

## Density Totem

Section: Properties of Matter; Topic: Density

Name: \_\_\_\_\_

Date: \_\_\_\_\_

### Inquiry Question

Write down what you'll be learning today! What do you want to understand?

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### Procedure

#### Phase 1

1. Add 1/3 cup of water to each of two clear plastic cups. Add two drops of blue food coloring to each cup and stir.
2. Add 1/3 cup of light corn syrup to the first cup of water and 1/3 cup of vegetable oil to the second cup of water. Record your observations.
3. Write a prediction about what will happen if the contents of both cups were combined.

#### Phase 2

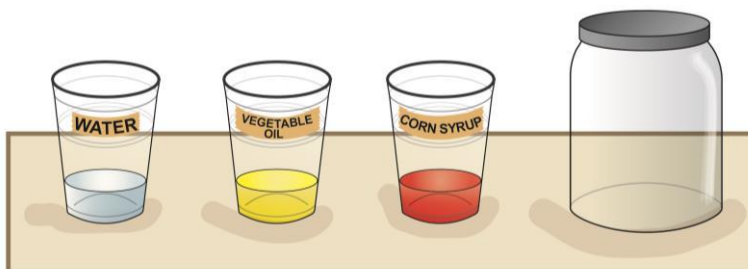
4. Add 1/3 cup vegetable oil to a third cup.
5. In a fourth cup, add 1/3 cup of light corn syrup and two drops of red food coloring, then stir until combined.
6. Add the corn syrup mixture to the oil. Observe and record the results.

#### Phase 3

7. Obtain three new cups. Pour 1/3 cup of vegetable oil into one, 1/3 cup of light corn syrup into the second, and 1/3 cup of water into the third.
8. Add two drops of red food coloring to the cup of corn syrup and stir until combined.
9. Add two drops of blue food coloring to the cup of water and stir until combined.
10. Based on the results from phase 1 and 2, predict which liquid will be on the bottom, in the middle, and on top if all three liquids are put together.
11. In a 16-oz container, first pour the sample that you think will be on the bottom. Second, carefully add the sample that you think will remain in the middle. (If you are having trouble getting the liquids to layer, try pouring the sample over the back of a spoon as it goes into the cup. This will slow the speed of the liquid.) Next, pour in the liquid that you think will rest on top of the other samples. Observe and record results. Did you layer them correctly?

#### Phase 4

12. Make a prediction: what will happen if you mix the three liquids in the container? Secure the lid on the 16-oz container and shake. What do you notice as the liquids mix and settle?



## Observations, Data Collection & Analysis

Write down your observations below.

- Record your observations and draw and label your “density totems” from each phase.

	Cup 1: Water & Corn Syrup	Cup 2: Water & Vegetable Oil	Cup 1: Corn Syrup & Vegetable Oil	Container: Water, Corn Syrup, and Vegetable Oil
Record the order of the substances in the cup or container.	<p><b>Top:</b></p> <p><b>Bottom:</b></p>	<p><b>Top:</b></p> <p><b>Bottom:</b></p>	<p><b>Top:</b></p> <p><b>Bottom:</b></p>	<p><b>Top:</b></p> <p><b>Bottom:</b></p>
Which of the substances is the densest?				

- What happens when you add corn syrup to the first cup of water?

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- What happens when you add vegetable oil to the second cup of water?

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4. Predict what will happen when corn syrup and vegetable oil are added together in a plastic cup? Explain.

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5. Was your prediction correct? What happens when you add corn syrup to the cup of vegetable oil?

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6. Which substance is the most dense overall? Which is the least dense?

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