



Density

Density

- **Intensive Property:** dependent on what a substance is, rather than how much of it you are examining
- Defined as the amount of matter(mass) in a given volume
- Extensive property depends on amount

Density

- Substances that are more dense have more mass in a given amount of volume.
- Density of liquid water: $1 \text{ g/mL} = 1 \text{ g/cm}^3$
- $1 \text{ mL} = 1 \text{ cm}^3$

Density cont...

○ Mass per volume ($D = \frac{m}{v}$)



○ Example:

- You have an object with a mass of 21.8 g and a volume of 0.04 L. What is the density of that object?

Density Practice

1. A balloon is inflated to a volume of 2.2×10^3 L with 37.4 g of Helium. What is the density of the balloon?
2. What is the volume, in cm^3 , of a sample of cough syrup that has a mass of 50.0 g, if the density of cough syrup is 0.950 g/cm^3 ?
3. Calculate the mass, in kilograms, of 14.0 L of gasoline with a density of 0.680 kg/mL .
4. Calculate the density of a 35.0 g substance that occupies 25.0 mL of volume.
5. A block measures 20.0 cm x 30.0 cm x 4.5 cm and has a density of 11.34 g/cm^3 , what is the volume of the block?