

10/17

Matter, Changes in Phase + How to describe it.

SWAT:

- List phases of matter
- describe characteristics of matter
 - Shape - volume
 - physical properties - chemical properties
- describe changes in phase
- separation techniques

Matter: anything that takes up space + has mass.

Phases of Matter:

Solid	Set shape + set volume atoms/molecules are in fixed positions (still have vibration)
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liquid	take the shape of the container, set volume freedom of movement, gliding past each other (limited)
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gas	no set shape or volume move freely, apart from each other
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Changes in Phases

Melting	Solid \rightarrow liquid	Energy Required (Heat of Fusion)
Freezing	Liquid \rightarrow solid	Energy Removed (Heat of Fusion)
Evaporation Vaporization	Liquid \rightarrow gas	Evaporation - equilibrium based Vaporization - Energy Required (Heat of Vaporization)
Condensation	gas \rightarrow liquid	Energy Removed (Heat of Vaporization)
Sublimation	Solid \rightarrow gas	Energy Required
Deposition	gas \rightarrow solid	Energy Removed

Law of Conservation of matter - matter cannot be destroyed it simply changes arrangement

Law of Conservation of energy - energy cannot be destroyed it simply changes type.

Matter
Pure?

yes

Elements &
Compounds -

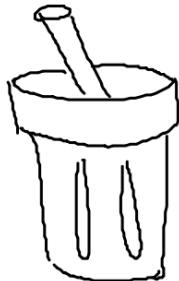
elements that have
chemically bonded
together.

No - Mixtures

Can you see the parts?

No

Homogeneous
Mixture



Shake

yes

Heterogeneous
Mixture



Sundae

Same
ingredients
different
mixtures

Physical vs. Chemical Properties:

Physical Properties:

Properties that can be described w/o exposing the material to another ^{Chemical}

Intensive Physical Properties (Does not depend on amount)

- texture • color • shape • malleable • ductile
- density • Boiling Pt. • Freezing Pt.

Extensive physical Properties (Does depend on amount)

- length • mass • volume

Chemical Properties

- chemical change - changes the identity of the material

- flammable • reactive • explosive • rusts