CHEMISTRY LEARNING TARGETS

Atomic Structure and the Periodic Table

AS1: I can describe the differences between chemical and physical changes.
AS2: I can identify the historical and experimental basis for the development of atomic structure and the quantum theory.
AS3: I can calculate the charge of an element in order write an ion (cation and anion).
AS4: I can use the atomic number and atomic mass number of an isotope, to draw and label a model of the isotope's atomic structure.
AS5: I can use the relative mass and abundance of isotopes to calculate the atomic mass of an element.
AS6: I can identify the position of an element on the periodic table to its electron configuration.
AS7: I can use the periodic table to find elements based on their properties, explain their positions and show trends that explain how and why elements will form bonds.

Nuclear Processes

NP1: I can identify the four fundamental forces and describe applications of these processes.
NP2: I can identify the differences between the three forms of radioactive decay (alpha, beta, gamma) and describe how the nucleus changes, living tissue is effected and prevention measures can be used.
NP3: I can perform calculations to predict the amount of a radioactive substance remaining after an integral number of half-lives have passed.

Chemical Bonds

CB1: I can identify the properties of ionic compounds, covalent molecules, and metallic matrices/alloys.
CB2: I can write formulas for ionic compounds, covalent molecules, and metallic matrices/alloys.
CB3: I can name ionic compounds, covalent molecules, and metallic matrices/alloys.
CB4: I can draw a Lewis Dot Structure for any element in family 1-8.
CB5: I can use the Lewis Dot Structure to explain the diagram and the geometric shape of a molecule.
CB6: I can use the geometric shape and periodic table to determine a molecules polarity.
CB7: I can state the importance of attractive forces (Hydrogen bonding, Van Der Walls).

Conservation of Matter and Stoichiometry

MS1: I can write a balanced chemical equation.
MS2: I can write a balanced net ionic equation.
MS3: I can identify the reaction type of a chemical equation.
MS4: I can predict whether a replacement reaction will take place.
MS5: I can identify and predict reaction states: Solid, Liquid, Gas, Aqueous
MS6: I can explain and calculate the relationships between mass, moles and particles.
MS7: I can calculate percent composition of a compound/molecule/alloy.
MS8: I can calculate the empirical formula of a compound/molecule/alloy.
MS9: I can calculate the molecular formula of a compound/molecule/alloy.
MS10: I can identify the molar ratios of a balanced chemical equation.
MS11: I can calculate molar relationships of a chemical equation.
MS12: I can determine the limiting reactant in a chemical equation.
MS13: I can calculate the percent yield of a chemical equation.

Chemical Thermodynamics

CT1: I can identify and describe the phase states and transitions between phases.
CT2: I can identify both an exothermic and endothermic process.
CT3: I can describe the differences in an exothermic and endothermic process.
CT4: I can solve the enthalpy of an equation, based on step equations, using Hess' Law.
CT5: I can identify and describe the components of the equation for heat.
CT6: I can calculate the enthalpy of a compound using calorimetry.

Gases

GS1: I can describe the Kinetic-Molecular Theory and explain how it accounts for observed gas behavior.
GS2: I can identify and describe the variables that define an ideal gas; Pressure, Volume, Moles, Temperature and Ideal Gas Constant.
GS3: I can calculate pressure using a manometer.
GS4: I can relate the variables of an ideal gas to changing conditions.
GS5: I can calculate for an unknown variable using the ideal gas formula for a static condition.
GS6: I can calculate the composition of a gas using Dalton’s law of partial pressures.

Solutions and Mixtures

SM1: I can define and describe the key terms of a mixture.
SM2: I can describe the differences between heterogeneous and homogeneous mixtures.
SM3: I can describe the differences between solid, liquid and gaseous mixtures.
SM4: I can describe and identify factors that impact the rate of dissolving.
SM5: I can calculate the molarity of a solution to determine its concentration.
SM6: I can calculate the molality of a solution to determine its concentration.
SM7: I can identify and describe the colligative properties of a solution.
SM8: I can calculate changes in temperature using the colligative properties of a solution.

Acids and Bases

AB1: I can identify and describe the differences of acids and bases.
AB2: I can identify the reactions of acids and bases by the various acid/base definitions.
AB3: I can calculate a compounds acidity/basitity using the pH scale.
AB4: I can perform and calculate acid/base titrations.
AB5: I can describe conjugate acids and bases.
AB6: I can describe a buffer and state uses of such.

Laboratory Experimentation & Global Perspectives

LG1: I can identify and manipulate variables to perform chemistry experimentations.
LG2: I can gather data during experimentation.
LG3: I can present data in multiple formats including drawings, tables, charts, and graphs.
LG4: I can analyze results and draw logical conclusions based on evidence that is consistent with current scientific knowledge.
LG5: I can apply technologies, mathematical concepts, and reasoning to solve problems and report findings.
LG6: I can analyze and apply scientific information to issues confronting society, from a personal to a global level.
LG7: I can write detailed laboratory reports to communicate the results of investigations.

Chapter	New Learning Targets Covered
1-5	**AS**:1,2,3,4,5,7 **NP**:2+3 **SM**:2 **LG**:4
6	**AS:** 7 **SM**: 1
4	~~**AS**: 2,6,7~~
8	**NP**: 1 **CB:** 4,5,6,7
7	**CB:** 1, 2,3
10	**MS:** 6,7,8,9
9	**MS:** 1,2,3,4,5
11	**MS:** 10,11,12,13
12	**CT**: 1,2,3,4,5,6
13	**GS**: 1,2,3,4,5,6
15	**SM**: 1,3,4,5,6,7,8
18+19	**AB**: 1,2,3,4,5,6

Highlighted: Short Answer