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# Playing with Polymers

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## Safety Rules

- (1) Read directions carefully! If you are not sure what to do, ask for help. Do not make up your own recipes!
- (2) Goggles should always be worn when experimenting with chemicals.
- (3) Do not smell directly from the container! If you need to sniff a chemical or slime, hold it several inches away from your face and use your hand to wave fumes towards your nose.
- (4) No eating or drinking during the lab. This also means that you should NOT eat the slime or taste any substance used to make slime! Keep your slime out of reach of small children and pets.
- (5) Do not put the slime where it doesn't belong, such as on clothing, carpeting, or other people!
- (6) Dispose of slime materials properly. All slime must be thrown away in the trash can. Use a dry towel to clean your hands, cup, and plate. **DO NOT put any amount of slime in the sink!**
- (7) Clean up messes immediately! Your lab area and supply box should be clean when you start and clean when you leave.
- (8) Wash your hands before you leave class.
- (9) Behave! No hitting, shoving, or other horseplay is allowed!
- (10) Slime must remain in the classroom! You are not allowed to take it to other classes.

If you do not follow the rules, you will not be allowed to do the experiments and will earn a zero grade for this unit. If you agree to follow these safety rules, sign your name in the shaded box on your worksheet.

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## Oobleck

**Amount: Make one batch and share!**

- 1 - Use a triple-beam balance and a plastic cup to measure a 20 gram sample of cornstarch. Be sure to adjust for the mass of the cup!
- 2 - Add 15 ml of water to the cornstarch and stir with a wooden stick. If your Oobleck is too dry, add more water (a few drops at a time) and stir slowly until you get the right consistency. Your Oobleck should not be too dry, but too much water will make it too runny. If you are having trouble mixing it in a cup, pour it onto your plate and use your fingers to mix in drops of water.
- 3 - Dump your Oobleck out onto a plate. Experiment with the Oobleck and write your observations in the chart.
- 4 - Split your sample in half and put into plastic bags. Use a marker to label with your name and the name of the slime.
- 5 - Use a paper towel to clean your plastic cup and plate as well as your hands. You will need the plate and cup for the other slimes!

Want a cheap stress ball? Pour the Oobleck into a small balloon and tie the end!

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## Gloop

**Amount: Each person can make a batch!**

- 1 - Use a ruler to measure 1 cm from the bottom of a small cup and make a mark with a marker.
  - 2 - Pour 1 cm of white glue into your cup. Add 7 ml of water to the glue and mix well.
  - 3 - Add 8 ml of the borax solution to the glue mixture and stir. If there is more liquid in the cup than blob on the stick, add 4-5 drops of borax solution and keep stirring. Keep adding drops of borax until you get a good blob that isn't too sticky.
  - 4 - Once the Gloop is formed, remove it from the cup and knead it with your hands for several minutes. It should start to form a nice blob of Gloop after kneading it for a few minutes.
  - 5 - Experiment with the Gloop and write your observations in the chart.
  - 6 - Put your Gloop into a plastic bag. Use a marker to label your bag of slime.
  - 7 - Use a paper towel to wipe out your cup and clean your hands. Save the cup for the next slime.
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Need to clean up? Use a dry paper towel to clean the slime out of your cup and off your hands. Do not wash your cup or hands in the sink until you have wiped off all the slime gunk!

## Boogers

**Amount: Make 1 batch and share!**

- 1 - Place 1 cm of white glue into the bottom of your plastic cup.
  - 2 - Add 18 ml of the colored laundry starch and stir with a stick. Have your partner stir the glue as you add the starch. It will be very sticky! Continue adding laundry starch (1-2 drops at a time) until you get a good blob that is just a little sticky. Be careful not to add too much or it will be stringy! 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.
  - 3 - Once the Boogers are formed, remove from the cup and knead with your hands for several minutes. If your Boogers are too sticky (slime stays on your hands rather than in a blob), put them back in the cup and continue adding drops of starch until you get it just right.
  - 4 - Experiment with your Boogers and write your observations in the chart.
  - 5 - Split your sample in half and put into plastic bags. Use a marker to label your bag of slime.
  - 6 - Use a paper towel to wipe out your cup and clean your hands. Save the cup for the next slime.
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## Goobers

**Amount: Make one batch and share!**

- 1 - Measure 40 mL of water into your plastic cup. Add 1 drop of green food coloring and 2 drops of yellow. (If you want really disgusting slime, add 1 drop of red food coloring!)
  - 2 - Use a triple-beam balance and a piece of wax paper to measure 0.6 grams of guar gum. Have your partner stir the water as you add the guar gum to keep it from clumping. If it does clump, break up the clumps with the stick and stir until dissolved. The mixture will thicken slightly within a few minutes. Do not do the next step until the mixture has thickened!
  - 3 - Add 12 mL of borax solution and stir. The mixture should “gel” in a few minutes. If not, continue adding borax solution (a few drops at a time) until the Goobers starts to hold together. You should be able to stick your finger in the Goobers and not have a lot of it stick to your finger.
  - 4 - Experiment with the Goobers and write your observations in the chart. It might help to use a plate so your Goobers don't get all over the place!
  - 5 - Split your sample in half and put into plastic bags. Use a marker to label your bag of slime.
  - 6 - Use a paper towel to wipe out your cup and clean your hands. Save the cup for the next slime.
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## Super Slime

**Amount: Each person can make a batch!**

- 1 - Place 10 ml of PVA solution into your plastic cup.
  - 2 - Add 2 ml of a colored Borax solution (you pick the color) and stir. If your slime is runny, add a little more (1-2 drops at a time) of the borax solution and stir again.  
WARNING - If you add too much borax solution, your slime will get thick and crumbly.
  - 3 - Once the Super Slime is formed, remove from the cup and knead with your hands for several minutes to get it to the right slime consistency.
  - 4 - Experiment with the Super Slime and write your observations in the chart.
  - 5 - Put your Super Slime into a plastic bag. Use a marker to label your bag of slime.
  - 6 - Use a paper towel to wipe out your cup and clean your hands.
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## What else can you do with slime?

Want to make more slime?  
How could you change the slime recipes?  
Have an idea for a new recipe?

**Write up your experiment and have it approved by your teacher!**  
**You should not try any experiments without approval from your teacher!**

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Most of the slime will keep for 3-4 days. After your slime goes bad, throw it away in the trash! Do not dump in a sink!