Grade 10 Chemistry
Marking Period 3

STANDARD	PERFORMANCE INDICATORS	PACING DAYS	RESOURCES (Print, Visual, Technology, Manipulatives)	ASSESSMENT (Evidence & Scoring Guides)
Unit 6: Physical Behavior of Matter				
P.S.4.5B12 CH	• Intermolecular forces created by the unequal distribution of charge result in varying degrees of attraction between molecules. Hydrogen bonding is an example of a strong intermolecular force.	6	o Crystal Models o Chemical Samples o Equipment o Conductive Device o Pennies, Water, Mineral Oil, Alcohol o Plastic Cups o Calorimeters o Thermometers o Chemical Equipment o Dry Ice o Vacuum Pump Demo o Syringes o Books o Egg Demo o Plastic Tube Timer o Alka Seltzer o Film Canisters	o Properties of Ionic & Molecular Compounds o Intermolecular Forces o Properties of Water o Calorimeter Lab o Phase Change Lab o Dry Ice Lab o Boyles Law Lab o Combined Gas Law Lab o Grahams Gas Lab o Alka Seltzer Lab
P.S.4.5B13 CH	• Physical properties of substances can be explained in terms of chemical bonds and intermolecular forces. These properties include conductivity, malleability, solubility, hardness, melting point, and boiling point.			
P.S.4.3A36 CH	• The structure and arrangement of particles and their interactions determine the physical state of a substance at a given temperature and pressure.			
P.S.4.3A37 CH	• The three phases of matter (solids, liquids, and gases) have different properties.			
P.S.4.4	• Energy exists in many forms, and when these forms change energy is conserved.	14		
P.S.4.4A CH	• Students observe and describe transmission of various forms of energy.			
P.S.4.4A1 CH	• Energy can exist in different forms, such as			

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	chemical, electrical, electromagnetic, thermal, mechanical, and nuclear.			
P.S.4.4A2 CH	• Chemical and physical changes can be exothermic or endothermic.			
P.S.4.4B CH	• Students explain heat in terms of kinetic molecular theory.			
P.S.4.4B1 CH	• Heat is a transfer of energy (usually thermal energy) from a body of higher temperature to a body of lower temperature. Thermal energy is the energy associated with the random motion of atoms and molecules.			
P.S.4.4B2 CH	• Temperature is a measurement of the average kinetic energy of the particles in a sample of material. Temperature is not a form of energy.			
P.S.4.4B3 CH	• The concepts of kinetic and potential energy can be used to explain physical processes that include: fusion (melting), solidification (freezing), vaporization (boiling, evaporation), condensation, sublimation, and deposition.			
P.S.4.3A38 CH	• Entropy is a measure of the randomness or	7		

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	disorder of a system. A system with greater disorder has greater entropy.			
P.S.4.3A39 CH	• Systems in nature tend to undergo changes toward lower energy and higher entropy.			
P.S.4.3D CH	• Students use kinetic molecular theory (KMT) to explain rates of reactions and the relationships among temperature, pressure, and volume of a substance.			
P.S.4.3D1 CH	• The concept of an ideal gas is a model to explain the behavior of gases. A real gas is most like an ideal gas when the real gas is at low pressure and high temperature.			
P.S.4.3D2 CH	• Kinetic molecular theory (KMT) for an ideal gas states that all gas particles: are in random, constant, straight-line motion; are separated by great distances relative to their size; the volume of the gas particles is considered negligible; have no attractive forces between them; and have collisions that may result in a transfer of energy between gas particles, but the total energy of the system remains constant.			

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P.S.4.3D3 CH	• Kinetic molecular theory describes the relationships of pressure, volume, temperature, velocity, and frequency and force of collisions among gas molecules.			
Unit 7: Properties of Solutions				
P.S.4.3	• Matter is made up of particles whose properties determine the observable characteristics of matter and its reactivity.	12	o Thermometers o Chemicals o Equipment o Oombleck o Hot/Cold Packs Demo o Videos o Web Sites	o Oombleck Lab o Homework o Quizzes o Exams
P.S.4.3A CH	• Students explain the properties of materials in terms of the arrangement and properties of the atoms that compose them.			
P.S.4.3A40 CH	• Differences in properties such as density, particle, size, molecular polarity, boiling and freezing points, and solubility permit physical separation of the components of the mixture.			
P.S.4.3A41 CH	• A solution is a homogeneous mixture of a solute dissolved in a solvent. The solubility of a solute in a given amount of solvent is dependent on the temperature, the pressure, and the chemical natures of the solute and solvent.			

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P.S.4.3A42 CH	• The concentration of a solution may be expressed in molarity (M), percent by volume, percent by mass, or parts per million (ppm).			
P.S.4.3A43 CH	• The addition of a nonvolatile solute to a solvent causes the boiling point of the solvent to increase and the freezing point of the solvent to decrease. The greater the concentration of solute particles, the greater the effect.			

Curriculum Guidelines for Third Quarter

- Intermolecular Forces
- Kinetic Molecular Theory for Gases, Liquids and Solids
- Ideal Gas Laws
- Phase Changes
- Solutions