

Why do some things float?

Grade level:

4th-5th grade

Material:

- 3 clear cups
- spoon
- Water
- Light corn syrup
- Cooking oil (vegetable or corn)
- Food coloring (if necessary add to liquids to see it better)
- Rock
- Grapes
- Pieces of plastic from water bottle
- A larger container that can hold the amounts in the 3 cups

Introduction:

Density tells how much an object weighs (its mass) per volume, or space. It varies for different objects. The bigger this value is, the denser the material is. An object will float if it is less dense than the liquid it is in. This also explains how some liquids with different densities will not mix but will separate out into different layers.

Instructions:

1. Fill each three clear cup with the different liquids: water, light corn syrup, and cooking oil
2. Do you think a grape will sink or float in syrup? How about in water? How about in oil?
3. Drop one grape into the cup of water, one grape into the cup of syrup, and one grape into the cup of oil. Write down which liquid the grape floats in and which liquid the grape sinks in.
4. Which liquid(s) do you think the piece of plastic will sink or float in?
5. Drop a piece of plastic into each liquid. Record your observations.
6. Which liquid(s) do you think a penny will sink or float in?
7. Drop a penny into each liquid. Record what you observe.
8. Remove the rock, grape, and plastic from each liquid with a spoon.
9. Which liquid do you think is the densest and least dense?
10. Combine three liquids into one larger container one at a time. Wait a few minutes. Record observations and order the liquids by density.

Explanation:

Density is a factor that makes things float. The three liquids float on top of one another because they have different densities. The syrup is the densest because it is at the bottom. The water has a density between the syrup and oil because it is between the syrup and oil. The oil is the least dense because it floats on top of both the syrup and water.

Can you use density to explain why or why not the rock, grape, and plastic did or did not float in some of the liquids?

Reference:

<http://pbskids.org/zoom/activities/sci/whatsmoredense.html>

Name: _____

Does it float?

First make a prediction about each thing and what liquids it will or will not float in.
Put a \checkmark in the box if you think it will float. Put an X if you think it will not float.
Then try it and write what actually happens.

		Grape	Plastic	Rock
Water	<i>Prediction</i>			
	<i>Result</i>			
Syrup	<i>Prediction</i>			
	<i>Result</i>			
Oil	<i>Prediction</i>			
	<i>Result</i>			

Density of liquids

Draw and label what happens to the liquids.