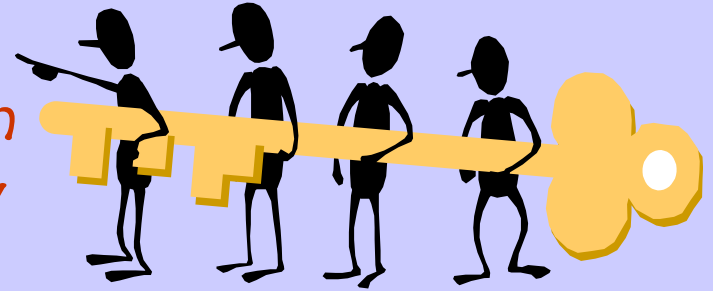


# Solids

Examples:

ice cube, wooden pencil, metal key



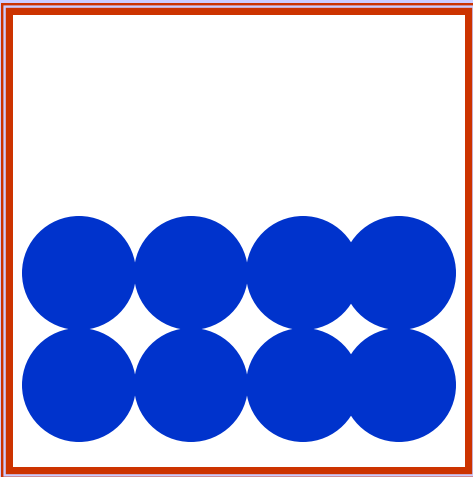
- have a definite volume

- have a definite shape

- particles (atoms) are strongly linked; atoms vibrate against each other because they are close

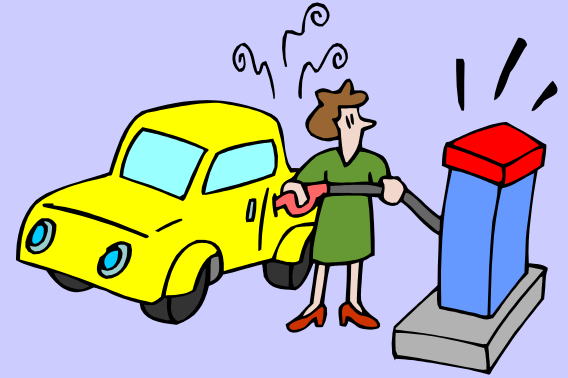
- crystalline solids-particles form a regular, repeating pattern (salt)

- amorphous solids – particles are not arranged in a regular pattern (plastics)

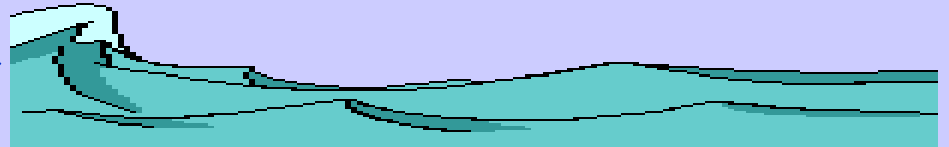
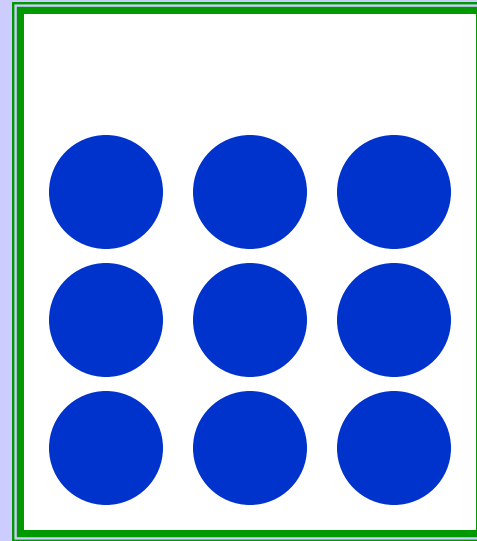


# Liquids

Examples: water, gasoline, rubbing alcohol



- have a definite volume
- no definite shape; takes the shape of its container
- Particles (atoms) are packed almost as closely as in a solid, but move around one another freely
- viscosity – the resistance of a liquid to flowing

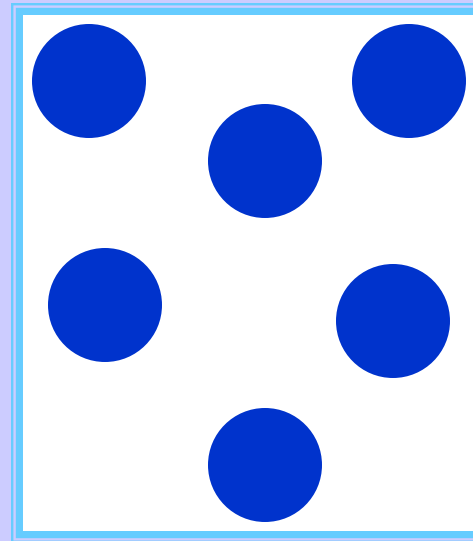


# GASES

Examples:  
air, hydrogen,  
oxygen, helium



- fill up containers, so volume is not definite
- no definite shape; take the shape of containers
- particles (atoms) move in all directions at high speeds (like sea gulls)

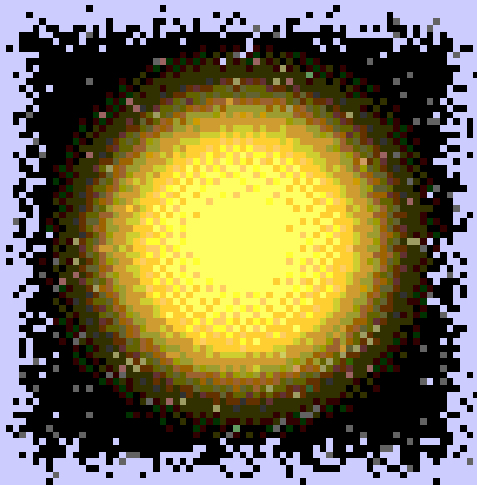


# Plasma

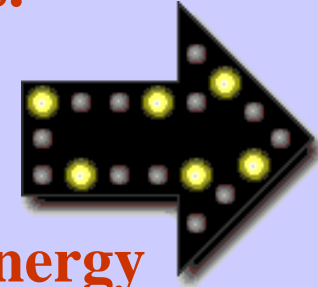
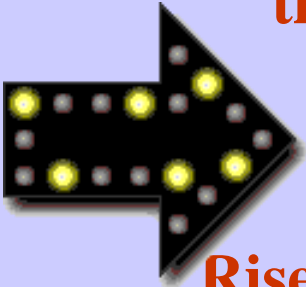
## Examples:

Natural plasmas are found on the sun and other stars and lightning; artificial plasmas are found in fluorescent lights.

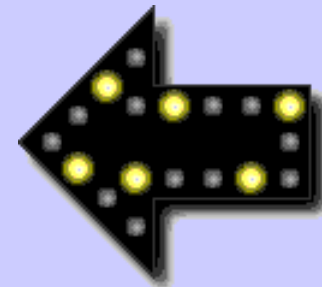
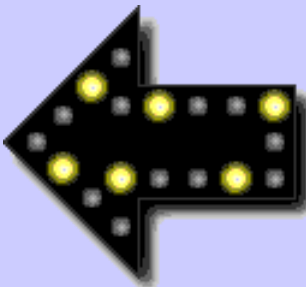
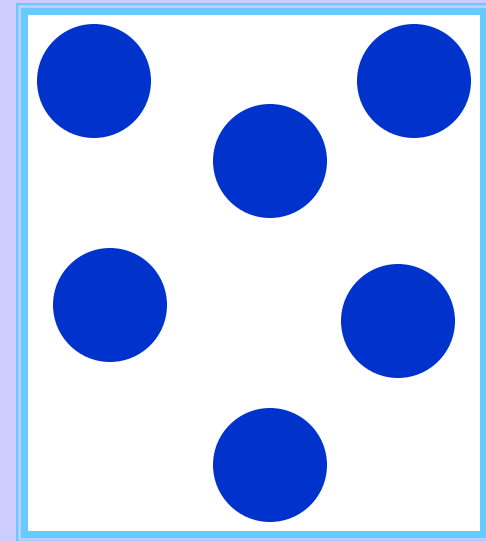
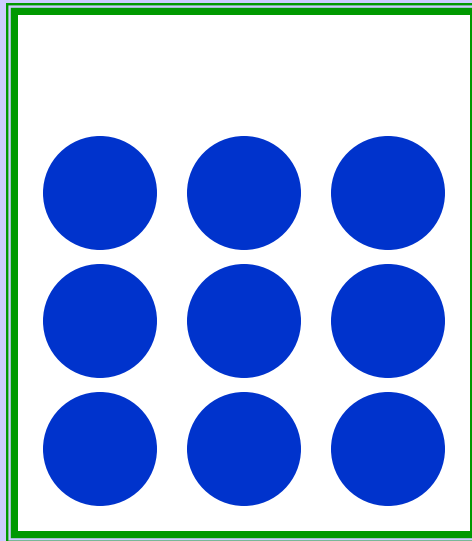
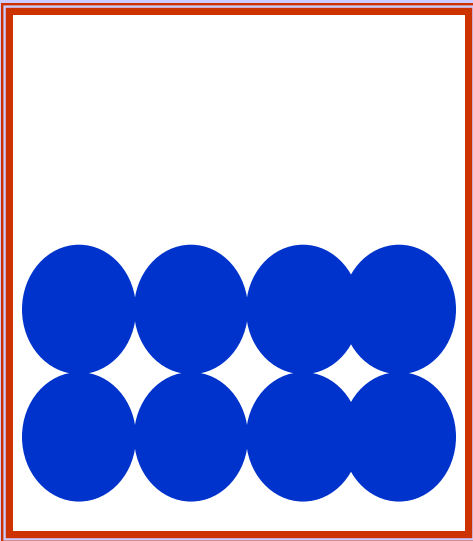
- No definite shape
- No definite volume
- Particles are electrically charged



**A substance changes state when its thermal energy increases or decreases.**



**Rise in Temperature – gain in thermal energy**

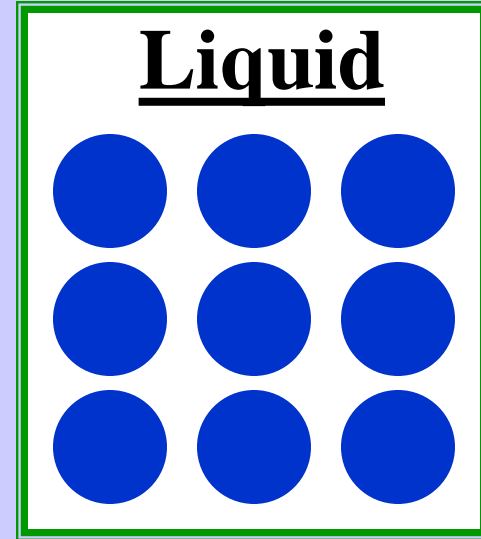
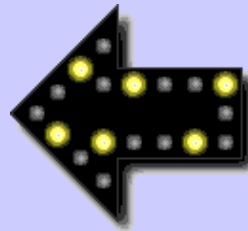
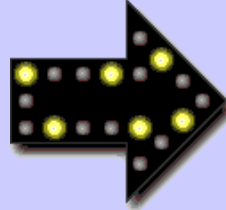
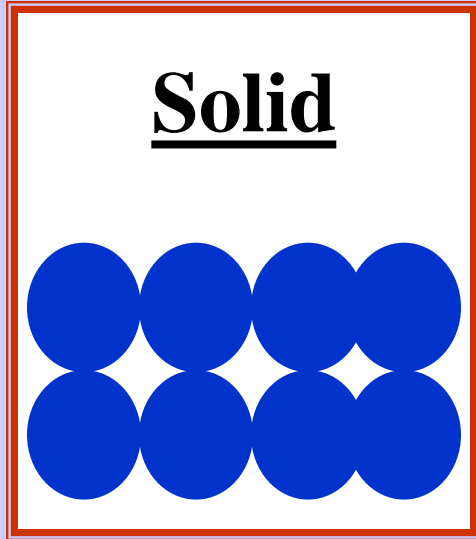


**Decrease in temperature –**

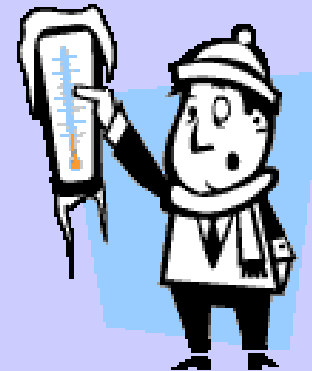
**Loss in thermal energy**



Melting Point –  
temperature at which a  
solid changes to a liquid

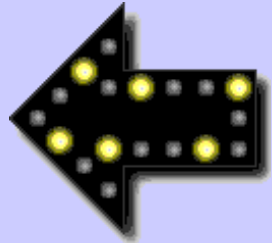
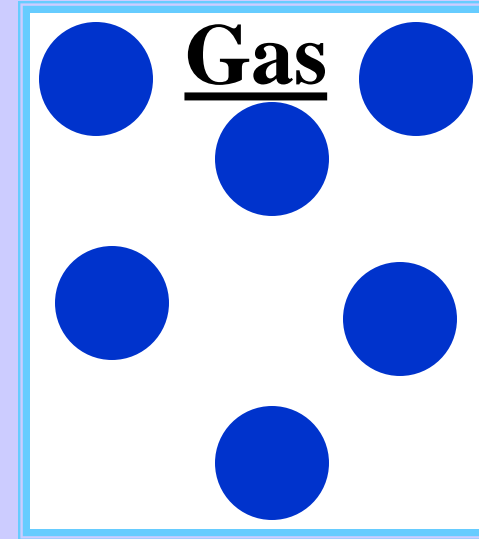
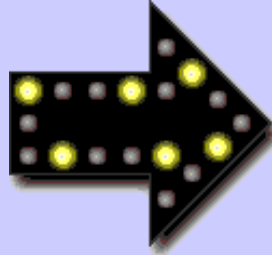
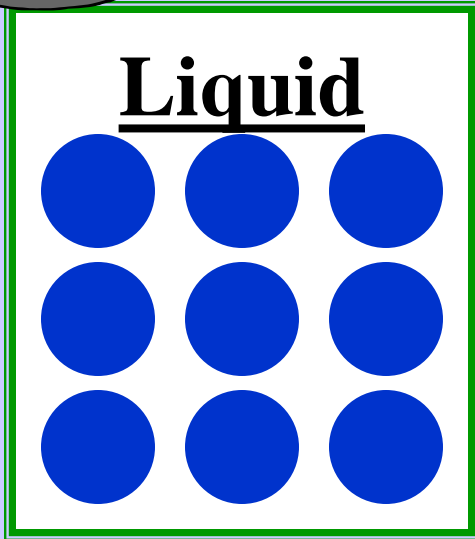


Freezing Point –  
temperature at which a  
liquid changes to a solid

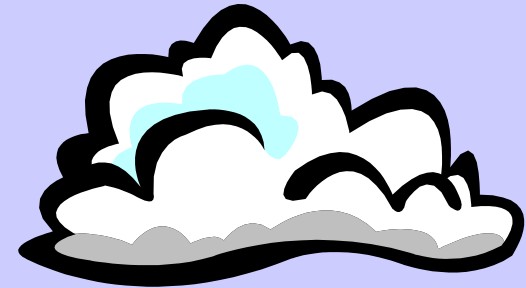


## Vaporization Point

(Evaporation or Boiling) –  
temperature at which a liquid  
heats up and becomes a gas

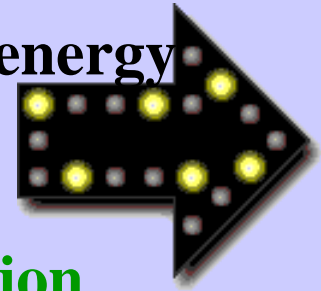
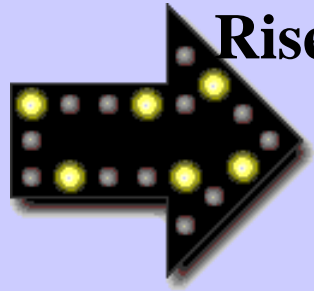


Condensation Point –  
temperature at which a gas  
becomes a liquid



A substance changes state when its thermal energy increases or decreases.

Rise in temperature – gains in thermal energy



Melting

Vaporization

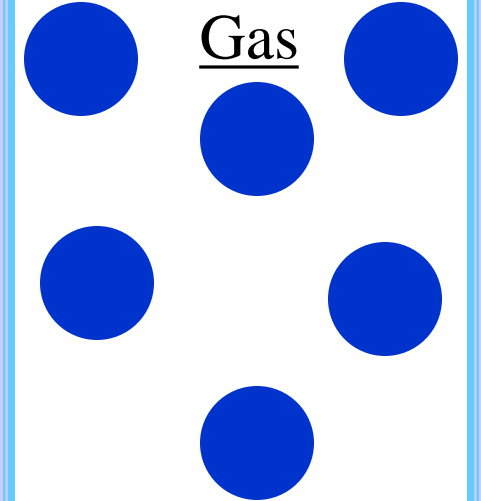
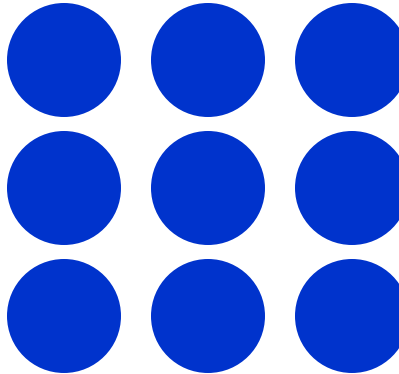
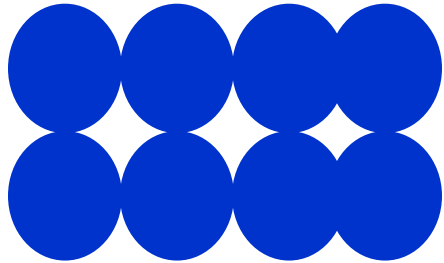
Point

Point

Solid

Liquid

Gas

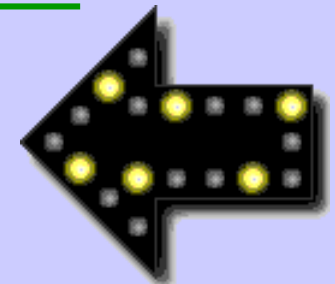
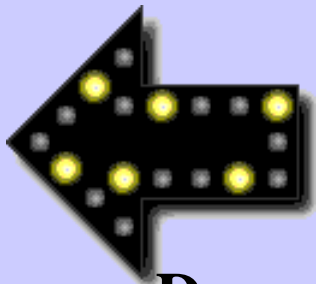


Freezing

Condensation

Point

Point



Decrease in temperature – loss of thermal energy