

# Properties of Matter



# Matter

- Anything that has mass and takes up space
- Examples: pencil, leaf, air, water, book
- Things that are not matter: light, gravity, heat



# Measuring Matter

- Measurements help us understand and compare objects.
- Mass, volume, and density are measurements of matter



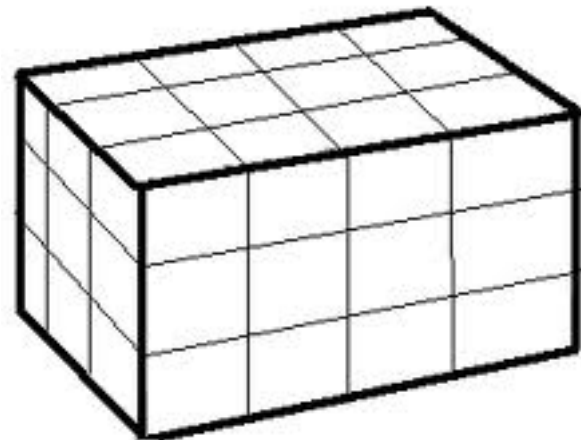
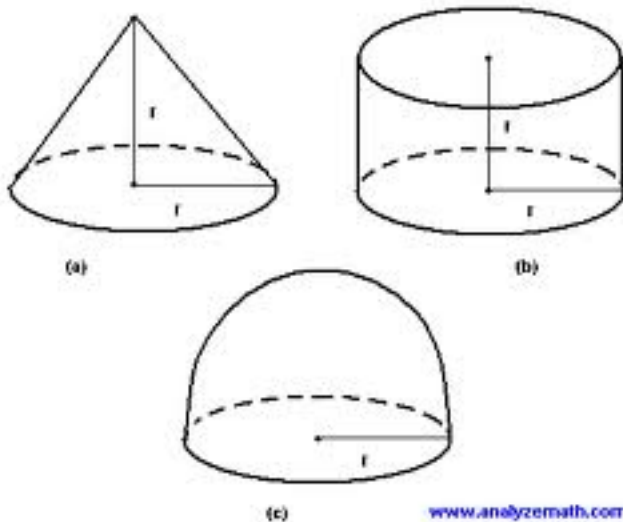
# Mass

- Amount of matter in an object
- Measured in grams (g)
- Weight is the affect of gravity on a mass
- Weight of an object can change but the mass remains constant



# Volume

- The amount of space that an object occupies
- Measured in liters (l)
- Volume of a rectangular solid =  $l \times w \times h$



# Density

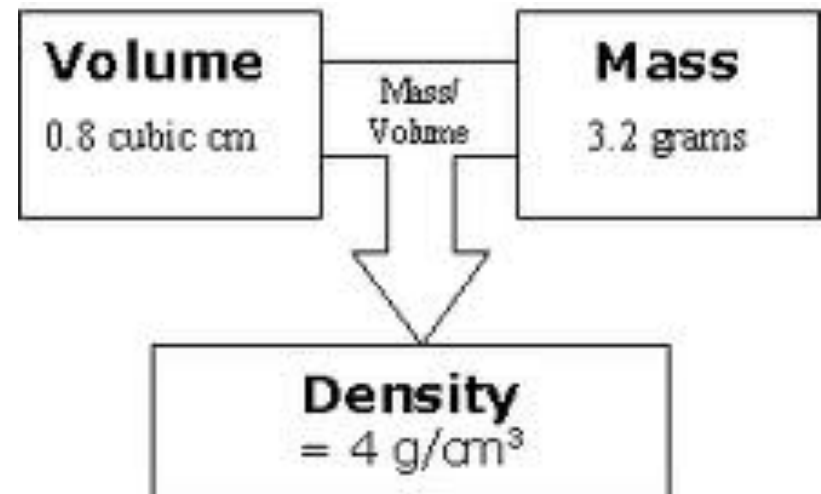
- The amount of mass is in a certain volume
- Measured in g/liter
- Density = mass/volume





# Calculating Density

- Find the volume either through a calculation or through displacement
- Find the mass by using a scale
- Calculate the density by dividing the mass by the volume.



# Physical Properties of Matter

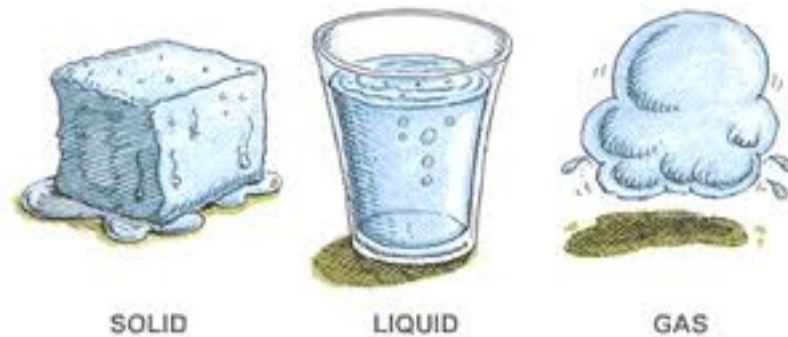
- Characteristic that can be observed without changing or trying to change the composition of a substance
- Measurable





# Examples of Physical Properties

- Mass, volume, and density
- State of matter (solid, liquid, gas)
- Hardness
- Color



# Chemical Properties

- A property of matter that cannot be observed without changing the substance.
- The potential to undergo a chemical change or reaction



# Examples of Chemical Properties

- Ability to burn (combustibility)
- pH level (acidic or basic)
- Reaction to water
- Oxidation – reaction to oxygen

