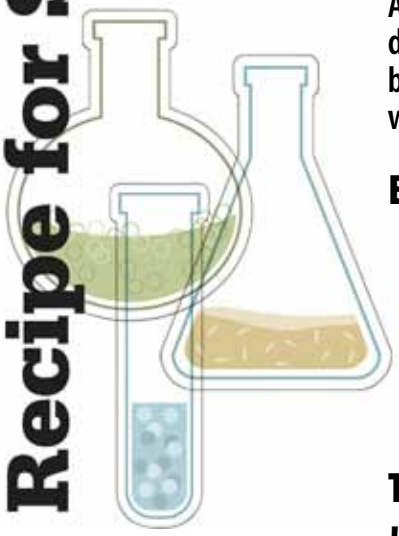
Recipe for Science



Gack

Ingredients:

white glue
Borax (found in the laundry section of the store)
Water
Food coloring (optional)

Procedure:

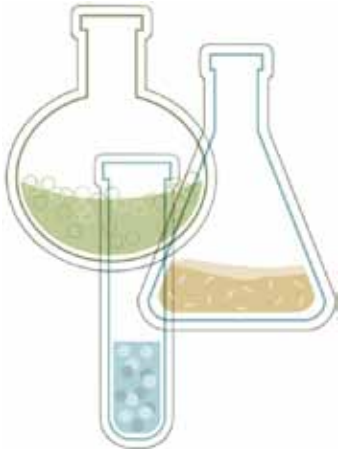
Add borax a teaspoon at a time to a cup of water, stirring briskly until no more borax will dissolve. Pour some glue into a clean cup (add color at this time). Add a small amount of borax solution, stir. While liquid glue remains, continue to add solution and stir. Soon you will find it easier to knead your gack. Now it is ready to experiment.

Experiment: ***What happens if you . . .***

1. roll it into a ball?
2. bounce it?
3. put it into a cup?
4. pour it out of the cup?
5. pull it apart slowly?
6. pull it apart quickly?

Try some experiments of your own!

What do you think? Is it a solid or a liquid? What caused it to change?



What is it?

This stuff is what scientists call a polymer.

White glue is a suspension of polyvinyl acetate (PVA) molecules in water. Normally, as the water evaporates, the PVA molecules stick together and to the stuff being glued together. When we add borax to the PVA suspension, the molecules stick together in spite of the water, trapping the water, and leaving us with a material that exhibits both wet and dry properties.

Polymers are huge molecules, and while most people think of synthetic plastics, natural polymers are all around us in the form of starches, proteins, and DNA.

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