



Name \_\_\_\_\_

## *Properties of Matter*

### Purpose:

- 1) Describe physical properties
- 2) Demonstrate that new substances can be made when two or more substances are combined and compare the properties of the new substances to the original substances
- 3) Classify substances by their properties.

**Background Information:** A POLYMER is unique because it has qualities of both a solid *and* a liquid. It can take the shape of its containers like a liquid does, yet you can hold it in your hand and pick it up like a solid. Solid molecules are tight together, liquid molecules spread out and break apart (drops) POLYMER molecules CHAIN themselves together (they can stretch and bend like chains) and that makes them special. Jell-O, rubber bands, plastic soda bottles, sneaker soles, even gum are all forms of polymers.

### Materials:

Disposable cup	White glue	Stirring straw	Cornstarch
Ruler	Borax solution	Liquid laundry starch	Water
Food coloring	Eye dropper	Graduated cylinder	Spoon
Triple beam balance			

### Procedure:

1. Making *Glorax*:
  - a. Use a ruler to measure 1 cm from the bottom of a small cup and make a mark with a marker.
  - b. Pour 1 cm of white glue into your cup.
  - c. Add 7 ml of water to the glue and mix well.
  - d. Add 8 ml of the borax solution to the glue mixture and stir. If there is more liquid in the cup than glorax on the straw, add 4-5 drops of borax solution and keep stirring. Keep adding drops of borax until you get a good glob that isn't too sticky.
  - e. Once the Glorax is formed, remove it from the cup and knead it with your hands for several minutes. It should start to form a nice glob of Glorax after kneading it for a few minutes.
2. Investigate Glorax by performing the following tests:
  - a. Slow Poke Test – Slowly poke your finger into the slime.
  - b. Quick Poke Test – Quickly poke your finger into the slime.
  - c. Slow Pull Test – Slowly pull a piece of slime apart with your hands.
  - d. Quick Pull Test – Quickly pull a piece of slime apart with your hands.
  - e. Blob Test – Roll your slime into a ball and set it on a flat surface.
  - f. Bounce Test – Roll your slime into a ball and bounce it.
3. Record your observations in the data chart.

4. Making *Glurch*:
  - a. Place 1 cm of white glue into the bottom of your cup.
  - b. Add 18 ml of laundry starch and stir with a straw or spoon. Have your partner stir the glue as you add the starch. It should be very sticky!
  - c. Continue adding laundry starch (1-2 drops at a time) until you get a good glob that is just a little bit sticky. Be careful not to add too much or it will be stringy!
  - d. If it does get stringy, work in a little glue to get it back to the sticky stage. You may have to add a drop or two of starch to finish it up.
  - e. Once the Glurch is formed, take from the cup and knead with your hands for several minutes.
  - f. If it is too sticky (stays on your hands rather than in a glob), put it back in the cup and continue adding drops of starch until you get it just right.
5. Investigate Glurch by performing the following tests:
  - a. Slow Poke Test – Slowly poke your finger into the slime.
  - b. Quick Poke Test – Quickly poke your finger into the slime.
  - c. Slow Pull Test – Slowly pull a piece of slime apart with your hands.
  - d. Quick Pull Test – Quickly pull a piece of slime apart with your hands.
  - e. Blob Test – Roll your slime into a ball and set it on a flat surface.
  - f. Bounce Test – Roll your slime into a ball and bounce it.
6. Record your observations in the data chart.
7. Making *Oobleck*:
  - a. Use the triple-beam balance to measure a 20 gram sample of cornstarch.
  - b. Add 15 ml of water to the cornstarch and stir with a straw.
  - c. If your Oobleck is too dry, add more water (a few drops at a time) and stir slowly.
8. Investigate Oobleck by performing the following tests:
  - a. Slow Poke Test – Slowly poke your finger into the slime.
  - b. Quick Poke Test – Quickly poke your finger into the slime.
  - c. Slow Pull Test – Slowly pull a piece of slime apart with your hands.
  - d. Quick Pull Test – Quickly pull a piece of slime apart with your hands.
  - e. Blob Test – Roll your slime into a ball and set it on a flat surface.
  - f. Bounce Test – Roll your slime into a ball and bounce it.
9. Record your observations in the data chart.

Data:

Observations of Properties			
Test	Glorax	Glurch	Oobleck
Slow poke			
Quick poke			
Slow pull			
Quick pull			
Roll into a ball			
Bounce			
Fluidity			
Viscosity			

**Conclusion:**

Use the Venn Diagram to compare the properties of each type of matter.

