

Objective

By the end of this lesson, Emily will understand the science behind crystallization and the process of growing rock candy crystals. She will also gain hands-on experience in making rock candy, which will allow her to observe chemical changes and the formation of crystals in a fun and tasty way!

Materials and Prep

- Granulated sugar
- Water
- A saucepan
- A heat source (like a stove)
- A glass jar or container
- A wooden skewer or string
- A pencil or chopstick (to hold the skewer/string)
- Food coloring (optional)
- Patience and observation skills!

Before starting, make sure to prepare a clean workspace. Discuss with Emily the importance of safety when using heat and how to handle hot liquids carefully.

Activities

- **Making the Sugar Solution:**

Emily will measure out 2 cups of sugar and 1 cup of water, then heat the mixture in a saucepan until the sugar dissolves completely. This activity introduces her to the concept of saturation and solutions.

- **Creating Crystal Strings:**

While the solution cools, Emily will prepare her skewer or string by dipping it in sugar and letting it dry. This will help the crystals form better when she places it in the solution.

- **Observing the Growth:**

Emily will pour the sugar solution into the glass jar, place the skewer/string in it, and observe the process over the next few days. She can take notes or draw pictures to document her observations of the crystal growth.

- **Taste Test:**

Once the crystals have formed, Emily can enjoy her homemade rock candy! This will be a fun reward for her patience and effort throughout the process.

Talking Points

- "What do you think happens to the sugar when we heat it in water?"
- "Can you explain what a saturated solution is? How can we tell when we've made one?"

- "Why do you think we dip the skewer in sugar before placing it in the solution?"
- "How long do you think it will take for the crystals to form? What can we do while we wait?"
- "What other things do you think could be used to grow crystals? Can you think of any examples?"
- "What are some other types of crystals you know about? How do they form?"
- "What did you notice about the size and shape of the crystals as they grew?"
- "How do you feel about the science of crystallization now that you've seen it in action?"
- "What was your favorite part of making rock candy?"
- "Would you like to try growing other types of crystals in the future?"
- "How do you think temperature affects how quickly the crystals grow?"
- "Can you think of any ways we could improve our rock candy recipe next time?"