

## Chemistry Subject Group Overview

Unit Name		Measurement and Data Processing / Matter	Atomic Theory/Electron Configuration	Periodic Table	Bonding/Nomenclature	Chemical Reactions/ Stoichiometry	States of Matter/Gas Laws	Acids & Bases
Time Frame		4 weeks	4 weeks	3 weeks	8 weeks	8 weeks	5 weeks	3 weeks
Course Name: Chemistry	Standards	SC1.c, SC2.a, b, SC3.b, c SC5.b	SC1.a, b, d, e, f, g, SC2.b	SC1.e, f, g, SC2.b, c	SC2.d, e, f, g	SC3. a, b, c, d, e	SC4. a, b, c, d, SC5. a, b, c	SC6. a, b, c, d, e, f, g, h
	Approaches To Learning Instructional Strategies	<p><b>SEP</b> Construct explanations &amp; ask questions Engage in argument from evidence Plan &amp; carry out investigations Analyze and interpret data Develop and use models Use mathematics and computational thinking Obtaining, evaluating &amp; communicating information</p> <p><b>ATL</b> Research Skills Thinking Skills</p>	<p><b>SEP</b> Construct explanations &amp; ask questions Engage in argument from evidence Plan &amp; carry out investigations Analyze and interpret data Develop and use models Use mathematics and computational thinking Obtaining, evaluating &amp; communicating information</p> <p><b>ATL</b> Research Skills Thinking Skills</p>	<p><b>SEP</b> Develop and use models Engage in argument from evidence Construct explanations &amp; Ask questions Plan &amp; carry out investigations Analyze and interpret data Obtaining, evaluating, and communicating information</p> <p><b>ATL</b> Research Skills Communication Skills Thinking Skills</p>	<p><b>SEP</b> Develop and use models Engage in argument from evidence Construct explanations &amp; Ask questions Plan &amp; carry out investigations Analyze and interpret data Obtaining, evaluating, and communicating information</p> <p><b>ATL</b> Research Skills Thinking Skills</p>	<p><b>SEP</b> Develop and use models Engage in argument from evidence Construct explanations &amp; Ask questions Plan &amp; carry out investigations Analyze and interpret data Obtaining, evaluating, and communicating information</p> <p><b>ATL</b> Research Skills Communication Skills Thinking Skills</p>	<p><b>SEP</b> Develop and use models Engage in argument from evidence Construct explanations &amp; Ask questions Plan &amp; carry out investigations Analyze and interpret data Obtaining, evaluating, and communicating information</p> <p><b>ATL</b> Research Skills Communication Skills Thinking Skills</p>	<p><b>SEP</b> Develop and use models Engage in argument from evidence Construct explanations &amp; Ask questions Plan &amp; carry out investigations Analyze and interpret data Obtaining, evaluating, and communicating information</p> <p><b>ATL</b> Research Skills Communication Skills Thinking Skills</p>

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<b>Statement of Inquiry</b>	Without the ability to measure, it would be difficult for scientists to conduct experiments or form theories.  <b>Phenomenon:</b> Changes to the measurement of chemicals added to Flint Michigan's water supply created dangerous levels of lead contamination in the drinking water.	The atomic theory led to amazing scientific breakthroughs in areas of modern chemistry to nuclear energy. It has influenced daily life, culture, science and societal change.  <b>Phenomenon:</b> From the Big Bang to MRIs. Students will create and use models to illustrate and predict changes in atomic structure.	Before all the naturally occurring elements were discovered, the periodic table was used to predict the chemical and physical properties of the elements.  <b>Phenomenon:</b> Within the last five years, new elements were discovered and added to the Periodic Table.	Chemical properties of almost any substance or material in the world depend upon the chemical bonds that make it up.  <b>Phenomenon:</b> Chemical compounds can have different bonds types within their structure.	The ratio of reactants to products in chemical reactions can help to solve mathematical calculations.  <b>Phenomenon:</b> The mass of a system will remain the same, even when matter goes through different interactions.	The interactions that gas particles have with a system are dependent on pressure, volume, temperature.  <b>Phenomenon:</b> In plasma TVs, little pockets of gas are excited with electricity disrupting the normal balance of atoms so there are lots of free ions and electrons, turning them into plasma, which creates a light.	Acids and bases are very essential to the human body. They function to balance the pH levels in the body.  <b>Phenomenon:</b> Athletes produce lactic acid when working out.
<b>Global Context</b>	Scientific and Technical Innovation	Scientific and Technical Innovation	Scientific and Technical Innovation	Scientific and Technical Innovation	Scientific and Technical Innovation	Scientific and Technical Innovation	Scientific and Technical Innovation
<b>Key Concepts</b>	Scale, Proportion & Quantity (CC) Matter & Energy (CC) Stability & Change (CC) Patterns (CC) Systems & System Models (CC & MYP)	Structure & Function (CC) Systems & System Models (CC & MYP) Cause & Effect (CC) Stability & Change (CC) Matter & Energy (CC) Scale, Proportion & Quantity (CC)	Patterns (CC) Scale, Proportion & Quantity (CC) Systems & System Models (CC & MYP) Stability & Change (CC) Matter & Energy (CC)	Scale, Proportion & Quantity (CC) Matter & Energy (CC) Stability & Change (CC) Systems & System Models (CC & MYP)	Patterns (CC) Scale, Proportion & Quantity (CC) Systems & System Models (CC & MYP) Stability & Change (CC) Matter & Energy (CC)	Patterns (CC) Scale, Proportion & Quantity (CC) Systems & System Models (CC & MYP) Stability & Change (CC) Matter & Energy (CC)	Structure & Function (CC) Systems & System Models (CC & MYP) Cause & Effect (CC) Scale, Proportion & Quantity (CC)
<b>Related Concepts</b>	Form & Energy	Change & Energy	Patterns & Energy	Form & Energy	Balance & Energy	Movement & Energy	Interactions & Conditions
<b>Design Cycle Transdisciplinary</b>	<b>CORE IDEAS</b> <ul style="list-style-type: none"> <li>● Graphical Techniques</li> <li>● Experimental Design</li> <li>● Quantitative &amp; Qualitative measurements</li> <li>● Chemical &amp; Physical Properties</li> </ul>	<b>CORE IDEAS</b> <ul style="list-style-type: none"> <li>● History of the Atom</li> <li>● Atomic Structure</li> <li>● Noble Gas Notation</li> <li>● Orbital Notation</li> <li>● Electron Configuration</li> <li>● Ions &amp; Isotopes</li> <li>● Electromagnetic Spectrum</li> </ul>	<b>CORE IDEAS</b> <ul style="list-style-type: none"> <li>● History of the Periodic Table</li> <li>● Atomic Radius</li> <li>● Electronegativity</li> <li>● Ionization Energy</li> <li>● Reactivity</li> <li>● Group Properties</li> </ul>	<b>CORE IDEAS</b> <ul style="list-style-type: none"> <li>● Ionic Bonding</li> <li>● Covalent Bonding</li> <li>● Metallic Bonding</li> <li>● Nomenclature</li> <li>● Bonding Properties</li> <li>● Lewis Dot Structures</li> <li>● Polarity</li> </ul>	<b>CORE IDEAS</b> <ul style="list-style-type: none"> <li>● Classification of Chemical Reactions</li> <li>● Balancing Chemical Reactions</li> <li>● Predicting Products</li> <li>● Writing Word &amp; Skeletal Equations</li> <li>● Stoichiometry</li> </ul>	<b>CORE IDEAS</b> <ul style="list-style-type: none"> <li>● Properties of Solids, Liquids, and Gases</li> <li>● Kinetic Molecular Theory</li> <li>● Equilibrium</li> <li>● Gas Laws</li> <li>● Phase Diagram</li> </ul>	<b>CORE IDEAS</b> <ul style="list-style-type: none"> <li>● Properties of Acids and Bases</li> <li>● Acid Nomenclature</li> <li>● pH, pOH</li> <li>● Titration</li> <li>● Molarity</li> </ul>

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<b>MYP Assessments / Performance Tasks</b>	Unit 1 Common Summative Assessment Criterion A	Unit 2 Common Summative Assessment Criterion A & D	Unit 3 Common Summative Assessment Criterion A & B	Unit 4 Common Summative Assessment Criterion A & D	Unit 5 Common Summative Assessment Criterion A	Unit 6 Common Summative Assessment Criterion B & C	Unit 7 Common Summative Assessment Criterion B & C
<b>Differentiation For Tiered Learners</b>	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.						
<b>Course Levels</b>	<b>Marietta City Schools offers Enhanced, Honors, Accelerated, and AP classes to provide differentiated learning experiences for students.</b>						