



Activity Guide

Background Knowledge

Slime was first sold as a toy by Mattel in 1976, and rose in popularity with the Nickelodeon game show “Double Dare”. In recent years, slime has only become more popular as social media has granted people of all ages increased access to different recipes and methods of creating this ooey goey substance. Even before it was made by people for fun (and to gross people out!) slime has existed in nature. Can anyone give some examples of slime that wasn’t made on purpose?

Usually when we think about different types of substances, we put them into categories based on their **properties**. Substances like water can exist as a **solid** (frozen), a **liquid** (regular water), and a **gas** (water vapor/steam). But slime is tricky because it doesn’t fit very well into any one of those categories. It doesn’t really keep its shape like a solid does, but it also sticks to itself and has a high **viscosity**, which means that it doesn’t pour easily like a liquid.

Slime is a mystery that scientists (like YOU!) can explore using chemistry. Maybe if you’ve ever made slime before, you noticed that when you sloooooowly pull it apart, it oozes and doesn’t break very easily, but if you quickly break it, it will come apart more easily in bigger chunks. This happens because of the chemical bonds that connect the tiny bits of matter that make up our slime.

Matter, or atoms and molecules, makes up everything in our world, including our eyeballs, the air we breathe, and even slime! The molecules that make up slime are a very specific type of **molecule** that we call **polymers**. The word polymer has two parts in it—“poly” and “mer”. Have you heard of a polygon before? Do you know what the “poly” part means? (Poly means “many”). And then we have the last part “mer”. Mer means a part or a repeating unit. If we put the two parts together, we can figure out that **polymer means many parts**. If you think about a bicycle chain, each little link in that chain is the same

shape and size and they are connected together. Polymers, which make up slime, are similar to that. When we make slime, we are creating a chemical reaction between the ingredients that causes the polymers to get extra stuck together.

Helpful Definitions

Properties: qualities used to describe and tell the difference between things

Solid: state of matter in which the molecules remain in one place; solids keep their shape

Liquid: state of matter in which the molecules can move past one another; liquids take the shape of their container

Gas: state of matter in which the molecules have a lot of energy (heat) and move very quickly; gas molecules will escape from their container if there is no lid

Viscosity: thickness or stickiness of a fluid (more viscous materials don't flow very well)

Matter: substance which takes up space and has volume

Molecule: group of two or more atoms held together by chemical bonds

Polymer: substance made up of long chains of repeating units of molecules

Materials

- Plastic bag
- Paper bowl
- Wooden stir stick
- Food coloring (located in baking soda vial)
- Bottle of Glue (4 oz.)
- Baking soda ($\frac{1}{2}$ Tbsp in small vial)
- Contact solution ($1 \frac{1}{4}$ Tbsp in small container)
- Printed copies of slime recipe

Notes

Preparation

Remove all of the parts from your plastic bag. Take a look at your 3 main ingredients: Glue, Baking Soda, and Contact Solution. Describe the properties of each. Are they similar or different to how you expect your slime to be?

Activity Directions

1. Squeeze the whole bottle of glue into your bowl.
2. Add your vial of food coloring and baking soda. Mix well with your stir stick until all of the color is evenly distributed with the glue.
3. Slowly add in the contact solution, stirring carefully as you go. You might not need all of the contact solution, so only add as much as you need. Adding too much might make your slime too clumpy or too wet.
4. Once it has become a slime-like consistency, remove it from the bowl and knead it with your hands.
5. Use the plastic bag to hold and transport your slime. Make sure it is sealed so that your slime doesn't dry out or leak anywhere!

Activity Follow-up Questions

What did you notice happening after you added each ingredient?

Slime is a type of polymer. Can you remember what a polymer is?

Another type of polymer that we see often is plastic. How might slime and plastic be similar? How are they different?