



# Science Experiment: Making Ooblek

## Project: Food Science, Any project with chemistry

### Introduction:

Oooh What???? It's an oobleck!! A non-Newtonian Fluid

Oobleck is considered a non-Newtonian fluid. It is a substance that exhibits properties of both a solid and a liquid. It is made with a mixture of cornstarch and water. Food coloring can be added for fun.

### What is Non-Newtonian fluid?

A non-Newtonian fluid is a fluid whose viscosity is variable based on applied stress or force. The most common everyday example of a non-Newtonian fluid is cornstarch dissolved in water. Behavior of Newtonian fluids like water can be described exclusively by temperature and pressure. However, the physical behavior of non-Newtonian fluid depends on the forces acting on it from second to second.

### Interesting properties of Non-Newtonian fluids

If you punch a bucket full of non-Newtonian fluid such as cornstarch, the stress introduced by the incoming force causes the atoms in the fluid to rearrange such that it behaves like a solid. Your hand will not go through. If you shove your hand into the fluid slowly, however, it will penetrate successfully. If you pull your hand out abruptly, it will again behave like a solid, and you can literally pull a bucket of the fluid out of its container in this way. Non-Newtonian fluids help us understand the wide variety of fluids that exist in the physical world.

### Materials:

1/3 cup water

Food coloring

1 cup cornstarch

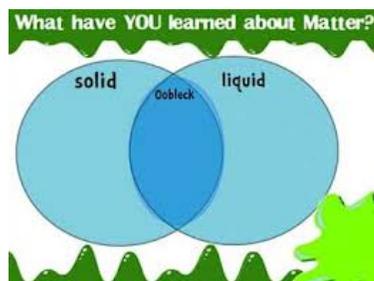
Bowls

Mixing spoons

Airtight container or Ziploc bag

### Procedure:

Pour cornstarch in a mixing bowl or Ziploc bag. Add a few drops of food coloring to your water. Slowly add water and mix until goop becomes thick. Use your senses to record observations of what type of matter is made from this mixture. Store in an airtight container.



### Questions to Ask:

1. What are some properties of solids, liquids and gases?
2. What are some physical properties of Oobleck?
3. What types of changes took place when you made Oobleck?