Our favorite recipe for science slime

Materials

- Elmer's Glue
- Baking soda
- Re-Nu Contact Solution (Must contain borax/boric acid)
- Food coloring
- Small dixie cups
- Craft sticks

Procedure

1. To a small dixie cup filled ~3/4 full of Elmer's glue mix in ~0.5 tbls of baking soda.
2. Add several drops of food coloring and mix thoroughly.
3. Add ~5mL of contact solution to the cup, observe that the POLYMERIZATION REACTION happens almost immediately. Stir until the slime is pulling away from the sides of the cup.
4. Transfer the slime to your hands, add additional contact solution and squish between your hands until the slime no longer sticks to your hands.
5. Place in a plastic bag with as much of the air pressed out as possible.

Principles

- Adding contact solution (a water/borax solution) to Elmer's glue causes a **CHEMICAL REACTION** between the glue molecules (polyvinylacetate) and the borax molecules ($Na_2B_4O_7$. $10H_2O$) to produce a highly flexible, cross-linked **POLYMER**. Borax in water becomes Borate, which bonds -OH groups in glue together.
- **Polymerization**: The process of reacting monomer molecules together in a chemical reaction to form polymer chains or three-dimensional networks. We are forming a POLYMER of glue strands when we make slime.
- **Non-Newtonian Fluids:** A fluid that does not follow Newton's law of viscosity, i.e. constant viscosity independent of stress. In non-Newtonian fluids, viscosity can change when under force to either more liquid or more solid. FUN FACT: Ketchup becomes runnier when shaken and is thus a non-Newtonian fluid. Our slime will snap when pulled on sharply, but flow slowly through fingers unaided, therefore it is a NON-NEWTONIAN FLUID.