

Lesson Plan - Density

We need to collect data to measure how effective our lesson is. Here is one way:

1. Distribute the **Knowledge Test** to all participants and emphasize to please not guess at the answers. Emphasize it's OK to mark "I Don't Know" since we are all here to learn more about this topic
2. Gather the completed tests and mark them all with a "1" to indicate they are the first set of tests
3. Go over the **Fun Facts** (see page 2) prior to the video. Mention these **Fun Facts** will also be in the video
4. Play the video and pause on the **Fun Facts** if you want to (repetition is the key to learning!)
5. Distribute the **Knowledge Test** and mark them all with a "2" to indicate they are the second set of tests

Guide to doing the experiment:

1. Using a wide-mouth tall glass, or beaker will make it easier to deposit the layers of liquids
2. The liquids must be deposited in sequence, starting with honey, then corn syrup, maple syrup, dish soap, rubbing alcohol, and lamp oil.
3. Be very careful with the maple syrup and place the layer gently on the corn syrup. It is easy to have it want to blend with the corn syrup.
4. It takes some practice to effectively use the turkey baster and as the liquids become less and less dense, it becomes more difficult. Best first-time results would be to use the medicine dropper beginning with the maple syrup. At a minimum, we recommend switching to a medicine dropper for the last 2 liquids.
5. The lamp oil does not evaporate as quickly as alcohol so it make a nice, colorful "seal" as the final layer

Supplies/Tools Needed:

- Measuring Cup: 1/4 Cup or 1/3 Cup
- Tall Glass Container
- Turkey Baster
- Medicine Dropper
- Mixing spoon (if you choose to use food coloring)

Materials Needed:

- Honey
- Corn Syrup (add food coloring if you want)
- Maple Syrup (100% real)
- Dish Soap
- Rubbing Alcohol
- Lamp Oil

Fun Facts Density

- The density of an object is determined by two things: Mass and Volume
- Understanding density can help you predict whether or not something will float
- Density changes with temperature
- Low density liquids will float on higher density liquids
- Examples of relatively High and Low Density materials:
 - High Density: Metal, Glass
 - Low Density: Foam, Oil, Wood

Knowledge Test: Density

1. The density of an object is determined by three (3) things: Mass, Volume and Weight.
 - a. True
 - b. False
 - c. I don't know
2. Knowing the density of an object will help you to predict if it will float on water.
 - a. True
 - b. False
 - c. I don't know
3. Density is stable and does not change if the temperature changes.
 - a. True
 - b. False
 - c. I don't know
4. Low density liquids will float on higher density liquids.
 - a. True
 - b. False
 - c. I don't know
5. Examples of low density materials are Foam, Oil and Wood.
 - a. True
 - b. False
 - c. I don't know

Answer Key: 1B, 2A, 3B, 4A, 5A