

Density: Sink and Float For Solids

- Objective
- To be able to determine whether an object will sink or float by comparing its density to the density of water.

Demonstration

- Why do you think the bigger, heavier candle floats and the smaller lighter clay sinks?

Activity

- You will be comparing the densities of water, wax and clay.
- (15 Minutes)

Which Weighs More?

- Wax or an equal volume of water?
- Water or an equal volume of clay?
- Which is more dense, equal volumes of water or wax?
- Which is more dense, equal volumes of water or clay?

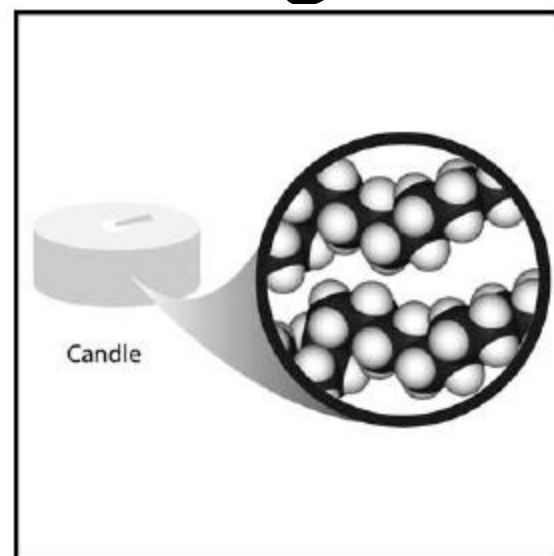
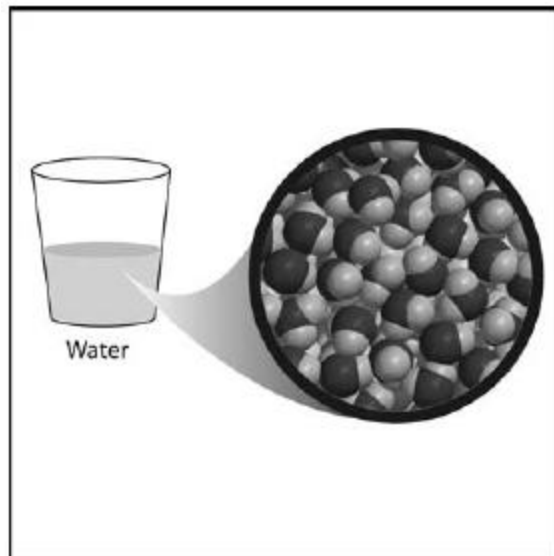
Sink or Float?

- If an object is more dense than water, would you expect it to sink or float?
- If an object is less dense than water, would you expect it to sink or float?

Will these objects sink or float?		
Object	Density (g/cm ³)	Sink or float
Cork	0.2–0.3	
Anchor	7.8	
Wooden oar	0.4	
Apple	0.9	
Orange	0.84	
Orange without peel	1.16	

Explain it with Atoms & Molecules

- Water is made up of small molecules of oxygen and hydrogen. Water molecules are closely packed together. Wax is made of carbon and hydrogen atoms connected together in long chains.



Key Concepts

- The *density* of an object determines whether it will float or sink in other substances.
- An object will *float* if it is less dense than the liquid it is placed in.
- An object will *sink* if it is more dense than the liquid it is placed in.

Key Concepts

- Atoms on the periodic table are arranged in order according to the number of *protons in the nucleus*.
- Even though an atom may be smaller than another atom, it might have more *mass*.

Key Concepts

- The *mass* of atoms, their size, and how they are *arranged* determine the *density* of a substance.
- *Density* equals the mass of an object divided by its volume; $D = m/v$.
- Objects with the same mass but a different *volume* have different densities.