

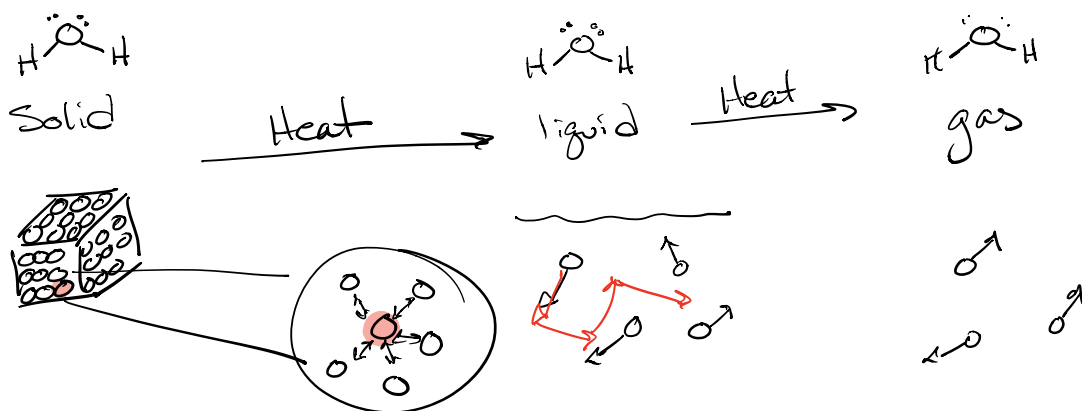
Chemistry is the study of Matter & Energy

Matter

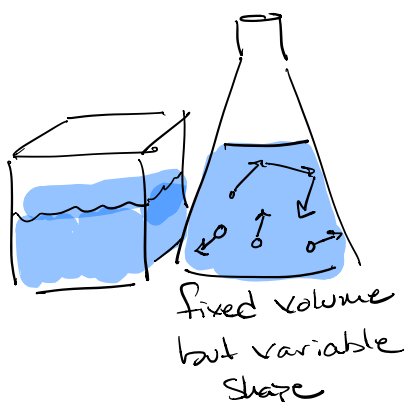
anything that occupies volume
and has mass

Kinetic Molecular Theory

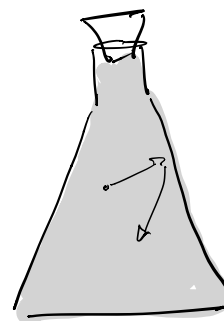
- All matter made of small particles (atoms)
- Always in motion
- motion \propto to heat \propto proportional to T



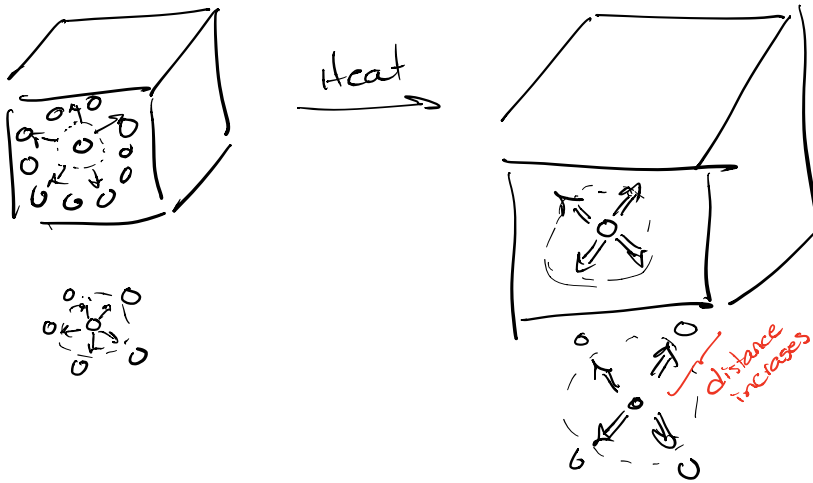
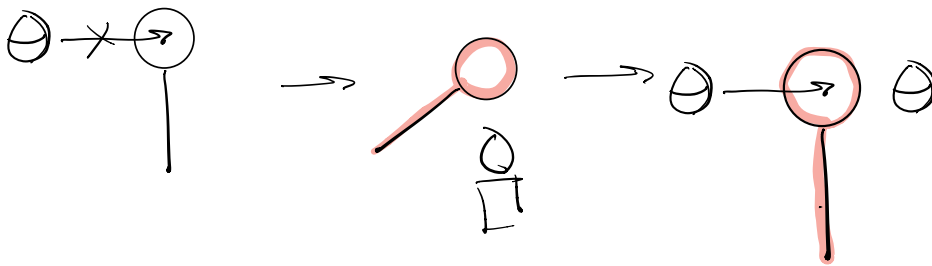
Particles occupy
 $\sim 85-90\%$
15-10% Empty Space



fixed volume
but variable
shape
Particles occupy
 $\sim 75-80\%$
25-20% Empty Space



Particles occupy
0.1% of space
99.9% empty



mass - measure of the amount of matter in object
 ⇒ independent of gravity
 mass ≠ weight

Weight - A measure of force acting on a mass through gravity

	Earth	Moon	Mars	Jupiter
Weight	180 lbs	29.8 lbs	67.8 lbs	455 lbs
Mass	81.6 kg	81.6 kg	81.6 kg	81.6 kg

Law of Conservation of Matter

When a chemical change or physical change occurs there is no change in the amount of matter

mass balance

$$\text{mass}_{\text{initial}} = \text{mass}_{\text{final}}$$

Classification of Matter

