

Grade 5 - Lesson 2.4

Density and Sinking and Floating

Student Reading

Sometimes it's pretty easy to tell if a certain object will sink or float. An object like a brick or a stone, which seems heavy for its size, feels like it should sink, and it does sink. Something like a Styrofoam ball, which seems light for its size, feels like it should float, and it does float. This property of how heavy an object is compared to its size is called the *density* of the object.



Comparing the Density of Different Materials

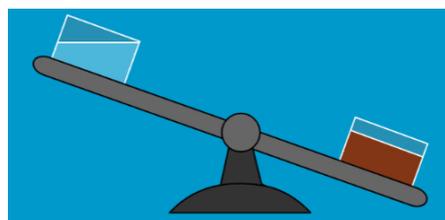
If you compare the weight of two objects of the same size and shape (the same volume), the one that weighs more is more dense. So, if you weigh a piece of clay and a piece of wood that are the same size and shape, the clay weighs more than the wood, so the clay is more *dense* than the wood.



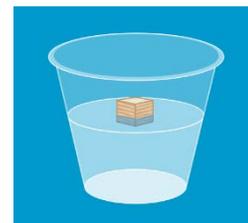
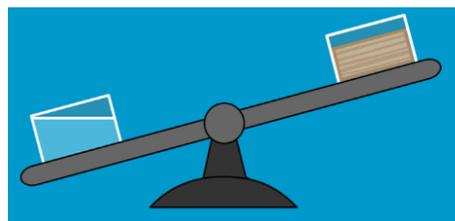
Density and Sink or Float

Just knowing that clay is more dense than wood doesn't tell you whether clay or wood will sink or float in water. To know this, you have to compare the density of these materials to the density of water. To do this, you could compare the weight of the clay and wood to the weight of the same volume of water.

Since the clay weighs more than the same volume of water, the clay is more dense than water and sinks.



Since the wood weighs less than the same volume of water, the wood is less dense than water and floats.



Density is a Characteristic Property of the Material

When it comes to density and sinking and floating, if a whole stone sinks, then half of the same stone will sink, and so will a quarter of that stone. The same is true with something that floats, such as wood. Even if you had a piece of wood that was 100 times as big as the small sample we've been talking about, it would still float. This is because density is a property of the material itself. It does not depend on the amount of material.