

- Measure 10 mL of sodium tetraborate (borax) solution into another beaker. Observe the properties of borax.

a) Record your observations in your *Active Chemistry* log.

- Add one drop of food coloring to the sodium tetraborate solution.
- Add the sodium tetraborate solution to the PVA solution while stirring with a wooden stick. Keep stirring until the mixture thickens.

When the mixture has thickened, remove the stick. Place a few paper towels on your desktop and use your hands to remove the thickened mixture.

Mold and stretch the new material while you observe its characteristics.

a) Record your observations in your log.

- Test your new “slime” and see if it behaves more like a solid or more like a liquid. Try holding the slime in your fingers and dangling it downward. Wait for a few minutes to see what happens.

Place your slime back in the beaker and see what happens as it sits for a few minutes.

Try pulling the slime out slowly and see what happens. Now try the same thing but pull quickly.

Roll the slime into a ball and try bouncing it gently on the tabletop.

a) Record all your observations in your log.

- It was easy to label the PVA solution as a solid or a liquid. Similarly, it was easy to label borax. Liquids have very different characteristics from solids. Liquids flow while solids have a rigid shape. Liquids assume the shape of their container

and solids have their own shape. Slime blurred the line between the definitions. Liquids spread out when force is applied, but solids break. Liquids splatter when dropped, while solids may bounce.

- In what ways does your slime behave like a liquid?
 - In what ways does it behave like a solid?
- The PVA molecules are relatively long, slender molecules. The sodium tetraborate molecules are shorter and can form bonds on both ends.
 - Draw a sketch to represent how the substances act in this reaction. Use the model in the diagram to draw PVA molecules alone that can account for it being a liquid. The molecules in a liquid slide past one another easily.
 - Draw sodium tetraborate molecules alone that can account for it being a solid. In a solid the bonds prevent molecules from moving too far from their original positions.
 - Finally, draw the reaction of sodium tetraborate cross-linking the PVA molecules that can account for it being somewhat solid and somewhat liquid. Remember your drawing is just a representation of the molecules.



Safety goggles and a lab apron must be worn at all times in a chemistry lab.

Wash your hands and arms thoroughly after the activity.

Do not inhale or ingest borax!

