Instructional Vocabulary

Integrated Physics and Chemistry (IPC)

Unit 1: Laboratory Management

- **Hypotheses** – tentative and testable statements that must be capable of being supported or not supported by evidence

Unit 2: Organization of Matter

- **Ions** – an atom or a group of atoms that have acquired a net electric charge by gaining or losing one or more electrons
- **Molecules** – an electrically neutral group of at least two atoms in a definite arrangement held together by very strong chemical bonds
- **Viscosity** – resistance of a liquid to shear forces (flow)

Unit 3: Changes in Matter

- **Physical change** – a change that alters the form or appearance of a substance but does not make the material into another substance
- **Chemical change** – changes caused as the result of a chemical reaction; a new substance is produced
- **Phase change** – a change from one state (solid or liquid or gas) to another without a change in chemical composition

Unit 4: Chemical Reactions

- **Endothermic** – type of reaction that absorbs thermal energy from the environment as it proceeds
- **Exothermic** – type of reaction that releases thermal energy into the environment as it proceeds
- **Fusion** – the process of combining atoms, resulting in new byproducts being produced and large amounts of energy being released
- **Fission** – the process of splitting an atom, resulting in new byproducts being produced and large amounts of energy being released

Unit 5: The Environmental Impact of Chemical Reactions

- **End-product** – the result of a completed series of processes or changes
- **Environmental impact** – a change in the environment that could have a negative effect on the ecosystem

Unit 6: Solutions

- **Solubility** – the quantity of a particular substance that can dissolve in a particular solvent
- **Ion** – an atom or molecule that has an electric charge because it has either gained or lost electrons

Unit 7: Motion: Position, Speed, and Acceleration

- **Displacement** – a vector quantity which refers to "how far out of place an object is"; it is the object's final change in position

Unit 8: Motion: Forces, and Momentum

- **Gravitational force** – the force of attraction between all masses in the universe
- **Electric force** – sometimes called the "Coulomb law"; an equation describing the electrostatic force between electric charges

Unit 9: Energy: Potential and Kinectic

- **Law of conservation of energy** – states the total amount of energy in any closed system remains constant, but may change from one form to another
- **Potential energy** – stored energy; the ability of a system to do work due to its position or internal structure
- **Kinetic energy** – the mechanical energy that a body has by virtue of its motion

Unit 10: Energy: Waves

- **Transverse wave** – oscillations (vibrations of the wave) are perpendicular to direction of the waves (string, water)
- **Longitudinal wave** – oscillations are in the same direction as the wave (slinky, sound waves)

Unit 11: Energy: Electricity

- **Circuit** – a closed conducting circle or loop through which current can flow
- **Conductor** – a substance or object that allows electricity to flow through it with low resistance
- **Insulator** – a substance or object that does not conduct electricity
- **Electromagnet** – an iron or steel core that is magnetized by electric current in a coil that surrounds it

Unit 12: Energy: Conversions and Conservation

- **Conduction** - transfer of energy through matter by colliding particles (direct contact)
- **Convection** - transfer of heat energy by the motion of heated particles in a fluid
- **Radiation** - transfer of energy in the form of electromagnetic waves (no direct contact)

Unit 13: Energy: Societal Impacts

- **Environment** – the totality of surrounding conditions
- **Society** – an extended social group having a distinctive cultural and economic organization