

**Safety:** Wear safety glasses or goggles and be sure to follow all safety instructions given by your teacher. Wash your hands after completing the activity.

## ACTIVITY

### Question to investigate:

If an object or substance sinks in water and you make it smaller, will it float?

### Materials

- Clear plastic container of water
- Clay ball (about the size of a marble)

### Procedure

1. Place the ball of clay in the water to see if it floats or sinks.
2. Break off  $\frac{1}{2}$  the original clay ball, form it into a ball and place it in the water. Does it float or sink?
3. Break off another  $\frac{1}{2}$  of the smaller piece and test if it floats or sinks.
4. Repeat this process two more times to make even smaller balls of clay. Test to see if the smaller balls of clay float or sink in water.



## WHAT DID YOU OBSERVE?

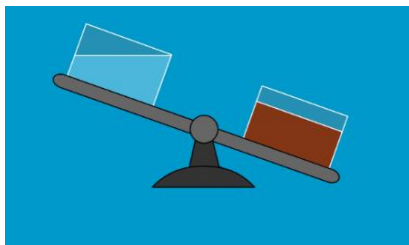
1. What happened when you put smaller and smaller pieces of clay in the water? Did they sink or float?

**When we made the clay pieces smaller, they still sank in the water.**

2. Is clay more dense or less dense than water?

**Since the clay sinks in water, clay is more dense than water.**

## EXPLAIN IT WITH ATOMS & MOLECULES



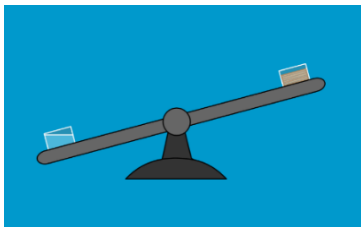
3. You saw an animation in which equal sizes or volumes of clay and water were weighed. No matter how small the amount of clay got, it was always heavier than the same amount of water. Why? **The clay is always heavier than an equal amount of water because clay is more dense than water.**

4. You saw a demonstration where your teacher put popsicle sticks in water. Since the popsicle sticks floated, is the wood more dense, less dense, or the same density as water? Explain.

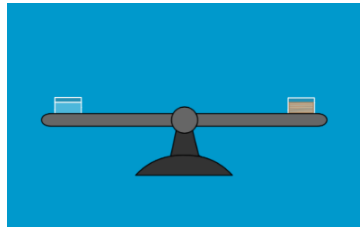
Since the wood floats in water, wood is less dense than water.



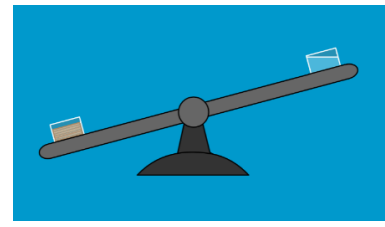
5. Since wood floats, which picture best shows what you would expect to see if you placed an equal amount or volume of wood and water on a balance?



A



B



C

### TAKE IT FURTHER

6. If you weighed a volume of water equal to the volume of a giant piece of wood, do you think the wood would weigh more, less, or the same as the water? Why?

If you weighed an amount of water equal to the volume of a giant piece of wood, the wood would weigh less than the water. This is because wood is less dense than water so wood weighs less than an equal volume of water no matter how big or small the piece of wood is.

7. If you weighed a volume of water equal to the volume of a tiny pebble, do you think the pebble would weigh more, less, or the same as the water? Why?

If you weighed an amount of water equal to the volume of a tiny pebble, the pebble would weigh more than the water. This is because rock is more dense than water so it weighs more than an equal volume of water no matter how big or small the rock is.