KU NATURAL HISTORY MUSEUM
& BIODIVERSITY INSTITUTE

Grow Rock Candy

What you need

- ADULT SUPERVISION!
- 3 cups of sugar
- 1 cup of water
- Medium-sized cooking pot
- Stovetop
- Two clean glass jars or tall glasses
- Spoon
- Clean string
- 2 pencils
- Coffee filter or paper towel

With adult supervision, follow the steps and see (sugar) crystal growth in action over time – and then enjoy it as a treat!

What to do

1. Tie long pieces of string to the pencils and then wrap the string around the pencil such that you can hang the string down into the glass jars without the string touching the sides or bottom of the jars.
2. Wet the string and dip it into sugar so that some sugar clings to the string. Then place the pencil, with string attached, over the top of the jar and let the string hang down.
3. With adult supervision, put 3 cups of water into the cooking pot and add 1 cup of water. (It might seem like there is too much sugar and not enough water, but this is the mixture we want!) Then place the pot on the stove and heat the solution, stirring gently with the spoon, until it begins to boil. The solution should appear cloudy.
4. Let the solution cool on the stove for about 5-10 minutes.
5. Very carefully, pour the solution into the jars. Make sure the string does not touch the sides or the bottom!
6. Cover the top of the jar - with the pencil laying on top - with a coffee filter or a paper towel to prevent dust or insects from getting into the jar.
7. Place the jar in a spot where it will not be disturbed or shaken.
8. Over the next 7-10 days, watch as the sugar crystals grow. If crusty accumulations of crystal form at the top of the jar, remove the accumulations with the spoon.
9. When the sugar crystal is big enough to your liking, you can take it out and eat it! To save it for later, let it dry out and store in a sealed container.

What is happening?

From stevespanglerscience.com:

When you mixed the sugar with the water and then heated and stirred the solution, you created a supersaturated solution. This means there are far more dissolved particles of solute (the sugar) than the solvent (the water) can normally dissolve and hold at a given temperature. By stirring the sugar in hot water instead of room temperature or cold water, the sugar is dissolved faster in the fast moving (heated) water molecules. As the water cools, the huge amount of sugar particles remains in solution (a supersaturated solution) and it contains more sugar than can stay in the liquid. The sugar falls out of the solution as a precipitate (particles). These connect with other sugar particles, and a crystal begins to grow.

You gave the suspended sugar particles a great place to begin crystallizing when you dried some sugar crystals onto the string ahead of time. These are “seed” crystals. As sugar particles begin to settle (the precipitate), they join and form crystals quickly with other sugar molecules. Sugar molecules continue to settle and crystalize on the string and on top of other sugar molecules until you pull it out of the solution.