

Matter



WHAT IT IS AND WHY IT MATTERS

Matter is ...



Matter is not ...



Matter Has Many Properties



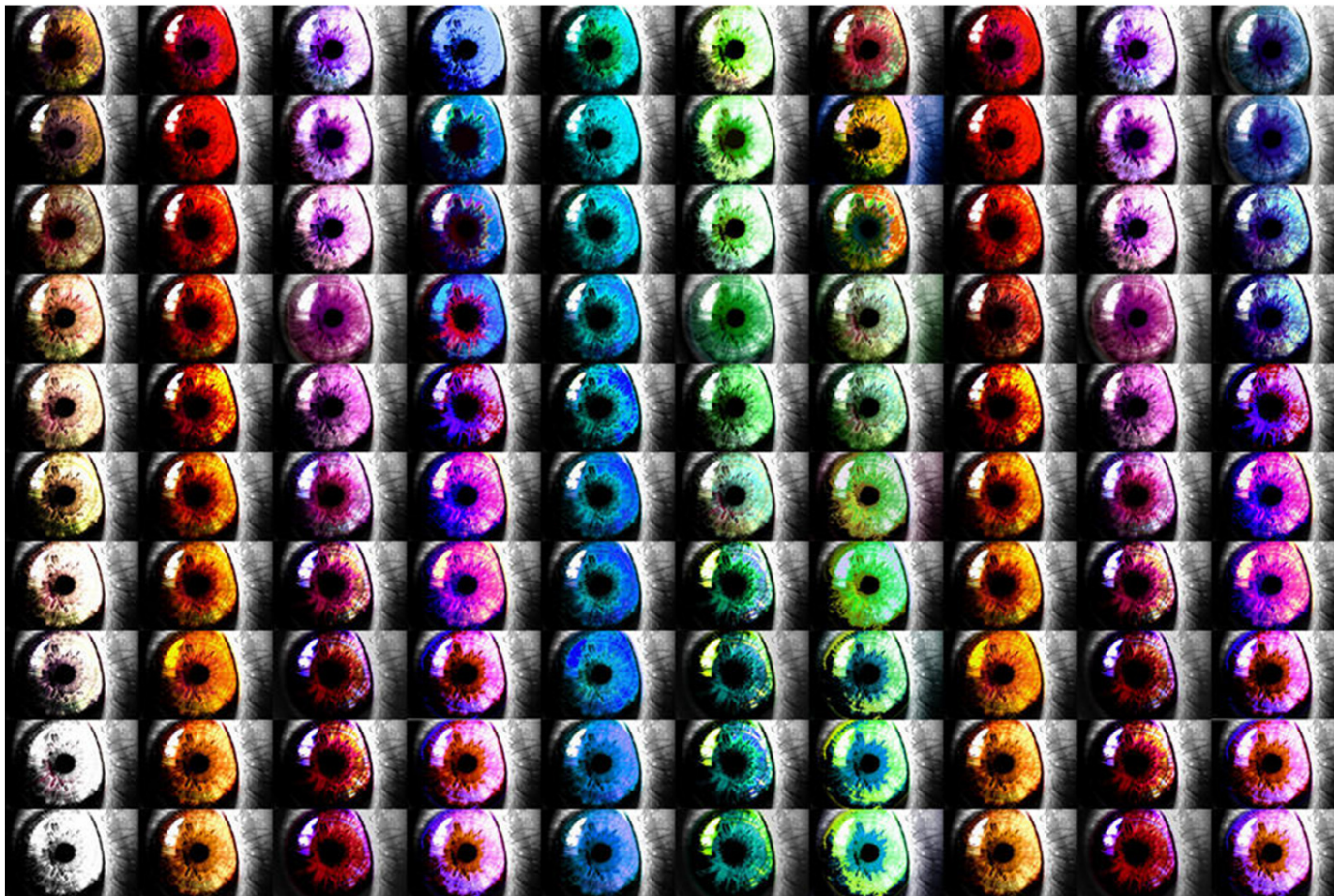
Qualitative

Quantitative

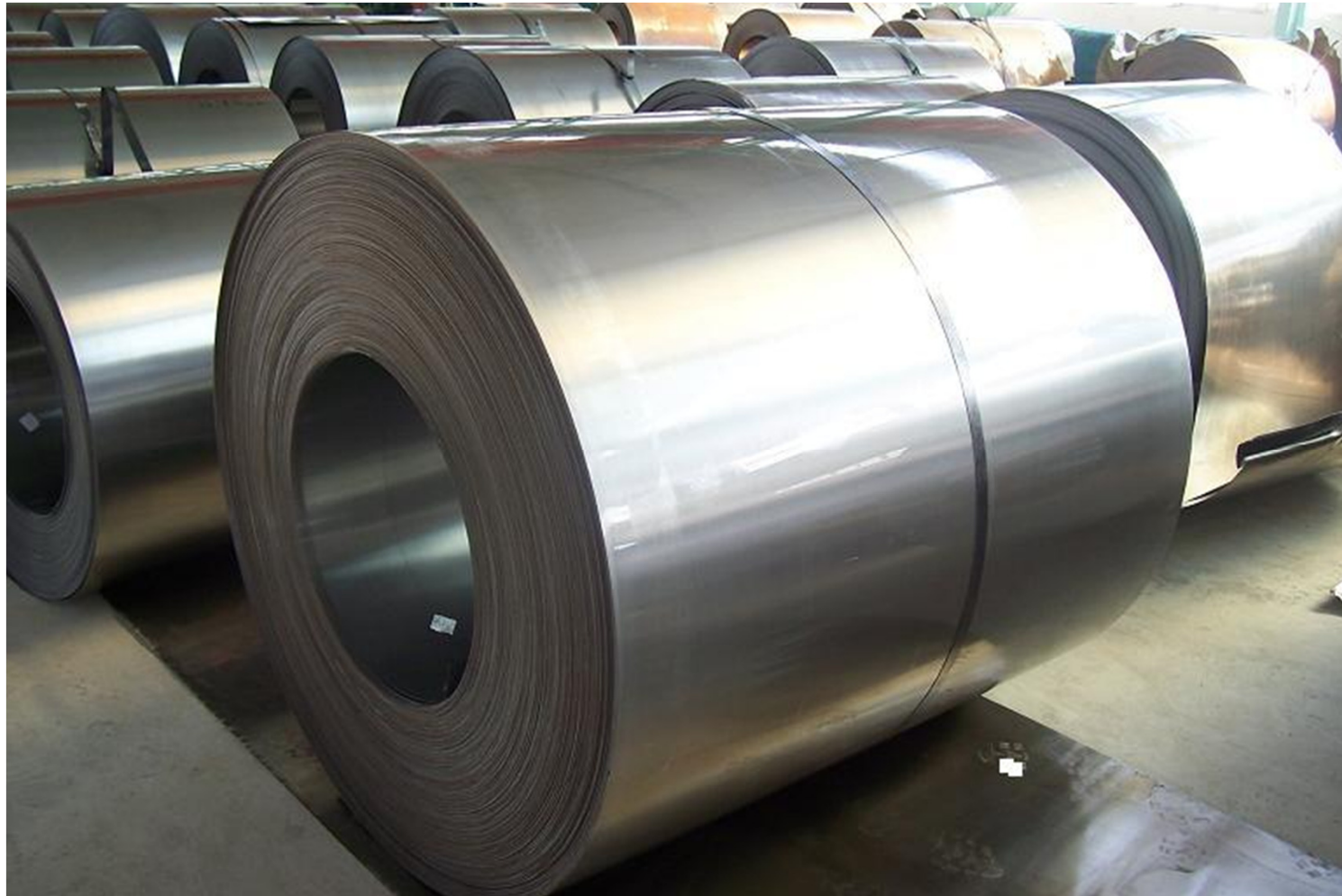
State



Colour



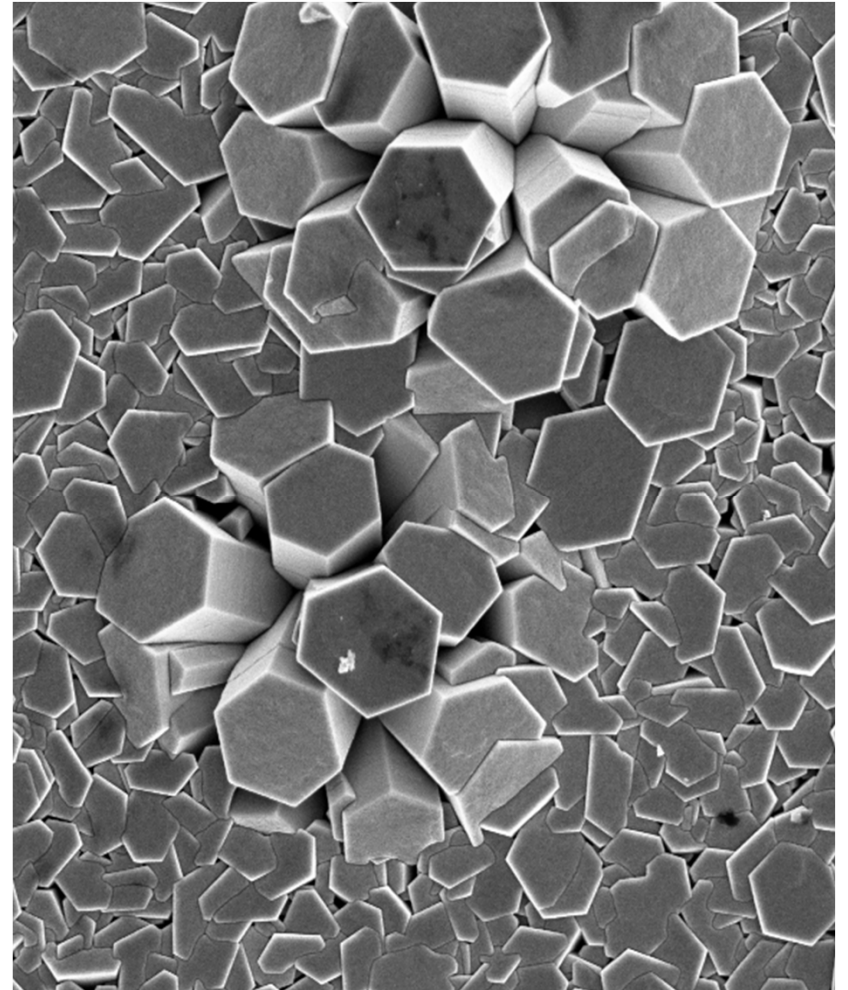
Malleability



Ductility



Crystallinity



Magnetism



Matter Has Many Properties

Qualitative

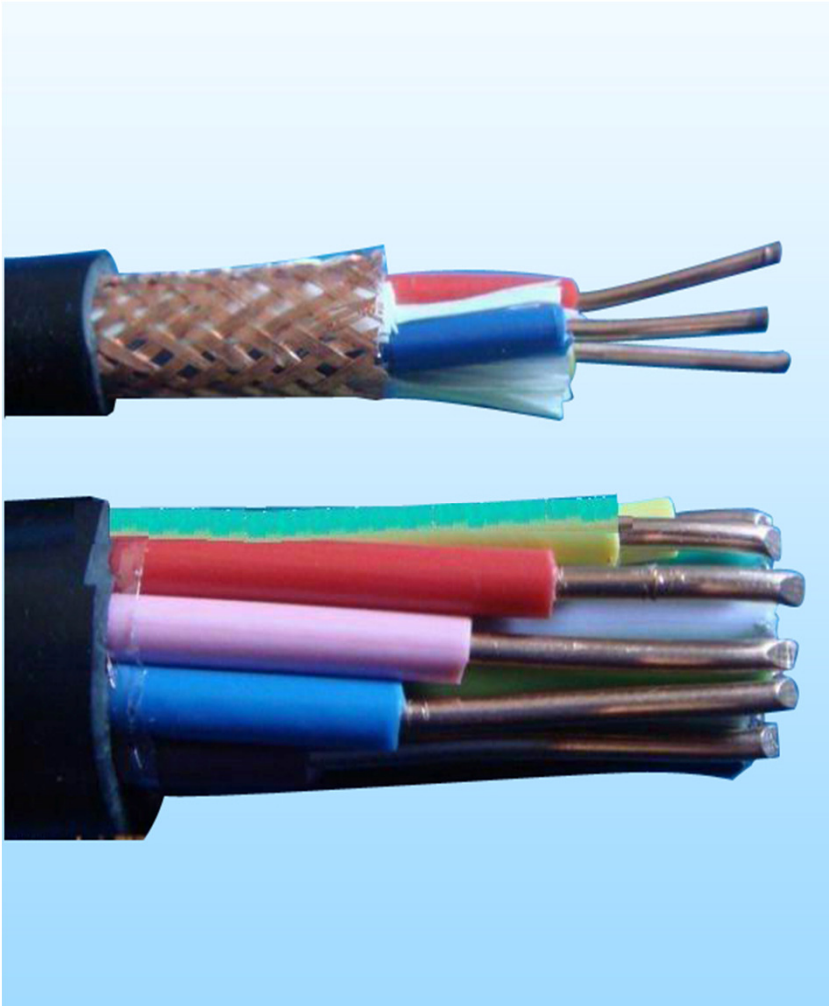
- State
- Colour
- Malleability
- Ductility
- Crystallinity
- Magnetism

Quantitative

Solubility



Conductivity



Viscosity



Density



Melting Point



Boiling Point



Matter Has Many Properties

Qualitative

- State
- Colour
- Malleability
- Ductility
- Crystallinity
- Magnetism

Quantitative

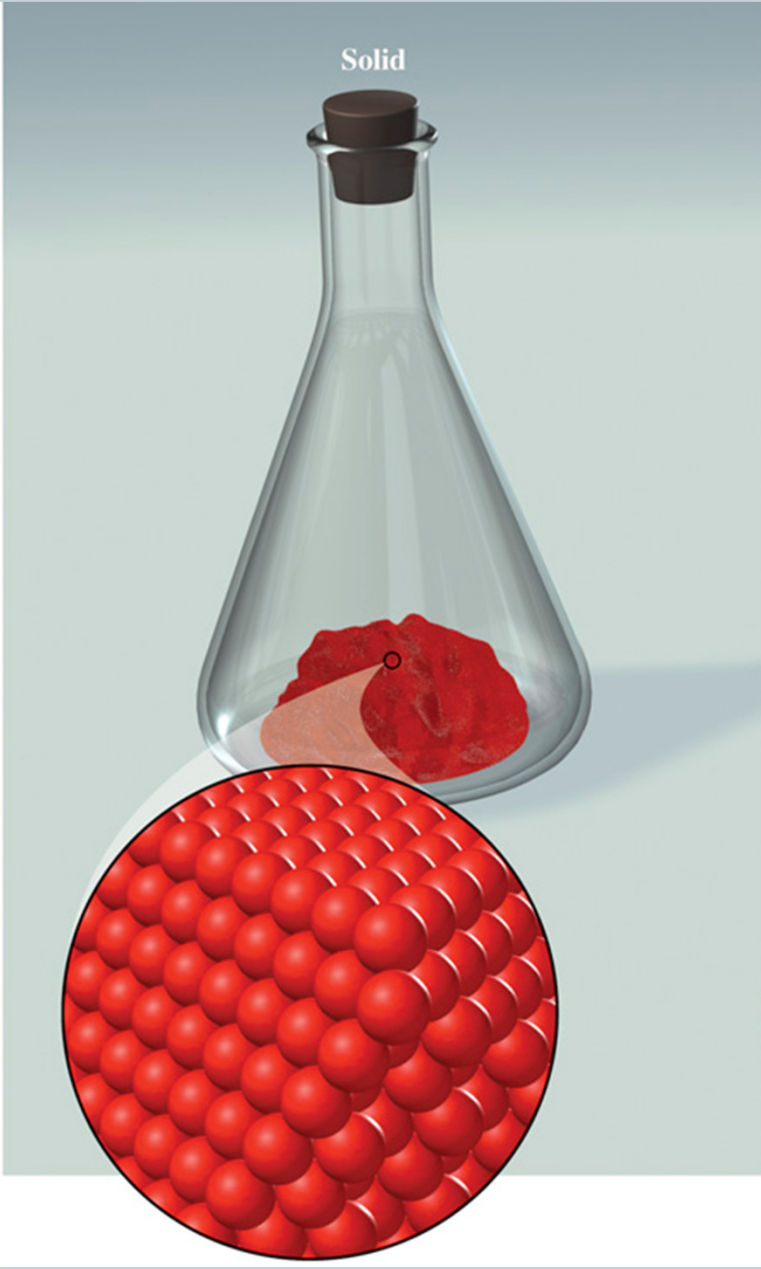
- Solubility
- Conductivity
- Viscosity
- Density
- Melting Point
- Boiling Point

The Kinetic Molecular Theory



1. All matter is made up of very small particles.
2. There is space between the particles.
3. Particles are in constant motion:
 - Particles in solids are tightly packed and can only vibrate in place.

Solid



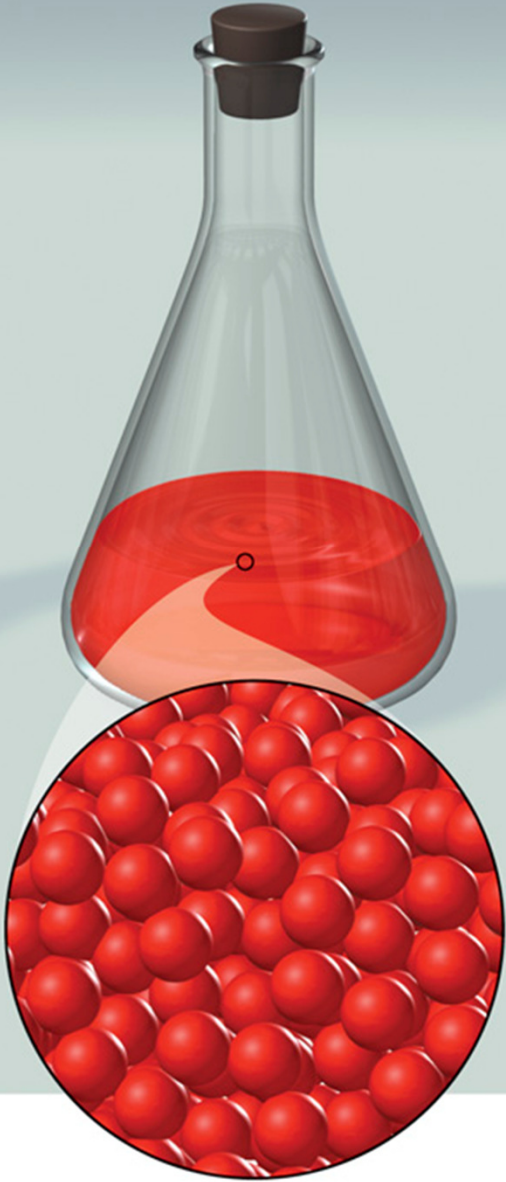
Solids

The Kinetic Molecular Theory



1. All matter is made up of very small particles.
2. There is space between the particles.
3. Particles are in constant motion:
 - Particles in solids are tightly packed and can only vibrate in place.
 - Particles in liquids are slightly further apart and can slide past one another.

Liquid

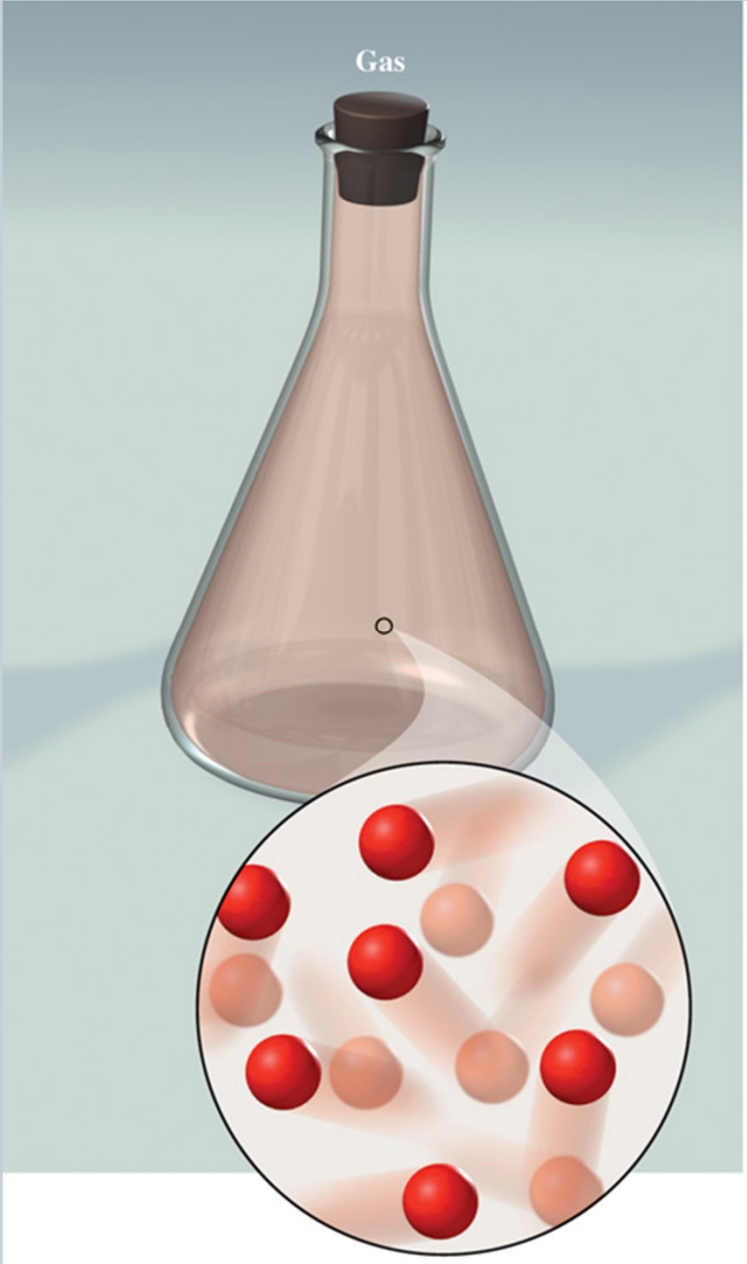


Liquids

The Kinetic Molecular Theory



1. All matter is made up of very small particles.
2. There is space between the particles.
3. Particles are in constant motion:
 - Particles in solids are tightly packed and can only vibrate in place.
 - Particles in liquids are slightly further apart and can slide past one another.
 - Particles in gases are very far apart and can move freely.



Gases

The Kinetic Molecular Theory



1. All matter is made up of very small particles.
2. There is space between the particles.
3. Particles are in constant motion:
 - Particles in solids are tightly packed and can only vibrate in place.
 - Particles in liquids are slightly further apart and can slide past one another.
 - Particles in gases are very far apart and can move freely.
4. The more energy particles have, the faster they can move, and the more they can spread out.

Changing State



Melting

Solidification



Changing State

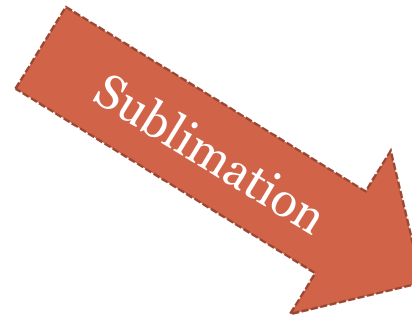


Evaporation

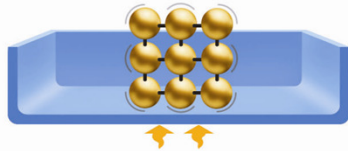
Condensation



Changing State

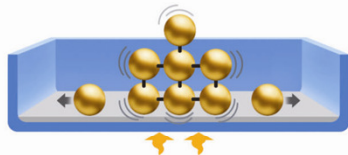


KMT and Changes of State



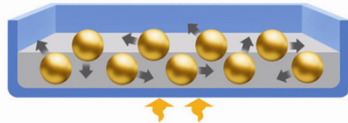
1. Solid gold

Particles are very close to one another, fixed in position, and vibrate.



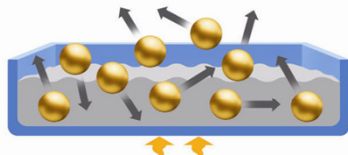
2. Melting gold

As the temperature increases, the particles' kinetic energy increases. This motion results in the particles colliding with each other and making more space between them.



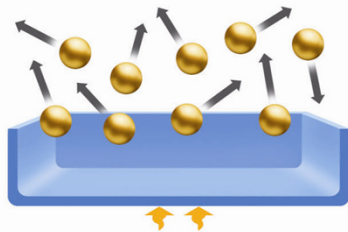
3. Liquid gold

All particles are still close, but now have enough space to slide past one another.



4. Boiling gold

As the temperature keeps on increasing, the kinetic energy increases and the particles bounce vigorously against each other, creating more space. Some particles gain enough energy to break completely free of the liquid gold.



5. Gaseous gold

All particles are highly energetic and move freely to spread out in their container. Further heating gives particles even more kinetic energy, making the gas spread out faster and farther.

