

# Chemical and Physical Changes

# Phases of Matter

## Solid

- Definite volume
- Definite shape
- Atoms barely vibrating
- Atoms packed close

## Gas

- **I**ndefinite volume
- **I**ndefinite shape
- Atoms vibrating a lot
- Atoms very far apart

## Liquid

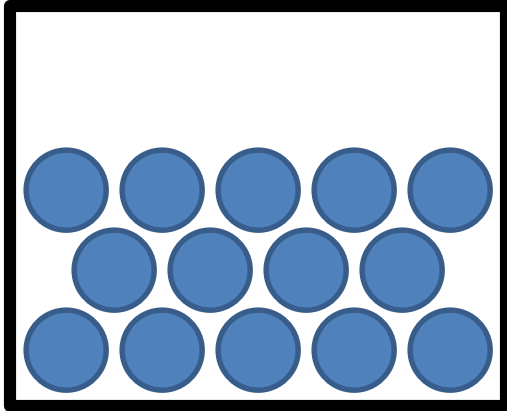
- Definite volume
- **I**ndefinite shape
- Atoms vibrating more than a solid
- Atoms close together, but can move past each other

## Plasma

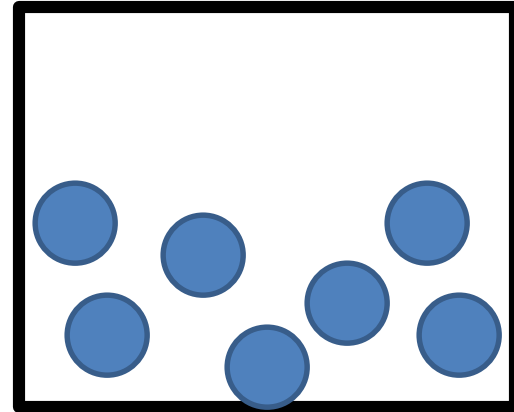
- High temperature state
- Atoms loose most of their electrons

# Phases of Matter

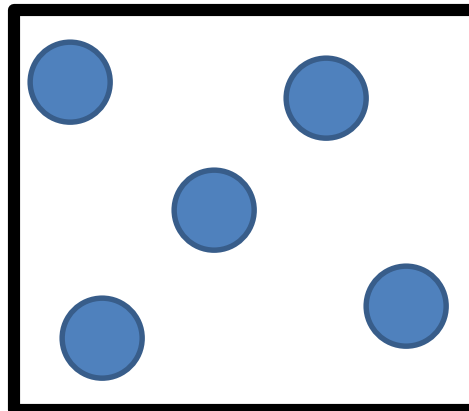
Solid



Liquid



Gas

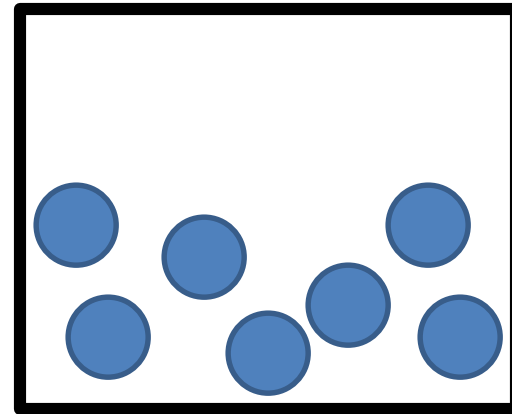
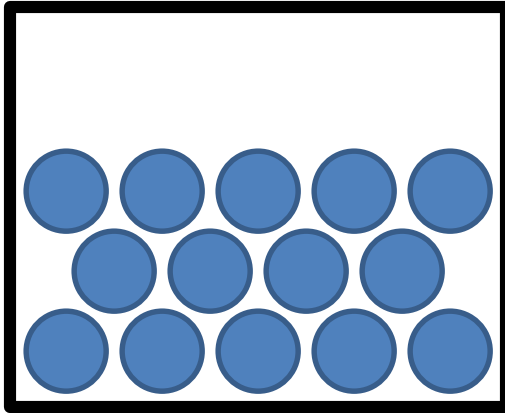


# Phase Changes



**Solid → Liquid**

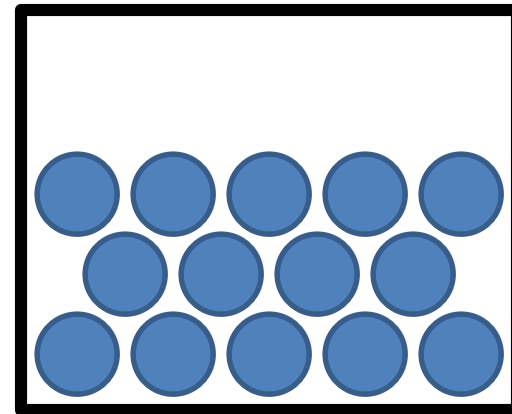
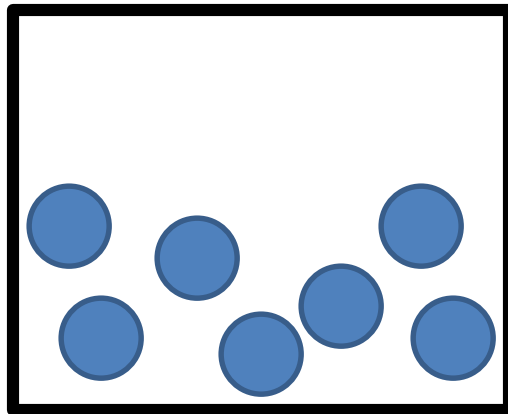
**Melting**



# Phase Changes

Liquid → Solid

Freezing

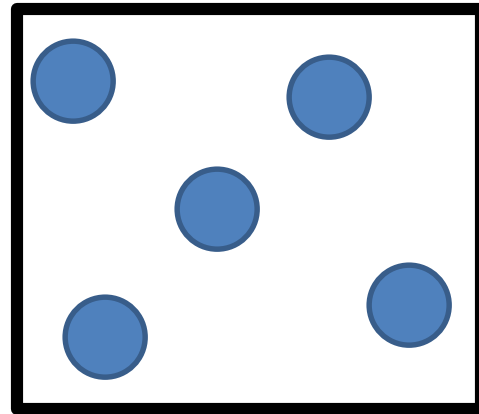
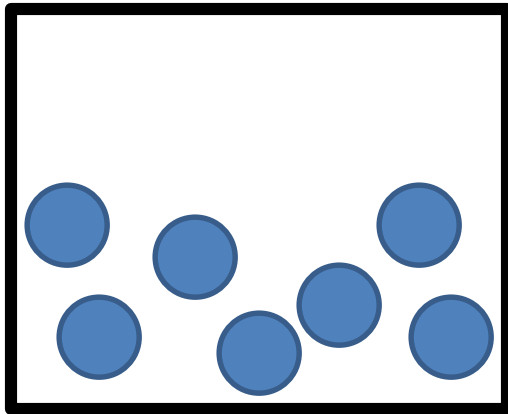


# Phase Changes



**Liquid → Gas**

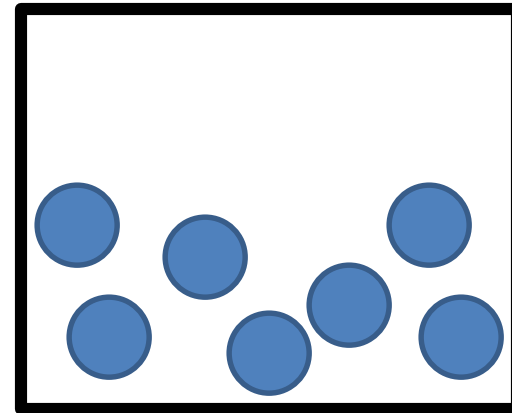
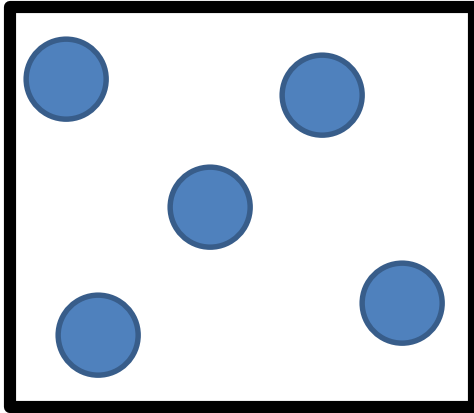
**Vaporizing**



# Phase Changes

**Gas → Liquid**

**Condensing**

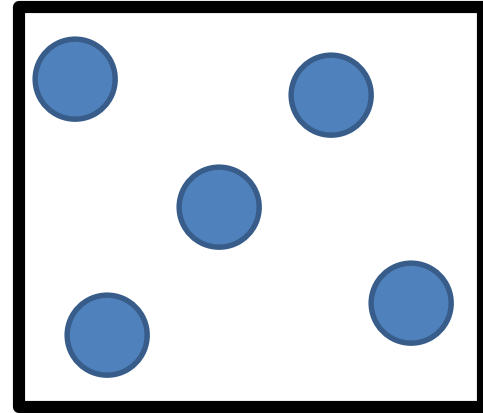
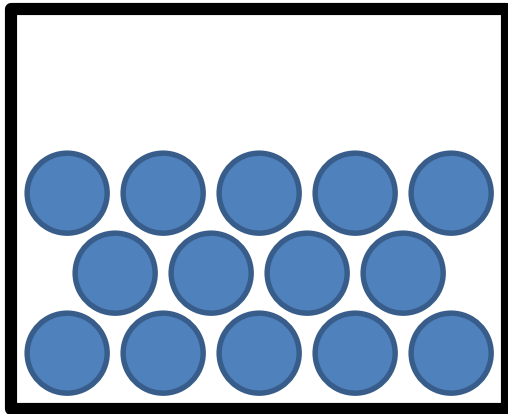


# Phase Changes



**Solid → Gas**

**Sublimation**



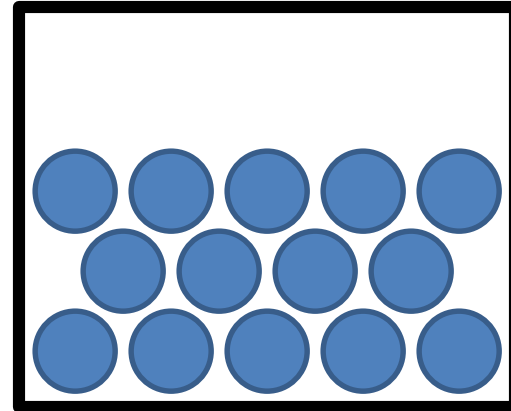
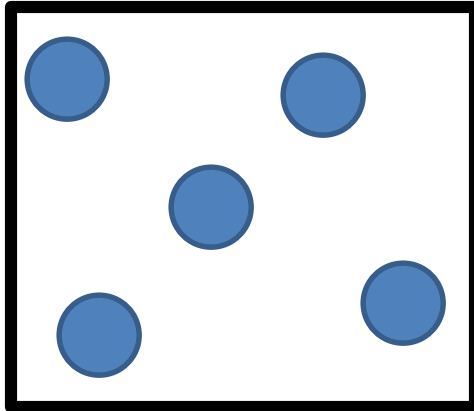


# Phase Changes

**Gas  $\rightarrow$  Solid**



**Deposition**



# Physical Changes

**IT IS STILL THE **SAME** SUBSTANCE**  
after a physical change.

Change in one or more physical  
properties

NO change in the components that make  
up the substance.

# Chemical Changes

**IT IS NOT THE SAME SUBSTANCE**  
after a chemical change.

Change in the components that make up  
the substance.

# Physical Change

- Melting
- Vaporizing
- Condensing
- Freezing

Phase Changes

- Tearing
- Grinding
- Cutting

# Chemical Change

- Combustion (burning)
- Rusting
- Cooking

## • Signs of chemical Rxns

- color change
- gas given off
- product formed
- Temp. change

# Chemical change vs Chemical Property

Change = IS/DID happening

Property = CAN happen