



Viscosity of Oobleck

Leading question:

- How would you describe the difference between honey and water?
- What experiment could you do to demonstrate this difference?

What to do:

1. Arrange the cards with the names of liquids in order of "thickness".
2. Use the glass tubes containing a metal ball in these liquids to test your prediction.
 - Describe your results.
 - Which liquid do you think would be the most difficult to pour?
 - What do you think might cause this?
3. Experiment with the Oobleck.
 - a. Stir the mixture in a dish.
 - b. Poke it with your finger.
 - c. Pour a little on the table.
 - Describe the behavior of this strange material.

Summary:

We use the word **viscosity** to describe a material's resistance to flow, or how "**thick**" it is. The thickness depends on how much the particles of the liquid stick together. **Oobleck** is not really a liquid. It is a mixture of powder and water that changes viscosity when pressure or force is applied to it, causing it to behave more like a solid. We call it a **Non-Newtonian fluid**, it can have characteristics of both liquid and solid.



Viscosity of Oobleck

(Guide)

Leading question:

- How would you describe the difference between honey and water?
- What experiment could you do to demonstrate this difference?

Listen: Let students express their ideas; ask them why. They will learn by doing.

What to do:

1. Arrange the cards with the names of liquids in order of "thickness".
2. Use the glass tubes containing a metal ball in these liquids to test your prediction.
 - Describe your results.
 - Which liquid do you think would be the most difficult to pour?
 - What do you think might cause this?

Listen: Let students explain their ideas. The thickness (viscosity) of liquids depends on the attractions between the particles (molecules) of the liquid.

3. Experiment with the Oobleck.
 - a. Stir the mixture in a dish.
 - b. Poke it with your finger.
 - c. Pour a little on the table.
 - Describe the behavior of this strange material.

Listen: ask students to explain or describe what is happening as they experiment with the Oobleck

Guide them to: try squeezing and pushing the material. Stir the material slowly and then quickly. Try pouring it from one cup to another.

Tell: students they can try to pick up some Oobleck. What do they have to do to do this?

Summary:

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Suggestions

Materials:

- Five screw cap tubes (dish soap, water, honey, corn syrup, cooking oil) with lead shot (we use fishing lure weights)
- Corn starch
- Water
- Plastic bowls for mixing
- Spoon or stirring stick