



**Catholic  
Memorial**  
HIGH SCHOOL

## Year Long Course Plan

**Department: Science**

**Course: IB Chemistry SL/HL 1 756/757**

**Essential Learning Outcomes:** After successfully completing this course, students will be able to (adapted from IB Group IV Subject Aims):

1. Acquire the body of knowledge, methods and techniques that characterize the study of chemistry.
2. Apply and use the body of knowledge, methods and techniques that characterize the study of chemistry.
3. Analyse, evaluate and synthesize scientific information.
4. Demonstrate awareness of the need for effective collaboration and communication during scientific activities.
5. Apply strong experimental and investigative scientific skills to new problems.
6. Apply information and communication technology skills in the study of science.
7. Demonstrate an awareness of the moral, ethical, social, economic and environmental implications of using science and technology.
8. Understand of the relationships between chemistry and the overarching nature of the scientific method.
9. Consider the study of chemistry within a global context.

<b>Quarter 1</b>	<b>Quarter 2</b>
<p><b>Unit I – Quantitative Chemistry (ELO 1,2,3,5,6,8)</b></p> <ul style="list-style-type: none"> <li>• The mole concept and Avogadro's constant</li> <li>• Formulas</li> <li>• Chemical equations</li> <li>• Mass and gaseous volume relationships in chemical reactions</li> <li>• Solutions</li> <li>• ASSESSMENT: Unit I Test</li> </ul> <p><b>Unit II – Atomic Structure (ELO 1,2,3,5,6,8)</b></p> <ul style="list-style-type: none"> <li>• The atom</li> <li>• The mass spectrometer</li> <li>• Electron arrangement</li> <li>• ASSESSMENT: Unit II Test</li> </ul> <p><b>Unit III – Periodicity (ELO 1,2,3,5,6,8)</b></p> <ul style="list-style-type: none"> <li>• The periodic table</li> <li>• Physical properties</li> <li>• Chemical properties</li> <li>• ASSESSMENT: Unit III Test</li> </ul> <p><b>Unit IV – Bonding (ELO 1,2,3,5,6,8)</b></p> <ul style="list-style-type: none"> <li>• Ionic bonding</li> <li>• Covalent bonding</li> <li>• Intermolecular forces</li> <li>• Metallic bonding</li> <li>• Physical properties</li> <li>• ASSESSMENT: Unit IV Test</li> </ul>	<p><b>Unit V – Energetics (ELO 1,2,3,4,5,6,8)</b></p> <ul style="list-style-type: none"> <li>• Exothermic and endothermic reactions</li> <li>• Calculation of enthalpy changes</li> <li>• Hess's law</li> <li>• Bond enthalpies</li> <li>• ASSESSMENT: Unit V Test</li> </ul> <p><b>Unit VI – Kinetics (ELO 1,2,3,5,6,8)</b></p> <ul style="list-style-type: none"> <li>• Rates of reaction</li> <li>• Collision theory</li> <li>• ASSESSMENT: Unit VI Test</li> </ul> <p><b>Unit VII – Equilibrium (ELO 1,2,3,4,5,6,8)</b></p> <ul style="list-style-type: none"> <li>• Dynamic equilibrium</li> <li>• The position of equilibrium</li> <li>• ASSESSMENT: Unit VII Test</li> </ul>
<b>Quarter 3</b>	<b>Quarter 4</b>
<p><b>Unit VIII – Acids and Bases (ELO 1,2,3,4,5,6,8)</b></p> <ul style="list-style-type: none"> <li>• Theories of acids and bases</li> <li>• Properties of acids and bases</li> <li>• Strong and weak acids and bases</li> </ul>	<p><b>Unit XI – Group IV Project (ELO 3,4,6,7,8,9)</b></p> <ul style="list-style-type: none"> <li>• Topic TBD</li> <li>• ASSESSMENT: Group IV Project</li> </ul>

<ul style="list-style-type: none"> <li>• The pH scale</li> <li>• ASSESSMENT: Unit VIII Test</li> </ul> <p><b>Unit IX – Oxidation and Reduction (ELO 1,2,3,4,5,6,8)</b></p> <ul style="list-style-type: none"> <li>• Introduction to oxidation and reduction</li> <li>• Redox equations</li> <li>• Reactivity</li> <li>• Voltaic cells</li> <li>• Electrolytic cells</li> <li>• ASSESSMENT: Unit IX Test</li> </ul> <p><b>Unit X – Organic Chemistry (ELO 1,2,3,5,6,8)</b></p> <ul style="list-style-type: none"> <li>• Introduction</li> <li>• Alkanes</li> <li>• Alkenes</li> <li>• Alcohols</li> <li>• Halogenoalkanes</li> <li>• Reaction pathways</li> <li>• ASSESSMENT: Unit X Test</li> </ul>	<p><b>Unit XII – Human Biochemistry (ELO 1,2,3,5,6,7,8,9)</b></p> <ul style="list-style-type: none"> <li>• Energy</li> <li>• Proteins</li> <li>• Carbohydrates</li> <li>• Lipids</li> <li>• Micronutrients and macronutrients</li> <li>• Hormones</li> <li>• ASSESSMENT: Unit XII Test</li> </ul> <p><b>Unit XIII – Environmental Chemistry (ELO 1,2,3,4,5,6,7,8,9)</b></p> <ul style="list-style-type: none"> <li>• Air pollution</li> <li>• Acid deposition</li> <li>• Greenhouse effect</li> <li>• Ozone depletion</li> <li>• Dissolved oxygen in water</li> <li>• Water treatment</li> <li>• Soil</li> <li>• Waste</li> <li>• ASSESSMENT: Unit XIII Test</li> </ul>
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