

**Matter**: anything that has **mass** and **volume**

**mass**: - the quantity of matter a substance/object contains  
 - measured in grams (g) or kilograms (kg)  
 ex. bowling ball has more mass than a basketball

**volume**: - the amount of space taken up by a substance/object  
 - measured in mL, L, or  $\text{cm}^3$   
 ex. basketball has more volume than a bowling ball

### 3 States (phases) of Matter:

	fixed Mass	fixed volume	fixed shape
SOLID	✓	✓	✓
LIQUID	✓	✓	✗
GAS	✓	✗	✗

### The Particle Model of Matter:

- All matter is made of small particles that are too small to see.
- There are small spaces between the particles
- Particles are always moving
- Particles are attracted to one another

SOLID



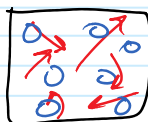
- particles are tightly packed together
- cannot move freely
- they can only vibrate

LIQUID



- particles are farther apart
- slide past one another

GAS



- particles are very far apart
- move around quickly

### (KMT) Kinetic Molecular Theory

- explains what happens to matter when the **kinetic ENERGY** of the particles changes

.... same points as particle model of matter

- ENERGY** makes particles move. The more energy they have, the faster they move and farther apart they get.