



Physical Science Reference Guide

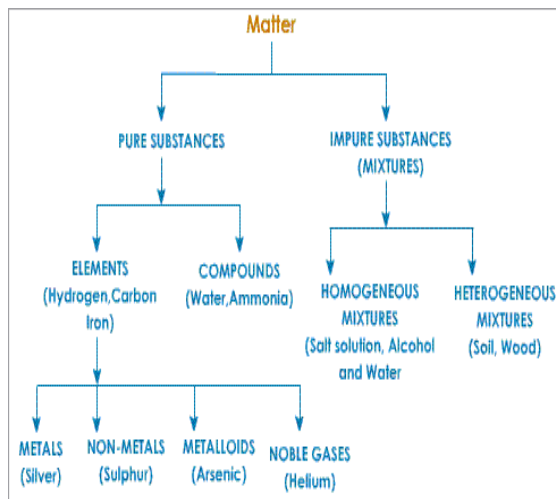
Physical Change: no new substance is produced; may involve a change of state; is usually reversible



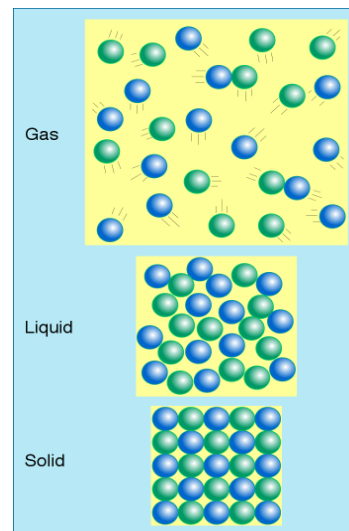
Chemical Change: one or more new substances are produced; usually involve heat or light being released, an odor, a color change, and/or a gas being formed; difficult to reverse



Matter



Phases of Matter



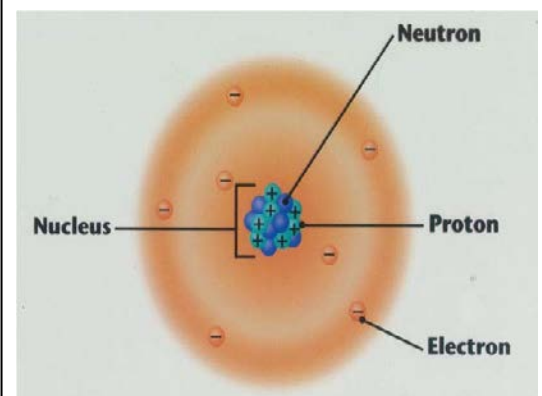
In chemical changes, no matter how big the bang, mass is neither gained nor lost.



LAW OF CONSERVATION OF MATTER: Matter cannot be made or destroyed by ordinary chemical means.

Atomic Structure

Atoms are the smallest unit of an element



Factors in an Experiment

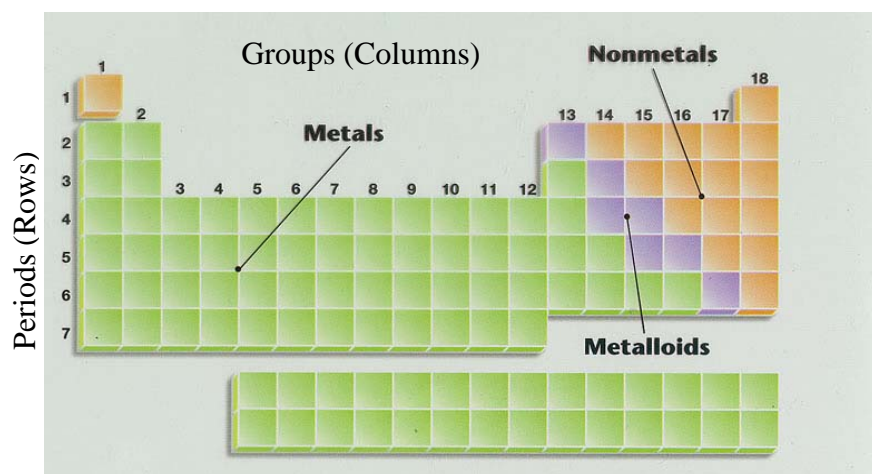
Dependent Variable: factor being measured (also called outcome variable), always indicated on the y axis when graphed

Independent Variable: factor being altered (also called the test variable), always indicated on the x axis when graphed

Control: standard used for comparison to the experimental data

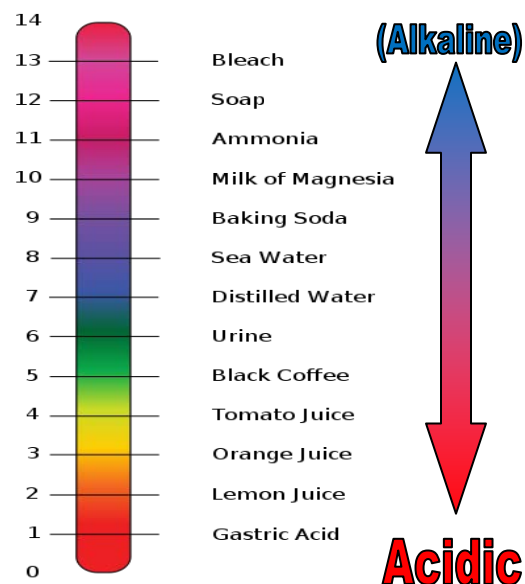
Constant: factor(s) that do(es) not change so that a relationship between the independent and dependent variables can be established

Periodic Table

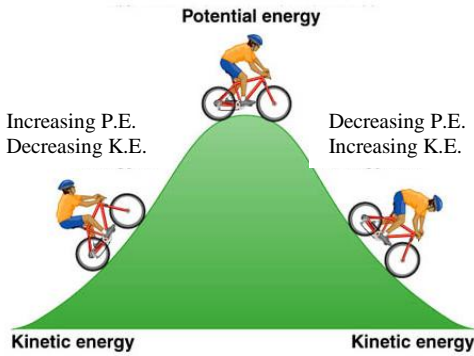


Atomic Number = number of protons/electrons
Atomic Mass = number of protons + number of neutrons

pH Scale

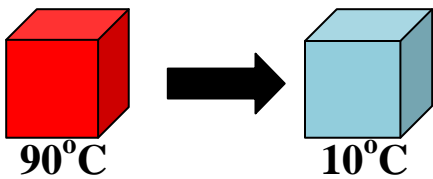


Law of Conservation of Energy



Heat Transfer

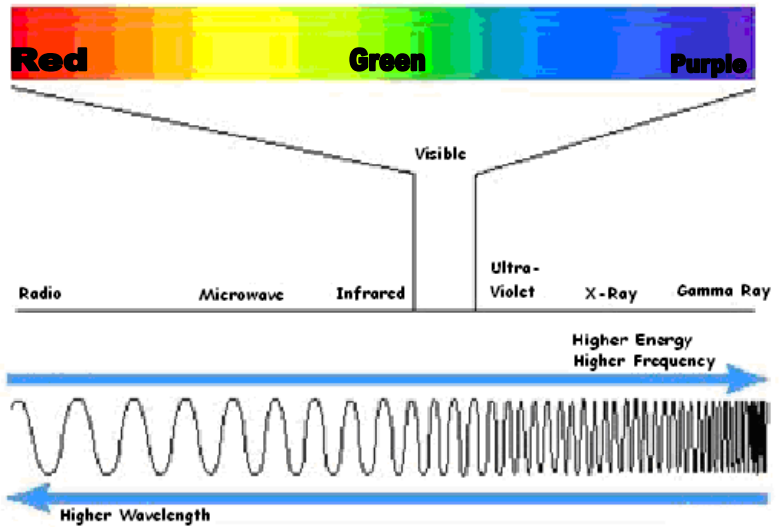
Always from Warmer to Cooler objects



Light

- White light is made up of many colors
- Visible light is part of a broader electromagnetic spectrum

DIAGRAM OF THE ELECTROMAGNETIC SPECTRUM



Unbalanced Forces Create or change motion



300 N

150 N



Mass ≠ Weight

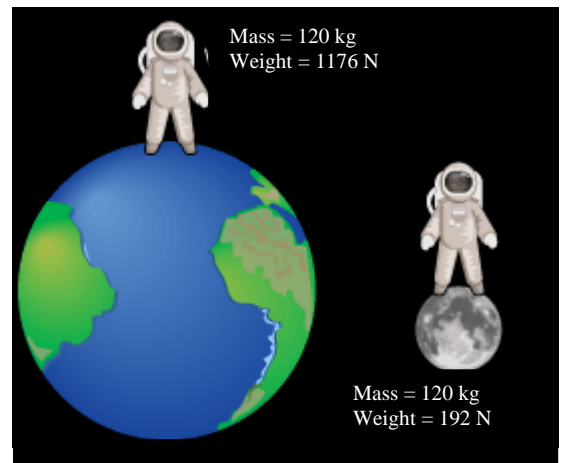


Mass = amount of matter in a substance measured in kilograms (kg)

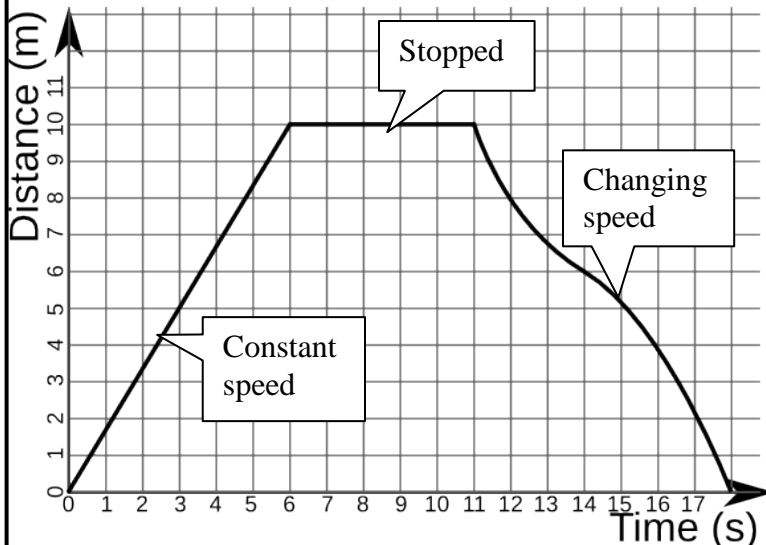
Weight = force on that matter by gravity measured in Newtons (N)

Gravity on Earth is 6 times greater than gravity on the Moon.

Weight changes when gravity changes. Mass does not change.



Distance vs Time Graph



Density

$$d = \frac{m}{v}$$

Density of Water = 1 g/mL

