



Sensory Play with Oobleck

Activity • Kindergarten–Grade 3

Create a slippery and gooey substance made from cornstarch and water

About the Author

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Becky is an educator and the Lead Digital Skills teacher at the Lindsay Pinnguaq Makerspace. She is passionate about developing an intrinsic motivation for learning within every student she meets. Becky graduated from the University of the Pacific with a Bachelors of Arts in Liberal Studies with a Major in Human Development and Special Education, and a Masters of Arts Degree in Curriculum and Instruction. Prior to beginning her role as an educator for Pinnguaq, she taught grades sixth through eighth in a Montessori school structure. She also spent five years teaching a range of grades from preschool to eighth grade in Bangkok.

Overview

We are going to do a fun science experiment today that will create a slippery and gooey substance made from cornstarch and water called Oobleck. This substance gets its name from a storybook by Dr. Seuss called *Bartholemew and the Oobleck*, where a king has his magicians create a sticky, gooey, green oobleck that falls from the sky and causes a bunch of problems all over the kingdom! We will explore how and why Oobleck acts like a solid when you squeeze it in your hand, but acts like a liquid and oozes back through your fingers when you release it!

Background Information

All of the things around us are made up of matter. Matter comes in three distinct states: gases, liquids, and solids. In this activity, we will be exploring solids, liquids, and a substance that acts like both! Solids have a definite shape and size, like how a piece of Lego does not change its shape or size when you touch or move it. Liquids, like water, have a definite size but do not have a definite shape and if you touch or move them from one container to another, they will

change their shape to fit the new container. Oobleck is called a non-Newtonian fluid because it does not follow the rules of Newtonian fluids, like water, oil, or milk. Newtonian fluids have a constant viscosity (thickness) that does not change when you add pressure to them. Oobleck acts like both a solid and a liquid depending on the amount of pressure that is added! When you add pressure to the Oobleck it becomes thicker and begins to feel like a solid because you are squeezing out the water from between the cornstarch molecules and they lock together to act like a solid. When you release the pressure from the Oobleck, the cornstarch pieces can move around and flow with the water, becoming a liquid again. Other examples of non-Newtonian fluids are ketchup, quicksand, honey, and toothpaste!

Materials

- Tablespoon
- Spatula
- Measuring cups (1 cup, ½ cup)
- 1.5 cups of cornstarch
- 1 cup of water
- Small bowl (for holding the cup)
- Large mixing bowl
- Wax paper, newspaper, or cardboard
- Food coloring (optional)



Step by Step Instructions

Read *Bartholemew and the Oobleck!* (Optional)

1. YouTube Video: <https://www.youtube.com/watch?v=8RqzaouDFLM&t=38s>
(Mr. Paulson Reads, “Bartholemew and the Oobleck by Dr. Seuss”, YouTube Video, 22:15, March 13, 2020)

Make Your Oobleck!

2. This experiment is a messy one, so tape a sheet of wax paper, newspaper, or cardboard onto the top of your work surface and then place your large mixing bowl on top. Now you are ready to get messy with science!



3. Measure 1 ½ cups of cornstarch and pour it into your mixing bowl.



4. Measure 1 cup of water and pour it into a separate bowl first (you can add food colouring into the bowl of water if you'd like to add some colour to your Oobleck). Then slowly add water to your cornstarch mixture using a tablespoon. Keep mixing the substance with a spatula as you add the water.



5. Once your mixture begins to turn into a thick paste, it will be too hard to mix with a spatula so get messy and keep mixing it with your hands!



6. Now you are ready to explore how your oobleck is both a liquid and a solid by playing with it! Squash, poke, punch, shake, and roll the oobleck around with your hands.



Experiment With Your Oobleck!

Here are a few things you can do to explore how your oobleck acts like both a solid and a liquid!

- Shake the Oobleck in the bowl and observe how it acts like a liquid. Then squeeze it in your hands and it will start to feel like a solid. When you slowly release your hand, the Oobleck will lose its solid shape and ooze between your fingers.
- Try poking the Oobleck quickly and see how your finger will bounce off while it acts like a solid! Now slowly poke the Oobleck and your finger will easily sink to the bottom!
- Let your hand sink to the bottom of the bowl and then observe what happens when you try to pull your hand out quickly, and then slowly.
- Take a handful of the Oobleck and roll it into a ball and then release the ball in your hand. Will the oobleck stay in a ball form, or will it turn back to a liquid?

Play a Hide & Seek Sensory Game with Oobleck!

This is a fun sensory game to play with your oobleck that will build fine motor skills as you play and explore with science!

1. Look around your house for small figurines and toys that are solid.
2. Place the toys on the table first and get a good look at all of them, describe what the toys look like and what features you could feel with your hands (e.g. Does your toy have a head, arms, and legs? Is your toy square or round? Does the toy have pointy edges?).
3. Cover your eyes as you, or your friend or a parent places the toys into the oobleck.
4. Now it is time to go searching! With your eyes still closed, place your hand into the oobleck and find all of the toys without looking! Try to identify the item before you pull it out of the oobleck!

Follow Up

Personalize your oobleck by adding glitter, beads, and food coloring!

Post a picture or video of your exploration with oobleck to our Pinnguaq Facebook page! We would love to see you having fun with science and the creative ways you explored how oobleck acts as both a solid and a liquid!

Useful Resources

- Oobleck and Non-Newtonian Fluids: Crash Course Kids #46.1
<https://www.youtube.com/watch?v=Fnd-2jetT1w&feature=youtu.be>
- What Kind of Liquid Lets You Run Across Its Surface, Street Science
<https://www.youtube.com/watch?v=JJfppydyGHw>
- The Incredible Physics of Ants, ScienceTake, The New York Times
<https://www.youtube.com/watch?v=opHsaJ1hxuc>