

KEYVocabularyDefinition

5) Archimedes Principle	derived from a Greek mathematician that uses forces of gravity and buoyancy to determine if an object will float or sink.
12) Buoyancy	Upward force that explains whether an object will sink or float
18) Compressibility	Using force or pressure, compressibility shrinks a fluid to a smaller, more compact size.
6) Density	refers to how much mass and volume an object takes up. If something is heavy and small, it is dense.
11) Flow Rate	The speed at which fluids flow
7) Fluid	are substances, namely liquids and gases that take up space, has mass and flows

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2) Gas	a fluid that has its particles far apart. Because of the distance in its particles, it's difficult to see gases.
9) Hydraulic	usually in terms of devices, uses compressed liquids (like oil or water) to perform a task.
16) Liquid	are a type of substance that flow within a container or volume. The particles in a substance are quite close together.
13) Mass	usually refers to the measurement (in kg or g) of the amount of matter.
14) Matter	is any object or material that takes up space and has a mass.
3) Particle theory of Matter	refers to how particles and matter interact and behave.

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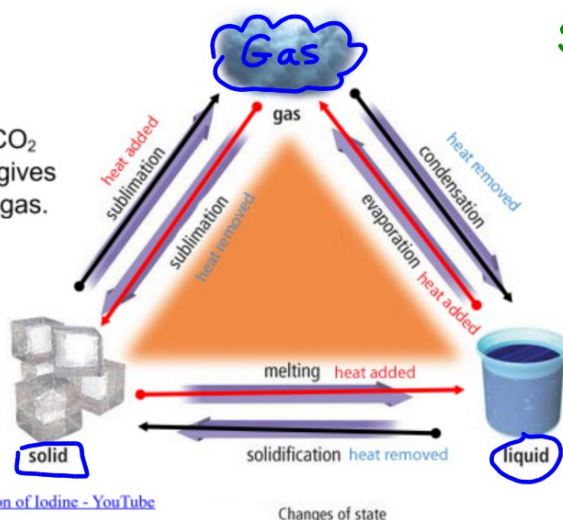
17) Pascal's Law	helps to describe that when there's a pressure on a liquid, the liquid needs to move wherever it can in its container.
10) Pneumatic	- usually referring to systems - uses compressed air to perform a task.
15) Pressure	refers to external force that is added to a particular substance to change how it behaves.
4) Solid	has a fixed volume. The particles are so densely packed that they cannot move freely.
8) Viscosity	refers to a fluid's resistance to flowing. Usually, you can tell if a fluid has a low viscosity by how thick or thin the fluid is.
1) Volume	refers to the space that the fluid occupies.

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.



[Chemistry experiment 47 - Sublimation of Iodine - YouTube](#)

[Go Beyond: A Three State Reaction \(youtube.com\)](#)

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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)