

## Classroom Chemistry: Milk Glue

Ever run out of glue just when you need it. Surprisingly you can make a pretty good glue from common kitchen items.

### Materials:

- Measuring cups & spoons
- Food jars (2 empty)
- Empty yogurt cup
- Vinegar
- Baking soda
- Skim milk
- Paper towels
- Popsicle sticks
- Plastic funnel
- Coffee filter
- Stir stick
- Glue



**Procedure:** (Remember to have your parent's permission and have them watch and help you.)

- Pour about 1 cup of skim milk into one of the jars
- Add 1 tablespoon of vinegar to the milk.
- Stir the mixture (for better results heat the mixture in a pot slowly) and allow to sit until you observe separation into two layers.
- Place the funnel in one of the empty jars and insert the coffee filter.
- Filter the milk/vinegar mixture by pouring it through the coffee filter.
- Once the liquid mixture has drained, scrape the solid residue from the filter.
- Use paper towels to dry the solid as much as you can, and return the solid to the empty yogurt cup.
- Add a small amount of baking soda to the solid and mix thoroughly.
- Repeat the process to make more glue.
- Test the resulting glue by gluing two popsicle sticks together.
- Similarly glue two popsicle sticks together using regular glue.
- Leave to dry or cure overnight.
- Once completely dry, test the strength of the glue by pulling the sticks apart and noting how much force it took for the two different glues.

### What's Happening:

How does it work? Adding vinegar to milk produces a solution that separates into two substances: the white substance is called curds and the liquid is called whey. When filtering the milk the curds are separated out which can then be dried with a paper towel to produce a cheese-like substance (curds). The baking soda, when added to the curds, causes them to become sticky glue.

### Extension:

Check the internet for other glue recipes and give them a try. Perhaps look for other useful suggestions that uses common kitchen items for unusual purposes like coke to clean the toilet bowl. Turn your 'uncoveries' into an experiment by testing the unusual item against the real thing.

This activity is based on our Classroom Chemistry kit. The source for this lab is [http://www.education.com/activity/article/Make\\_Homemade\\_Glue/](http://www.education.com/activity/article/Make_Homemade_Glue/). Our teaching kits (described on our website) are loaned out FREE to provide classroom teachers and parents of home schooled children an opportunity to explore Science in interesting ways. Please consider volunteering as a classroom guest speaker or offer your business as a field trip location.

Lorne Cooper, Regional Executive Director

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