

IB Chemistry Year 2 - MHS Subject Group Overview

UNIT	Internal Assessment	Stoichiometry and Redox Processes	Electron Configuration and Periodic Trends	Covalent and Organic Structures	Organic Reactions and Spectroscopy	Energy and Fuels	Exam Review
------	---------------------	-----------------------------------	--	---------------------------------	------------------------------------	------------------	-------------

Time Frame	Ongoing in Fall Semester (devote 10+ hours of class)	12 weeks (Aug-Oct)	4 weeks (Nov-Dec)	6 weeks (Jan-Feb)	4 weeks (Feb-Mar)	4 weeks (Mar-Apr)	4 weeks (April-May)
Standards	Internal Assessment + IB 11.1 + 11.2	IB 1.3, 9.1, 9.2 (Review 1.1, 1.2, 2.1)	IB 2.2, 3.2 (Review 3.1 and Topic 8)	IB 4.3, 4.4, 10.1 (Review 4.1, 4.2, 4.5)	IB 10.2, 11.3 (Review Topics 6-7)	IB Option Topic C (Review Topic 5)	REVIEW ALL TOPICS
Content Specific Information (texts, documents, methods)	<p>Scientific Investigation The internal assessment, worth 20% of the final IB grade, consists of an individual investigation that will cover a topic from IB Chemistry Standard Level.</p> <p>Student work is internally marked by the teacher and externally moderated by the IB.</p> <ul style="list-style-type: none"> Duration: 10 hours Weighting: 20% Individual investigation <p>Internal Assessment Criteria Personal Engagement 8% Exploration 25% Analysis 25% Evaluation 25% Communication 17%</p> <p>CORE IDEAS Uncertainty and error</p>	<p>Statements of Inquiry Mole ratios in chemical equations can be used to calculate reacting ratios by mass and gas volume.</p> <p>Chemists use half-equations to determine how electrons move in reactions.</p> <p>Phenomenon: A voltaic cell produces electric current spontaneously, allowing electrons to flow from one metal electrode to another while keeping charge balance throughout.</p> <p>Crosscutting Concepts Patterns Scale, Proportion, and Quantity Systems and System Models</p> <p>CORE IDEAS Limiting and excess reactants Gas laws Oxidation and reduction Redox titrations Electrochemical cells</p>	<p>Statement of Inquiry The arrangement of elements in the periodic table helps to predict their electron configuration and physical and chemical properties.</p> <p>Phenomenon: The line emission spectrum of hydrogen provides evidence for the existence of electrons in discrete energy levels, which converge at higher energies.</p> <p>Crosscutting Concepts Patterns Cause and effect Systems and System Models</p> <p>CORE IDEAS Continuous and line spectra Electron configuration Periodic trends of physical and chemical properties</p>	<p>Statement of Inquiry The physical properties of molecular (including organic) substances result from different types of forces between their molecules.</p> <p>Phenomenon: Millions of organic compounds have been discovered, and each one has a unique and systematic name and predictable structure.</p> <p>Crosscutting Concepts Patterns Systems and System Models Structure and Function</p> <p>CORE IDEAS Covalent structures Intermolecular forces Functional groups Organic nomenclature and isomers</p>	<p>Statement of Inquiry Organic functional groups can be transformed into others with the right chemical reaction, allowing us to create numerous different organic compounds for many useful purposes including medicine, polymers, and fuels.</p> <p>Phenomenon: Many wines, which contain ethanol, naturally have a fruity taste or aroma that does not have to do with grapes or any additives.</p> <p>Crosscutting Concepts Patterns Energy and Matter Structure and Function Stability and Change</p> <p>CORE IDEAS Chemistry of alkanes and alkenes Chemistry of alcohols Nucleophilic and electrophilic substitution IR, proton NMR, and MS to identify organic compounds</p>	<p>Statement of Inquiry Energetics allows us to investigate the exchange and transformation of energy within chemical reactions, leading to a deeper understanding of the factors influencing enthalpy changes and their applications in real-world processes.</p> <p>Phenomenon: Utilizing bioethanol in internal combustion engines showcases the renewable and carbon-neutral nature of biofuels, providing a cleaner and more sustainable alternative to fossil fuels.</p> <p>Crosscutting Concepts Structure and Function Stability and Change Energy and Matter</p> <p>CORE IDEAS Energy Sources Fossil Fuels Nuclear Fusion and Fission Solar Energy Global Warming</p>	Comprehensive review of all IB Chemistry SL content

IB Chemistry Year 2 - MHS Subject Group Overview

UNIT	Internal Assessment	Stoichiometry and Redox Processes	Electron Configuration and Periodic Trends	Covalent and Organic Structures	Organic Reactions and Spectroscopy	Energy and Fuels	Exam Review
	Graphing techniques						
Common Assessments/ Major Project	SEP Asking Questions Developing and Using Models Planning and Carrying out Investigations Analyzing and Interpreting Data Using Mathematics and Computational Thinking Engaging in Argument from Evidence Obtaining, Evaluating, and Communicating Information Assessments/Projects: IA Proposal IA Rough Draft IA Final Draft	SEP Asking Questions Developing and Using Models Planning and Carrying out Investigations Analyzing and Interpreting Data Using Mathematics and Computational Thinking Obtaining, Evaluating, and Communicating Information Assessments/Projects: Formative assessments on each lesson Summative assessment with questions from previous IB papers	SEP Developing and Using Models Analyzing and Interpreting Data Engaging in Argument from Evidence Obtaining, Evaluating, and Communicating Information Assessments/Projects: Formative assessments on each lesson Summative assessment with questions from previous IB papers	SEP Developing and Using Models Engaging in Argument from Evidence Obtaining, Evaluating, and Communicating Information Assessments/Projects: Formative assessments on each lesson Summative assessment with questions from previous IB papers	SEP Analyzing and Interpreting Data Engaging in Argument from Evidence Obtaining, Evaluating, and Communicating Information Assessments/Projects: Formative assessments on each lesson Summative assessment with questions from previous IB papers	SEP Asking Questions Developing and Using Models Engaging in Argument from Evidence Obtaining, Evaluating, and Communicating Information Assessments/Projects: Formative assessments on each lesson Summative assessment with questions from previous IB Paper 3	SEP ALL REVIEWED Assessments/Projects: Mock IB Exam Review project
Level Specific Differentiation	Marietta City Schools teachers provide specific differentiation of learning experiences for all students. Details for differentiation for learning experiences are included on the district unit planners.						
Resources	<ul style="list-style-type: none"> Pearson IB Chemistry textbook Online videos and notes (Schoology) Hodder IA Skills for Success book 	<ul style="list-style-type: none"> Pearson IB Chemistry textbook Online videos and notes (Schoology) 	<ul style="list-style-type: none"> Pearson IB Chemistry textbook Online videos and notes (Schoology) 	<ul style="list-style-type: none"> Pearson IB Chemistry textbook Online videos and notes (Schoology) 	<ul style="list-style-type: none"> Pearson IB Chemistry textbook Online videos and notes (Schoology) 	<ul style="list-style-type: none"> Pearson IB Chemistry textbook Online videos and notes (Schoology) 	<ul style="list-style-type: none"> Pearson IB Chemistry textbook Online videos and notes (Schoology)