

## 5<sup>th</sup> Grade - Lesson 2.5

### Density of Liquids

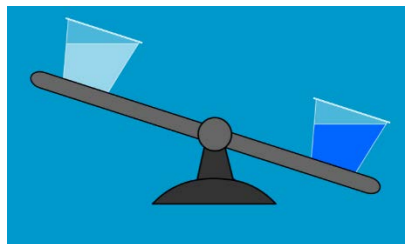
#### Student Reading

#### Liquids Can Float or Sink in Water

People usually think of solid objects as sinking or floating in water, but liquids can also sink or float. The rules about density that apply to solids sinking and floating also apply to liquids.

If you compare the same amount of two different liquids, the one that weighs more is more dense. So if you weigh the same amount of corn syrup and water, you can tell which one is more dense or less dense than the other.

Since the corn syrup weighs more than the same amount of water, corn syrup is more dense than water. Since corn syrup is more dense than water, it sinks in water.



If you weigh the same amount of vegetable oil and water, you'll see that the vegetable oil weighs less. Since vegetable oil weighs less than the same amount of water, oil is less dense than water and floats in water.



#### Floating is Easier in Salt Water

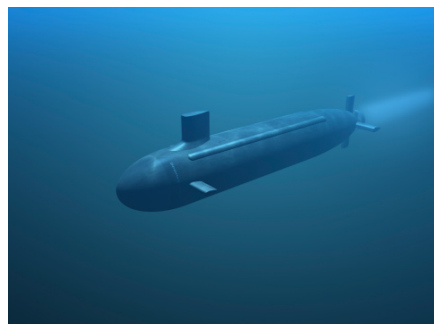
Salt water is more dense than fresh water. You already know that if an object is less dense than water, the object will float in water. But it's also true that because salt water is even more dense than fresh water, an object that floats in water will float more easily and higher in salt water than in fresh water.

This person is floating in the Dead Sea, which is a very salty lake in the Middle East. The Dead Sea is more than eight times as salty as the ocean, so the water is very dense and things float in it easily.



Man Floating in Dead Sea

#### Submarines can Sink *and* Float



Submarine Diving Deeper

Certain objects like submarines sometimes need to sink and sometimes need to float. They do this by changing how heavy they are. If the submarine needs to sink, it brings water from the ocean into special tanks which makes the submarine heavier. Since its size hasn't changed, it is now heavier for its size so it is more dense and sinks.

If the submarine needs to come up to the surface, it pushes the water out and becomes lighter for its size and less dense so it floats. It can even take in just the right amount of water so it doesn't float and it doesn't sink all the way down. It can stay right at the level it needs to be as it moves through the water beneath the surface.