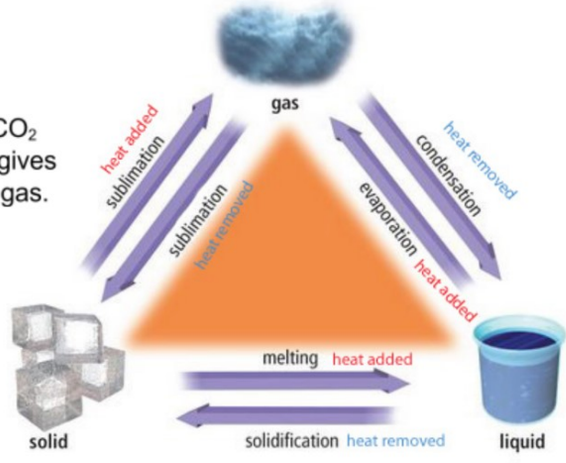
Changing States

Change of state is when the physical state of a substance is transformed into another state. Copy the diagram below and discuss.

Ex) Dry Ice

Chunk of Frozen CO_2 gains energy and gives off a cloud of CO_2 gas.



Changes of state

Chemistry experiment 47 - Sublimation of Iodine - YouTube

Go Beyond: A Three State Reaction (youtube.com)

NEXT »

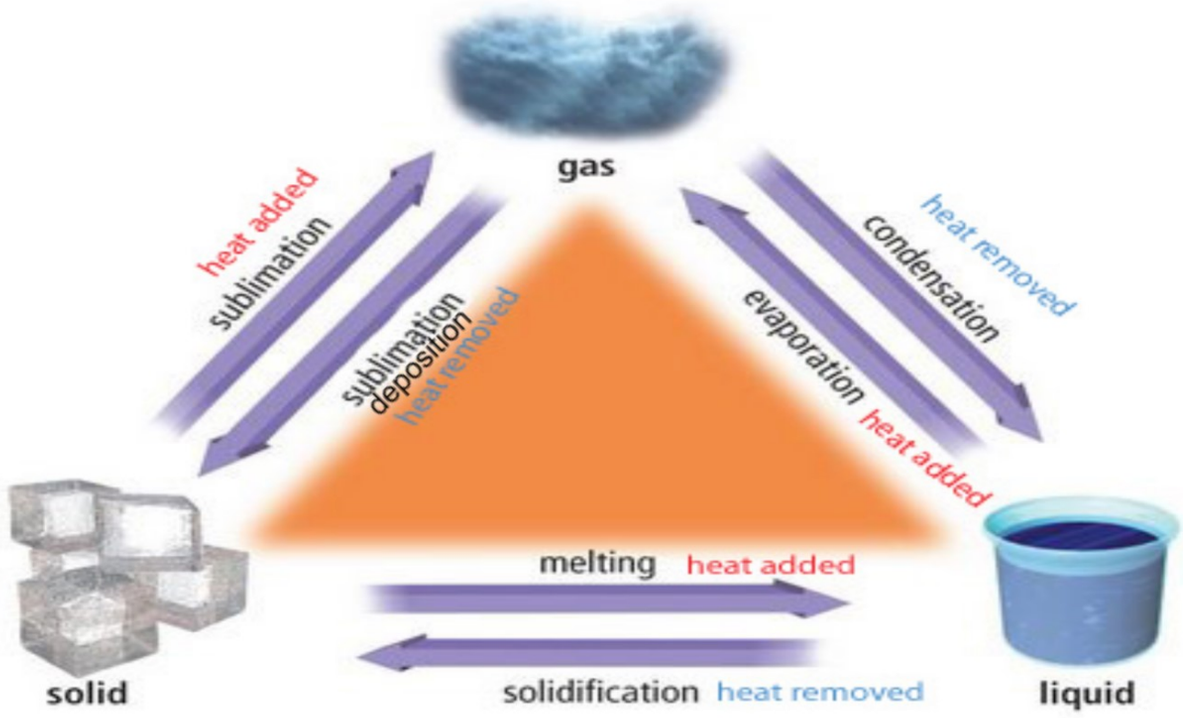
While dry ice looks like it would be cold, it's extremely dangerous to the touch and can cause severe burns.

Dry ice is **frozen carbon dioxide**. A block of dry ice has a surface temperature of -109.3 degrees Fahrenheit (-78.5 degrees C). Dry ice also has the very nice feature of **sublimation** -- as it breaks down, it turns directly into carbon dioxide gas rather than a liquid. The super-cold temperature and the sublimation feature make dry ice great for refrigeration. For example, if you want to send something frozen across the country, you can pack it in dry ice. It will be frozen when it reaches its destination, and there will be no messy liquid left over like you would have with normal ice.

Fun Fact What is the difference between a gas and a vapor?

-A substance is a gas if it exist as a gas at room temperature (Ex. Carbon Dioxide & Oxygen)

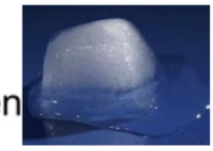
-A substance is a vapor if it exist as a solid or liquid at room temperature (Ex. Water vapor or perfume vapors)



Changes of state

Melting - change from solid to liquid

- requires heat in order to happen



Vaporization - change from liquid to gas

- requires heat in order to happen

condensation - change from gas to liquid

- loss of heat (Cooling)

Freezing - change from liquid to solid

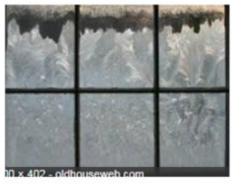
- loss of heat (cooling)

Sublimation - change of solid right to gas

Ex) Dry Ice

Deposition--> change of gas to solid

Ex) Frost on Windows on bitterly cold days



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Evaporation - is slow vaporization.

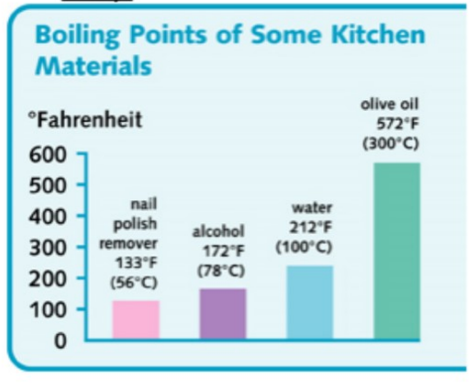
- can occur at different temperatures

Example) Wet clothes dry in both winter and summer on the clothelines

Just takes longer in winter to dry clothes

Boiling - is FAST vaporization

- Boiling point is the specific temperature that boiling occurs for different liquids
- Ex) Water boils at 100°C



Freezing point - the temperature in which liquids freeze (this is different depending on the liquid)

Melting point - the temperature when a substance melts (Differs for different liquids)

Candle wax melts about 53°C

Silver melts about 691°C

Maple Syrup

Ketchup

Water

What is the difference?