



WAYNE STATE  
UNIVERSITY

# LESSON PLAN

## ENGINEERING YOUR OWN SLIME

### SUBJECT AREA: CHEMISTRY

**DESCRIPTION:** In this activity, students will explore the polymer chemistry behind the formation of slime with chemical solutions of glue, borax and water. Young chemists can experiment with their slime and think about how this new substance is different from the two chemical solutions with which they began.

**LESSON OBJECTIVE:** Students will investigate some of the interesting chemical properties of slime and understand the cross-linking process between polymer chains that form in the final slime product. They will also understand how chemical reactions occur to form products, and how slime is an example of a polymer.

### MATERIALS/SUPPLIES:

- Clear glue
- Borax
- Water
- Measuring cups
- Plastic cups
- Eye dropper
- Stirring rod (Popsicle sticks work well)
- Food coloring (optional)
- Ziploc bags (optional for slime storage)

### ACTIVITY PROCEDURES:

1. Make a saturated borax solution by adding 1 gram of borax for every 25 mL of water. Stir thoroughly until the borax has completely dissolved.
2. In a disposable plastic cup/pitcher, add 50 mL of glue and 50 mL of water. Stir thoroughly. If desired, add a few drops of food coloring and stir thoroughly. Tip: You may use more or less glue as long as you maintain a 50-to-50 ratio between glue and water.
3. Using an eye dropper, add the borax solution a few drops at a time to the glue-water mixture and stir thoroughly with a stirring rod. The slime will collect on the stirring rod. Continue adding the borax solution until most of the glue-water mixture has turned into a slime consistency. Be careful not to add too much borax solution or the slime will become too stiff. A good rule of thumb is to quit adding the borax solution when there is still a little glue-water mixture left at the bottom of the cup. This way, you will not add too much borax.
4. Remove the slime from the stirring rod with your fingers and work it with your hands until it is no longer sticky. The more you work it with your hands, the nicer its consistency. Store the slime in a Ziploc bag.
5. Consider having your students take it one step further: Have them try to stretch the slime, then have them set the slime on a flat surface. What happens?
6. The excess borax solution can be poured down the drain and the cups disposed of in the trash.

### DISCUSSION AREA AND QUESTIONS:

- What do chemists do?
- What tools do chemists use?
- What chemicals did you use to make the slime?
- What happens when you mix the two liquid chemicals together?
- Does slime bounce?
- Can you stretch, roll or cut slime?

### CLOSING:

In this experiment, we learned that slime is an example of a polymer. A polymer is composed of very large chains of molecules that are composed of repeating units known as monomers. A single polymer molecule may comprise hundreds of thousands of monomers. Think about the different natural polymers in chemistry — such as starch, DNA and some proteins — and how they relate to the slime we created in the experiment.