

Cornstarch Monsters

AT A GLANCE:

Why is it so hard to get out of quicksand? Is it a solid? Is it a liquid? Can it be both? In this activity, you will make a substance that is similar to quicksand—but much more fun. Play around with it and find out how it acts differently from a normal liquid and a normal solid.

STUDENTS WILL BE ABLE TO:

Demonstrate the process of science by posing questions and investigation phenomena through language, methods and instruments of science.

BACKGROUND INFORMATION:

Oobleck is a classic science experiment that's perfect for entertaining both kids and adults. If you haven't seen it in action it's very fascinating stuff and before too long you'll have your hands covered with it, happily making a mess that can be washed away with water. Oobleck is a non-newtonian fluid. That is, it acts like a liquid when being poured, but like a solid when a force is acting on it. You can grab it and then it will ooze out of your hands. Make enough Oobleck and you can even walk on it!

PRINCIPLES:

Non newtonion fluid is a solid when met with stress, but a liquid when held in your hand.
Key Concepts: Liquids and solids, Viscosity, Pressure, Sound Waves

DETAILED EXPLANATION:

Why is it the lower frequency made the cornstarch move more than the high frequency? A "Hertz" is a measure of how many cycles (like a vibration) there are in a second. The high frequency has lots of vibrations, but there is not enough motion in the speaker to vibrate the cornstarch liquid.

MATERIALS:

- Water
- Cornstarch
- Speaker
- Receiver
- I-pod with music containing different levels of bass or tone generator
<http://onlinetonegenerator.com/>
- Bowl
- Plastic bag or plastic wrap
- Paper towels/wipes

PROCEDURE:

- Connect the speaker to the receiver
- Mix cornstarch and water in bowl to make oobleck (should be the consistency of honey)
- Observe the oobleck, notice it is solid if you push on it, yet slip your fingers in and it will be liquid.
- Compare to a bowl of spaghetti noodles. If you push on them they seem solid, but you can slide your fingers into a bowl of spaghetti, oobleck has particles similar to spaghetti noodles.
- Try to roll it in a ball then stop and watch it turn liquid again,
- Cover speaker with plastic and pour some of the oobleck into the center.
- Turn on a song and watch as the oobleck becomes a solid when met with stress, the sound vibrations. (IT WILL BE LOUD)

TRY THIS:

- Try with the tone generator from online, make a prediction as to what type of sound will make the best monster.

