

## Warm up

What is the metric unit of measurement for each of the following?

- 1) mass
- 2) volume
- 3) time
- 4) distance
- 5) velocity
- 6) density

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## Introduction to Scientific Measurement

Mass - how much of something there is

- measured in grams
- measured with a scale or a balance
- do not use oz or lbs

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Volume - how much space something occupies

- measured in liters or a cubic distance
- measured with a graduated cylinder  
or the multiplication of  $L \times W \times H$

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Distance - how far from point A to point B

- measured in meters

Density - a derived unit that is the ratio of mass to volume

- also known as Mass Per Volume
- $d = m/v$
- measured (typically) in grams per liter

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Matter - anything with mass and volume

States (phases) of matter

Solid, Liquid, Gas, Plasma

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Changes in states of matter

Solid --> Liquid = melting

Liquid --> Gas = evaporation or boiling

Solid --> Gas = sublimation

Gas --> Liquid = condensation

Liquid --> Solid = freezing or solidification

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Chemical Properties

-reactivity

examples - does it rust? does it burn?

Physical Properties

-ways to describe something

- size, shape, color, mass, volume, density

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Two types of Physical Properties

Intensive and Extensive

Intensive (internal) properties do not matter how much of the substance there is

Extensive properties do depend on how much of something there is

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Examples of intensive properties

- color
- melting point
- boiling point
- density
- temperature

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Examples of Extensive Properties

- mass
- volume
- length

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Chemical Change

-new substance formed

Physical Change

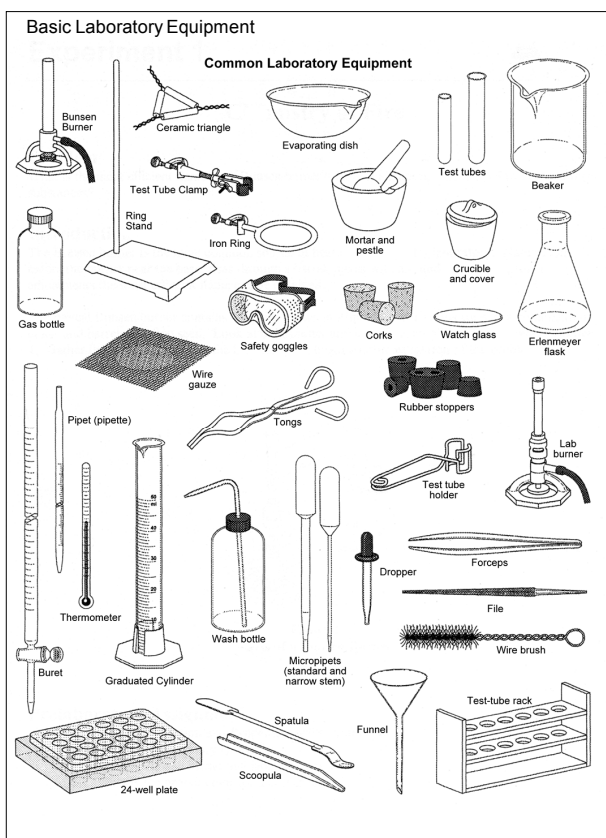
-change in the state of matter

-reversible and irreversible changes in which no new material is formed

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Styrofoam and Acetone Demonstration

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Final thoughts....

- 1) List 2 physical properties
- 2) List 2 ways to that you know a chemical change has occurred
- 3) Define sublimation

Quiz Next Class

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