Creating Your Own "OOBLECK" (i.e., a Non-Newtonian Fluid)

Key concepts: Liquids and solids, Viscosity, Pressure

The Oobleck mixture isn't your typical liquid—or solid. The cornstarch-and-water mixture creates a fluid that acts more like quicksand than water: applying force (squeezing or tapping it) causes it to become thicker. Other, more familiar substances change states (from solids to liquids to gases) when we change the temperature, such as freezing water into ice or boiling it away into steam. But this simple mixture shows how changes in pressure, instead of temperature, can change the properties of some materials. *(Credit: National Science Education Standards: Properties of object and materials)*

Materials

- 1 cup of water
- 1 to 2 cups of cornstarch
- Mixing bowl
- Food coloring (optional)

Preparation

- Pour one cup of cornstarch into the mixing bowl, and dip your hands into it. Can you feel how smooth the powder is? It's made up of super-fine particles.

- Now pour the water in, mixing slowly as you go. Keep adding more water until the mixture becomes thick (and hardens when you tap on it). Add more corn-starch if it gets too runny and more water if it becomes too thin.

- Add a few drops of food coloring if desired. *(If you want to turn your Oobleck another hue, it's easier to add the coloring to the water before you mix it with the cornstarch.)*

Procedure

Roll up your sleeves and prepare to get messy!

- Place both hands into the bowl slowly and then quickly – what happens?
- Hold a handful in your open palm—what happens?
- Try squeezing it in your fist or rolling it between your hands—how does it behave differently?
- Move your fingers through the mixture slowly then, try moving them faster.

Oobleck is non-toxic, but please use caution when doing any science activity. Be careful not to get it in your eyes, and wash your hands after handling the Oobleck.

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