

Unit: 3. MATTER AND CHANGE

VOCABULARY

acid	a compound that yields hydronium ions in water
activation energy	the energy necessary to start any chemical reaction
alpha particle	particle radiating from the nucleus of some atoms; identical to a helium nucleus
base	a chemical species that releases hydroxide ions
beta particle	negative particle identical to an electron but radiating from a decaying nucleus
calorie	the amount of heat energy required to raise the temperature of 1 gram of liquid water from 14.5°C to 15.5°C
chain reaction	a spontaneous or induced reaction that continues to feed itself and keep itself going
coefficient	the number written in front of a chemical symbol in an equation
condensation	change of state from a gas to a liquid at the condensation point of a substance
corrode	to eat away, break down, or become disordered
covalent bond	a chemical bond formed by two electrons that are shared between two atoms
critical mass	mass of a nuclear substance that, if combined into one piece, would result in a spontaneous nuclear reaction

daughter element	the new element produced along with a decay particle in a nuclear transmutation
decomposition reaction	a chemical reaction in which one substance breaks up into two or more new substances
double displacement reaction	two ionic compounds reacting in solution to form two new compounds, one of which is insoluble
endothermic reaction	reactions in which the products contain more energy than the reactants
energy level	the orbitals of an atom where electrons are found
exothermic reaction	reactions in which the products contain less energy than the reactants
fission	the splitting of a nucleus into two smaller nuclei whose combined mass is less than that of the original nucleus
freezing	change of state from a liquid to a solid at the freezing point of a substance
fusion	the joining of two small nuclei to form one nucleus with a larger mass than the combined mass of the original nuclei
gamma ray	high-intensity bundle of energy being emitted from some decaying nuclei
gas	matter with no definite shape or volume
half-life	the time required for the decay of one-half of the atoms in a sample of radioactive material

hydronium	the positive ion that results when a hydrogen ion is bonded to a water molecule (H_3O^+)
hydroxide	a negative ion composed of a covalently bonded oxygen and hydrogen, (OH^-)
indicator	a substance used to show a change in chemical conditions
intermolecular bonds	weak electrostatic bonds that form between particles of a substance (atoms or molecules)
ion	a charged atom or group of atoms
ionic bond	a chemical bond formed by the electrostatic attraction between ions
isotope	one of two or more atoms of the same element with different masses due to different numbers of neutrons
latent heat of fusion	amount of energy required to change 1 gram of material from the solid to the liquid state at its melting point
latent heat of vaporization	amount of energy required to change 1 gram of material from the liquid to the gaseous state at its boiling point
law of conservation of mass	principle that during a chemical reaction the total mass of the system is unchanged
liquid	matter with no definite shape but with definite volume
litmus	a blue coloring matter obtained from certain plants
melting	change of state from a solid to a liquid at the melting point of a substance

metallic bond	a bond characteristic of metals in which mobile valence electrons are shared among positive nuclei in the metallic crystal
molecule	the smallest particle of a covalently bonded substance
neutral	having no preference or tendency to move one way or the other; neither acid nor base
neutralization reaction	the reaction of an acid with a base to form a salt and water
nonpolar	a molecule with no internal charge variation due to bonding
octet	eight electrons in the valence energy level of an atom
parent element	the substance that decays in a nuclear transmutation
pH	the scale that indicates the hydronium ion concentration
phase diagram	a graph that shows the state of a substance at any given temperature
phenolphthalein	a white powder used in testing acids and bases
plasma	matter in a high-energy state in which electrons are separated from their nuclei
polar	a molecule with an uneven distribution of charge due to unequal sharing of electrons during bonding
precipitate	the insoluble solid formed when the solutes dissolved in two solutions react
product	the substance made in a chemical reaction
reactant	the starting material in a chemical reaction

salt	chemical compound formed when the negative ions from an acid combine with the positive ions of a base
saturated solution	a solution which has dissolved as much solute as it can at a particular temperature
single replacement reaction	a reaction in which an active metal displaces a less active metal or hydrogen from a compound solution (or a nonmetal replaces a nonmetal from a compound in solution)
solid	matter with definite shape and volume
solubility	the quantity of a solute that will dissolve in a given quantity of solvent to form a saturated solution at a given temperature
specific heat	the amount of energy required to change 1 gram of a substance 1°
synthesis reaction	a reaction in which two or more substances combine to form two or more new substances
temperature	a measure of the kinetic energy of the particles of a substance
transmutation	the change of one chemical element into another by nuclear decay or radioactive bombardment
unsaturated solution	a solution which is still able to dissolve solute
vaporization	change of state from a liquid to a gas at the boiling point of a substance

[PERIODIC TABLE OF ELEMENTS - CLICK HERE](#)