

MCS IB Chemistry Year 1 Subject Group Overview

Unit Name	Fundamentals of Chemistry	Bonding and Energetics	Chemical Kinetics and Equilibrium	Acids and Bases	Exams/ Review
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Time Frame	6 weeks	8 weeks	10 weeks	6 weeks	2 weeks
Standards/ IB Topics	1.1, 1.2, 2.1, 3.1	4.1, 4.2, 4.3 (part), 4.5, 5.1, 5.2, 5.3	6.1, 7.1	8.1, 8.2, 8.3, 8.4, 8.5	All Topics
Content Specific Information (texts, documents, methods)	<p>Statement of Inquiry Chemical change involves interactions between particles of fixed mass.</p> <p>Phenomenon: When magnesium metal is burned in air, a white solid product is produced; the formula for this product can be experimentally confirmed to be MgO (1:1 ratio of Mg:O).</p> <p>Crosscutting Concepts</p> <ul style="list-style-type: none"> ● Scale, Proportion, and Quantity ● Structure and Function ● Systems and System Models <p>CORE IDEAS</p> <ul style="list-style-type: none"> ● States of Matter ● Chemical Equations ● The Mole ● Empirical and Molecular Formulas ● Atomic Structure ● Mass Spectra ● Periodic Table 	<p>Statement of Inquiry The world is in constant motion; motion is the mode of existence of matter.</p> <p>Phenomenon: The energy released or gained by a chemical reaction is dependent on bonds breaking and forming.</p> <p>Crosscutting Concepts</p> <ul style="list-style-type: none"> ● Energy and Matter ● Stability and Change ● Systems and System models <p>CORE IDEAS</p> <ul style="list-style-type: none"> ● Ionic Bonding and Structure ● Covalent Bonding and Structure ● Metallic Bonding and Structure ● Heat and Temperature ● Calorimetry ● Hess's Law ● Bond Enthalpies 	<p>Statement of Inquiry Many chemical reactions are reversible in nature.</p> <p>Phenomenon: If photosynthesis stopped, the balance of carbon dioxide exchange would be disturbed.</p> <p>Crosscutting Concepts</p> <ul style="list-style-type: none"> ● Stability and Change ● Energy and Matter ● Structure and Function <p>CORE IDEAS</p> <ul style="list-style-type: none"> ● Rates of Reaction ● Collision Theory ● Changing Rate or Reaction ● Systems in Equilibrium ● The Equilibrium Constant ● Le Chatelier's Principle 	<p>Statement of Inquiry The human body uses acids and bases to regulate homeostasis.</p> <p>Phenomenon: Hydrochloric acid produces hydrogen gas when reacted with a metal, but produces carbon dioxide gas when reacted with limestone.</p> <p>Crosscutting Concepts</p> <ul style="list-style-type: none"> ● Cause and Effect ● Structure and Function ● Systems and System models ● Patterns <p>CORE IDEAS</p> <ul style="list-style-type: none"> ● Theories of Acids and Bases ● Properties of Acids and Bases ● pH Calculations ● Strong and Weak Acids/Bases ● Acid Deposition 	Review all previous topics

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Common Assessments/ Major Projects	<p>SEP</p> <ul style="list-style-type: none"> Asking Questions and Defining Problems Developing & Using Models Constructing Explanations Planning and Carrying out investigations Analyzing & interpreting data Use mathematics and computational thinking Obtaining, evaluating and communicating information <p>Assessments/Projects</p> <ul style="list-style-type: none"> Formative closer quiz on each lesson Lab Report: Empirical Formula of a Hydrate Summative assessment using questions from IB Papers 1-3 	<p>SEP</p> <ul style="list-style-type: none"> Asking Questions and Defining Problems Developing & Using Models Constructing Explanations Planning and Carrying out investigations Analyzing & interpreting data Use mathematics and computational thinking Obtaining, evaluating and communicating information <p>Assessments/Projects</p> <ul style="list-style-type: none"> Formative closer quiz on each lesson Lab Report: Enthalpy of Reaction Summative assessment using questions from IB Papers 1-3 OR Bonding/Enthalpy Summative Project 	<p>SEP</p> <ul style="list-style-type: none"> Asking Questions and Defining Problems Developing & Using Models Carry out Investigations Analyzing & interpreting data Use mathematics and computational thinking Engage in Argument from Evidence Obtaining, evaluating and communicating information <p>Assessments/Projects</p> <ul style="list-style-type: none"> Formative closer quiz on each lesson Lab Report: Measuring Rates of Reaction Summative assessment using questions from IB Papers 1-3 	<p>SEP</p> <ul style="list-style-type: none"> Asking Questions and Defining Problems Developing & Using Models Carry out Investigations Analyzing & interpreting data Use mathematics and computational thinking Engage in Argument from Evidence Obtaining, evaluating and communicating information <p>Assessments/Projects</p> <ul style="list-style-type: none"> Quiz 8.1-8.3 Acid Deposition Paper Topic 8 Exam 	<p>Review all previous topics</p> <p>Assessments/ Projects</p> <ul style="list-style-type: none"> Final Exam Review Final Exam (cumulative)
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	<p>Oxford IB Chemistry textbook</p> <p>Pearson IB Chemistry Textbook (problems and labs)</p>	<p>Oxford IB Chemistry textbook</p> <p>Pearson IB Chemistry Textbook (problems and labs)</p>	<p>Oxford IB Chemistry textbook</p> <p>Pearson IB Chemistry Textbook (problems and labs)</p>	<p>Oxford IB Chemistry textbook</p> <p>Pearson IB Chemistry Textbook (problems and labs)</p>	<p>Oxford IB Chemistry textbook</p> <p>Pearson IB Chemistry Textbook (problems and labs)</p>