

# Phase Changes

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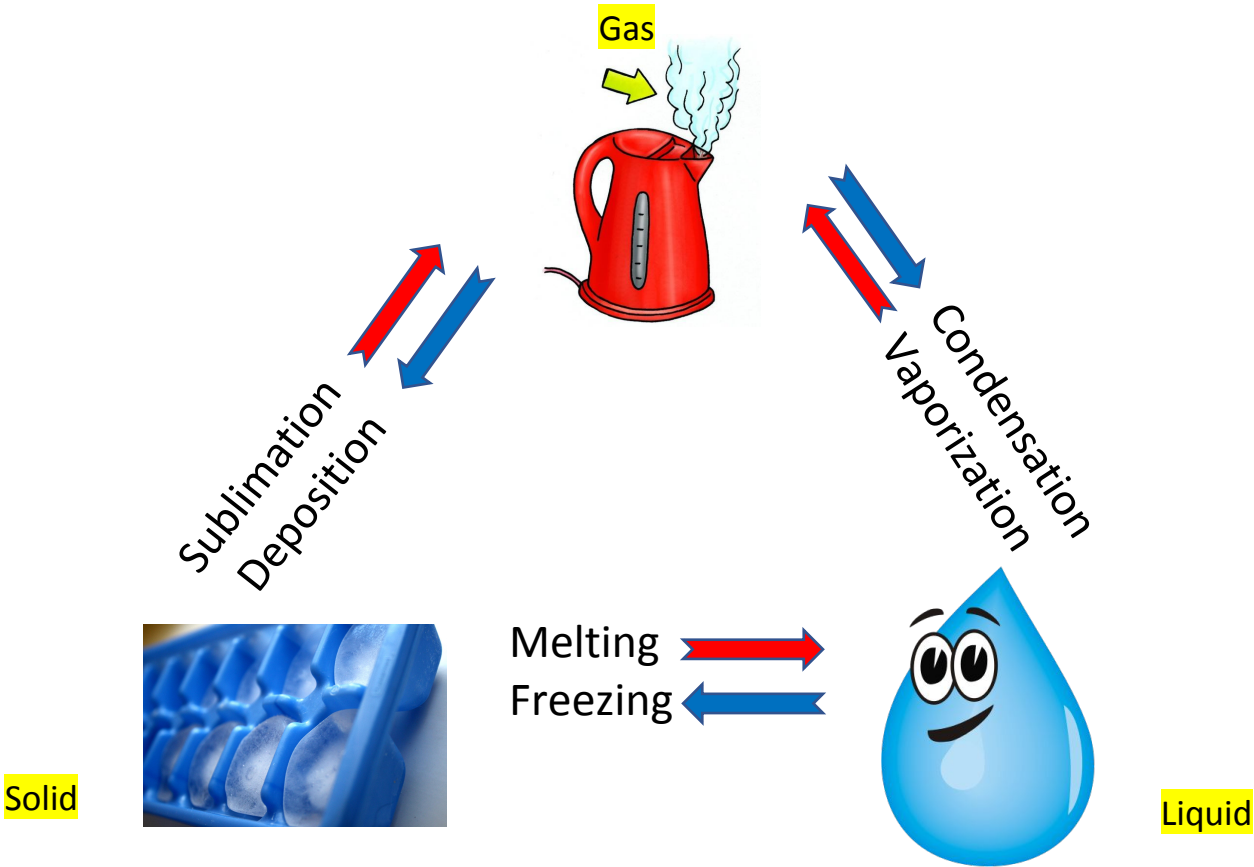
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# What is a Phase Change? (In terms of Matter)



A **reversible**, physical change where one phase changes to another.

# There are 6 types of phase change



# Melting and Freezing

- Melting = Change from solid to liquid.

Particles in the solid vibrate fast and break from their fixed position.

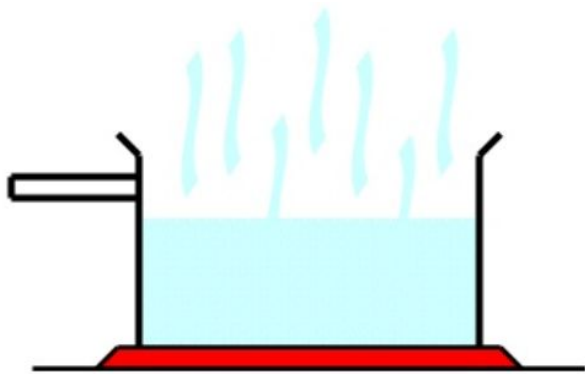
- Freezing = Change from liquid to solid.

Particles in the liquid move slowly, losing energy. The motion of the molecules decreases.

*Melting and freezing are both reversible, physical changes*

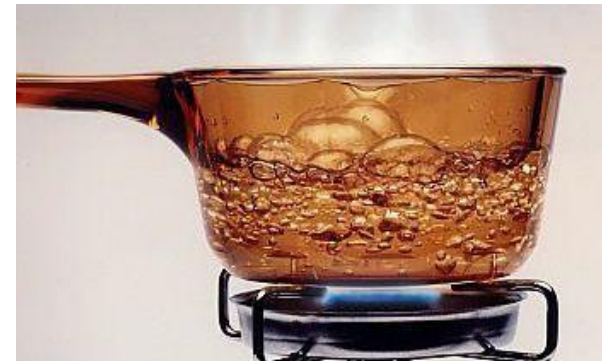
# Vaporization

- Vaporization = When particles in a liquid gain so much energy that they form a gas.
- Two types of vaporization:
  - 1) Evaporation – Vaporization at the surface **only** (example: puddle drying up)
  - 2) Boiling – Vaporization **throughout** the liquid ( example: boiling water for spaghetti)



Evaporation

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Boiling

# Condensation

- Condensation = Change from gas to liquid.  
Particles in gas lose energy and form a liquid.



# Sublimation

If you left dry ice at room temperature for several hours, what would be left?

Sublimation = The liquid phase is skipped  
A solid changes directly to gas!



# Deposition

- Deposition = When vapor changes directly into solid (skips the liquid phase).

Example: frost on window (water vapor loses energy to change from gas to solid).



# Classifying as Endo/Exo

Of the 6 types of phase changes we talked about, which ones are endothermic and which ones are exothermic?

Class Discussion! :)

# Summary

<https://www.youtube.com/watch?v=xYU7RSoOZ0U>