Course-at-a-Glance (CAG) --- Grade 10 --- Science --- Chemistry

Semester 1: Quarter 1

Unit 1: Introduction to Matter (6 weeks)

1.1 I can solve a problem using dimensional analysis. (9.1.3.4.5)
1.2 I can distinguish between precision and accuracy to display data with the correct number of significant figures. (9C.1.3.4.1)
1.3 I can deduce whether a change in matter is physical or chemical using experimental evidence. (9.2.1.2.4)
1.4 I can explain the effect of energy on the state of a given sample of matter using Kinetic Molecular Theory. (9C.2.1.4.1)
1.5 I can apply safety procedures, tools, computers, and measurement instruments in scientific and engineering contexts. (9.1.3.4.2)
1.6 I can relate the reliability of data to consistency of results, identify sources of error, and suggest ways to improve data collection and analysis. (9.1.3.4.4)

Unit 2: Atomic Theory (3 weeks)

2.1 I can explain historical changes to the model of the atom. (9.2.1.1.2, 9.1.3.4.6)
2.2 I can compare atoms, ions, and isotopes. (9.2.1.1.1, 9.2.1.1.4, 9.1.3.4.3)
2.3 I can determine an element's electron configuration using the periodic table. (9C.2.1.1.1)

Semester 1: Quarter 2

Unit 3: Chemical Relationships (6 weeks)

3.1 I can compare periodic properties for elements within the same group or period (9.2.1.1.3, 9C.2.1.1.2, HS-PS1-1).
3.2 I can explain how and why a chemical bond is formed between two or more given atoms. (9.2.1.2.1, 9C.2.1.2.1, HS-PS1-1)
3.3 I can provide examples of how the chemical and physical properties of compounds are based on the types of atoms and bonding present. (9C.2.1.2.2, HS-PS1-3)
3.4 I can write chemical names and formulas using the IUPAC system of nomenclature. (9C.2.1.2.3)

Unit 4: Chemical Quantities (3 weeks)

4.1 I can solve conversion problems using the mole concept. (9C.2.1.2.4)
4.2 I can determine the formula of a compound using experimental evidence. (9C.2.1.2.5)

Semester 2: Quarter 3

Unit 5: Chemical Reactions (3 weeks)

5.1 I can represent chemical reactions using words, formulas, and pictures. (9.2.1.2.2, 9.2.1.2.3, 9C.2.1.3.4, HS-PS1-2)
5.2 I can predict the products or reactants in a chemical reaction when given one or the other. (9C.2.1.3.1, 9C.2.1.3.2, HS-PS1-2)
5.3 I can model changes in energy that occur during chemical reactions. (9.2.1.2.4, HS-PS1-4)

Unit 6: Stoichiometry (4 weeks)

6.1 I can solve conversion problems using relationships defined in balanced chemical equations. (9C.2.1.3.5, HS-PS1-7)
6.2 I can deduce the limiting reagent in a chemical reaction. (9C.2.1.3.5)
6.3 I can calculate the percent yield of a chemical reaction. (9C.2.1.3.5)

Unit 7: Properties of Gases (2 weeks)

7.1 I can explain the behavior of gases. (9C.2.1.4.2)

Semester 2: Quarter 4

Unit 8: Solutions, Acids and Bases (5 weeks)

8.1 I can explain the process of solvation using words and diagrams. (9C.2.1.2.6, 9C.2.1.2.7)
8.2 I can calculate the molar, ppm, % by mass, and % by volume concentration of a solution. (9C.2.1.2.6)
8.3 I can predict the properties of the reactants and products of an acid-base reaction. (9C.1.3.3.1, 9C.2.1.3.3, HS-PS1-5)

Unit 9: Kinetics and Equilibrium (4 weeks)

9.1 I can predict how changing the conditions of a chemical reaction affect the rate of the reaction. (9C.2.1.3.6, HS-PS1-5)
9.2 I can predict the effect of changing a system at chemical equilibrium. (9C.2.1.3.7, HS-PS1-6)

Nuclear Chemistry (2 weeks)

O.1 I can explain the cause and effects of nuclear instability. (9.2.1.1.4, HS-PS1-8)
O.2 I can explain nuclear change using words, equations, and pictures. (9.2.1.1.4, HS-PS1-8)
O.3 I can compare the processes of nuclear fission and fusion. (9.2.3.2.6, 9C.1.3.3.1, HS-PS1-8)

MCA-III Test Specifications: Science | MCA-III Test Specifications: Science (excel version) | MPS Science Department Site
MPS Chemistry Equation Sheet