

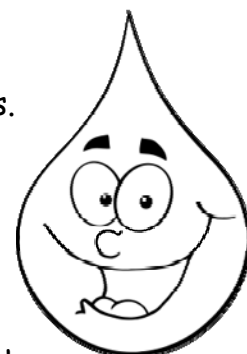
Name _____

Date _____

What Determines if Something Sinks or Floats?

Density is the only thing affecting whether something floats or sinks. If an object has a higher density than the fluid it is in (fluid can mean liquid or gas), it will sink. If it has a lower density, it will float.

Density is determined by an object's mass and volume. If two objects take up the same volume, but one has more mass, then it also has a higher density.



You might be tempted to say that whether or not something floats depends on how heavy it is. However, you would only be partially right. Think about ships—they can weigh tens of thousands of tons, but still float. That is because floating or sinking is not just about how heavy something is. It is about how heavy something is compared to the same amount (volume) of water. This ratio of an object's mass to its volume is known as **density**. Density is what really determines whether something will sink or float.

Therefore, we say that if something's density is lesser than the water's density, then it will float on water's surface, otherwise it will sink.

The **density** of a material is its mass per unit volume. The symbol most often used for density is ρ . In some cases, density is also defined as its weight per unit volume, although this quantity is more properly called specific weight.



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Sinks or Floats Multiple Choice Questions

1. What determines if an object will sink or float?
 - a) Mass of that object
 - b) Volume of that object
 - c) Density of that object
 - d) Weight of that object

2. If the density of the object is lesser than density of the water, what will happen?
 - a) That object will Sink
 - b) That object will float on water surface
 - c) Given information is not sufficient
 - d) None of the above

3. Density is determined by an object's
 - a) Mass
 - b) Volume
 - c) Both a and b options
 - d) Height of the object

4. The ratio of an object's mass to its volume is known as density. True or False?
 - a) True
 - b) False



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Sinks or Floats

Answers

1. **c**
2. **b**
3. **c**
4. **a**

Explanation of Answers

1. Density is the only thing affecting whether something floats or sinks. If an object has a higher density than the fluid it is in (fluid can mean liquid or gas), it will sink. If it has a lower density, it will float.
2. If something's density is lesser than the water's density, then it will float on water's surface, otherwise it will sink.
3. Density of an object is dependent on an object's mass and volume. i.e. it is the ratio of mass and volume.
4. True statement.



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Sinks or Floats Writing Activity

1. What is density?

2. What determines if an object will float or sink?

3. If two objects are put in a tub of water, is it true that the heavier one will always sink? Elaborate. (HINT : Think in terms of density)

