you will be working with a hot liquid. Please be careful!

Here is what you will need:

- sugar (about 1 cup for each stick of candy, plus extra for dipping - the exact amount depends on the size of jars you're using and how many rock candy sticks you want to make)
- water
- tall, narrow glass jars (canning jars or something similar)
- powdered, flavored drink mix(es) or food colorings and food flavorings
- wooden candy sticks, wooden skewers or wooden chopsticks
- parchment paper, waxed paper or paper towels
- clothespins (for as many jars as you are using) or masking tape to hold sticks in place

Clean the glass jars and wooden sticks and set them aside.

Have your adult boil some water in a heavy saucepan, calculating about $\frac{1}{2}$ cup of water to every cup of sugar for each candy stick you want to make. For example, if you want to make 4 sticks, then boil 2 cups of water and have 4 cups of sugar handy.

Once the water starts to boil, reduce the heat but make sure the water continues to bubble slightly. Add about $\frac{1}{4}$ cup of sugar, stirring until it dissolves completely. Keep adding about the same amount of sugar at a time and stirring constantly until no more will dissolve. Note that it will take longer for the sugar to dissolve each time. After you've added all the sugar, remove the saucepan from the heat and let the sugar syrup cool for at least 20 minutes. You have just made a **supersaturated solution** of sugar!

While the syrup is cooling, take your wooden sticks and dip the pointed ends into some water. Roll the top third of the pointed ends into more sugar and let them dry on parchment paper. This step "seeds" the sticks so that when you dip them into the syrup, it will start crystallizing on the sticks.

Empty some powdered drink mix (or colorings/flavorings of your choice) into each jar and carefully fill each jar about $\frac{2}{3}$ full with cooled syrup. Then carefully lower a sugar-coated and "seeded" wooden stick, pointed end down, into each jar of syrup while making sure the stick doesn't touch the bottom or sides of the jar. Use the clothespins or masking tape across the

tops of the jars to secure the sticks in place. Be gentle and don't touch or jiggle the jars or sticks while setting aside in a quiet space. Do not disturb!

Leave the jars alone for 3-4 days to allow the crystals to form. You can check on them quietly and gently to see how things are progressing. If the crystals don't look ready, then leave them for another day or two.

Once crystallization is complete, remove the sticks very carefully. There may be crystals that have formed on top of the syrup, so you might need to gently dig through those crystals with another wooden stick or skewer. Be careful to not disturb the candy crystals on your candy sticks.

Lay each candy stick on parchment paper to dry. Then, enjoy your homemade rock candy! It might be nice to share with the helpful adult(s) that assisted with the experiment. 😊

A **supersaturated solution** is a liquid has more **solute** (the sugar) dissolved into it than the **solvent** (the water) could hold under normal conditions (in this case, at room temperature). Once the liquid starts to cool the sugar crystals will form solid crystals.

A **solute** is the substance to be dissolved.

A **solvent** is the substance doing the dissolving.

Additional resources:

<https://www.stevespanglerscience.com/lab/experiments/homemade-rock-candy/>

<https://www.popsci.com/story/diy/make-rock-candy/>

https://www.osc.org/diy-rock-candy/?gclid=CjwKCAjw4871BRAjEiwAbxXi2wBjrJgBVCPa6oiDDPQVbBhO5Wyx9HYx1Hq3c-JCKdyrPbW71VmBxoCzA4QAvD_BwE

https://preparatorychemistry.com/Bishop_supersaturated.htm