



STEM Activity Idea:

ZOOM GLUE

Suggested Program Level: Brownie

Stuck with nothing to do? Take a few simple ingredients and make your own glue!

Supplies (1 set for each girl):

- ½ cup skim milk
- 2 tablespoons vinegar
- 3 large paper cups
- 5 paper towels
- Rubber band
- Plastic spoon
- 1 teaspoon baking soda
- 3 tablespoons water

Instructions:

1. Slowly pour the vinegar into the cup with milk. Stir together for 30 seconds to a minute until lumps start to form. The lumps are called curds, and the liquid is called whey.
2. Make a system to separate the curds from the whey. Put a folded paper towel over one of the large paper cups. Push down in the center so it forms a bowl shape. Put a rubber band around the top of the cup to hold the paper towel.
3. Pour the curds and whey into the cup with the paper towel.
4. Use a spoon to scoop the curds onto a clean paper towel.
5. Put another clean paper towel on top of the curds and gently press down. The curds should begin to feel firm and not squishy.
6. Put the curds in the last paper cup. Add 2 teaspoons of water to the curds and stir.
7. Add the baking soda and stir carefully. The bubbles mean that the baking soda and vinegar are reacting and creating carbon dioxide bubbles.
8. Continue to add a little water and stir until it is the glue consistency that you need.

Why?

By mixing milk and vinegar together, the vinegar makes the protein in the milk stick together to form small lumps called curds. When you add baking soda to the curds, the leftover vinegar reacts with the baking soda. Once you add a little water to get to the right consistency, you have glue! Glue adheres to the surfaces of the materials you want to stick together and as it hardens in holds objects together. Glue can be different strengths and can be used in various ways.