



Silly Putty

Supplies:

1. ¼ Cup Elmer's Glue
2. Food Coloring (optional)
3. ¼ Cup Liquid Starch
4. Cup for mixing
5. Popsicle Stick for Stirring
6. Paper Towels

Directions:

1. In the cup mix the glue and food coloring until blended.
2. Pour the Liquid Starch into the glue solutions.
3. Stir well and let sit for 5 minutes.
4. Pull out the ball of silly putty and wipe off gently with a paper towel.
5. Knead with your hands for 5-10 minutes to finish your silly putty.

You can store your silly putty in a zip lock bag for later.

Why does it work?

To understand how Silly Putty works, you have to take a dive into the concept of fluid chemistry. You probably think of water when you hear the word fluid, but to chemists and physicists, a fluid is any substance that has no fixed shape and yields easily to external pressure. By this definition, gases can be fluids, as can certain solid-type materials.

A key property of fluids is something known as viscosity, which measures how much a fluid resists flow at a certain temperature. Molten glass, for example, has a high viscosity, or resistance to flow. Other viscous materials include honey, molasses and engine oil. Water, on the other hand, has a lower viscosity.

Viscosity varies with temperature. This is true for most fluids -- their viscosity depends only on temperature. Chemists classify such materials as Newtonian fluids in honor of Isaac Newton, who pictured a fluid as a series of layers sliding past each other and reasoned that viscosity is the result of friction between these layers.

Silly Putty is non-Newtonian fluid: Its viscosity depends on both temperature and on the force applied to it. Silly Putty's solid nature resembles rubber, not rock. That's because its main ingredient is polydimethylsiloxane, a material with viscoelastic properties. In other words, over long flow times or at high temperatures, Silly Putty behaves like a highly viscous fluid. But over short flow times or at low temperatures, it behaves like an elastic solid.