

Making Oobleck at Home: Fun with Physics!

Key Information:

- Everyday materials generally fit into one of three states of matter: Solid, Liquid, Gas
 - Solid – Definite shape and volume; rigid; not easily compressible; does not flow easily
 - Liquid – No definite shape, but definite volume; non easily compressible; flows easily
 - Gas – No definite shape or volume; assumes the shape and volume of the container it is in; compressible; flows easily
- Sir Isaac Newton proposed that fluids flow at a predictable, and constant rate. Many fluids, such as liquid water, behave this way. Oobleck does not behave this way.
- Oobleck is a non-Newtonian fluid that has properties of both liquids and solids. This means that it acts like a liquid when being poured, but like a solid when a force is acting on it.
 - Non-Newtonian fluids respond differently depending on how quickly you try to move them. Non-Newtonian fluids act as liquids when moving slowly but like a solid when moving quickly.
- Oobleck gets its name from *Bartholomew and the Oobleck* by Dr. Seuss.
- Other common non-Newtonian fluids include, ketchup, mayonnaise, and jelly. What other non-Newtonian fluids can you find around your home?

Source:

- Phases of Matter & Oobleck (Jim Cronin – DMNS Educator/Performer):
<https://youtu.be/Q6qQAtvt-A>

Age: Grades 4-6

Prep (Time): 10 minutes

Activity Time: 30-60 minutes

Prep: Gather materials to do the activity.

Materials:

Item:	Quantity:
Water	1 cup
Corn Starch	1.5-2 cups
Food Coloring (Optional)	A few drops
Large Bowl (Variable)	1
Mixing Spoon (Variable)	1

4 Cup Container (Variable)	1
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Steps:

- 1) Add water to the bowl.
- 2) Add the corn starch in small amounts to the bowl. Begin mixing with the mixing spoon and eventually you may use your hand.
- 3) Continue mixing until the consistency of the Oobleck reaches a consistency that is both liquid when poured but also solid when grabbed. It should be a gooey consistency, not powdery and not wet in the sense that it will splash when hit.
- 4) Add food coloring to the Oobleck and thoroughly mix with your hand.
- 5) Play with your Oobleck! See Suggested Activities below.
- 6) Store your Oobleck in an airtight container to save for later!

Suggested Activities:

- Try stirring the Oobleck. Stir quickly, it should act like a solid and resist. Stir slowly, it should act like a liquid and give way.
- Grab a handful of Oobleck, squeeze it, and let it flow out of your fingers.
- Slowly dip your hand into the Oobleck (It should act like a liquid).
- Punch the Oobleck (It should feel solid).
- Shake your Oobleck in a container.
- Compare Oobleck to solid water (ice) and liquid water.
- Design other experiments to test how Oobleck behaves like a solid or a liquid, record your findings!

Photo:

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Igniting Inspiration

