

4-H Hands-on Science

Inquiry Card

Sweet Science

Type of Inquiry:

PEOE

Process Skills:

Observing, predicting, explaining, questioning, gathering data, comparing, contrasting.



The Scenario:

In this culinary science experiment, young scientists will make ice cream without an ice cream machine and without a freezer. They will only use 2 Ziploc bags: a small one and a large one. They will also use ice cubes and salt.

Open-Ended Inquiry Questions:

- What if I make this recipe without the salt?
- What if I put more salt or less salt?
- What if I use snow instead of ice cubes?

Possible Independent Variables:

Presence of salt, amount of salt, amount of shaking, snow vs. ice, cream vs. milk, amount of sugar, crushed ice vs. cubed ice.

Instructions:

1. Give the instructions to the young scientists on how to conduct the experiment (youtu.be/N4ztYjFwxmI).
 - Inside the smaller bag, put the ingredients for the ice cream (1/2 cup milk, 1/2 teaspoon vanilla, 1 tablespoon sugar). Inside the larger bag, put 4 cups crushed ice and 4 tablespoons of salt. Seal the small bag and put it inside the larger bag. Seal the large bag. Wearing gloves, shake it for 5 minutes.
2. Let them PREDICT what will happen and EXPLAIN their prediction.
3. Let them prepare the ice cream according to the instructions. Let them write their OBSERVATIONS and EXPLAIN them based on their current knowledge.
4. Brainstorm with the young scientists what they could change for the next cycle of the PEOE.
5. Repeat the cycle by changing only one variable at a time.



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