

# Title: Chemistry I

<b>Unit:</b>	Properties of Matter					
<b>Big Ideas:</b>	Chemistry is the study of matter and the changes that it undergoes.					
<b>Unit Essential Questions:</b>	What are the differences between pure substances and mixtures?					
<b>Concept &amp; Pacing</b>	<b>New Emphasis (Pa Core Standard)</b>	<b>Key Vocabulary</b>	<b>Essential Questions</b>	<b>Mini-Lessons/Activities</b>	<b>Instructional Materials</b>	<b>Assessments</b>
<b>Matter and Change September</b>	3.2.C.A1	Matter Energy Physical Property Chemical Property Physical Change Chemical Change Element Compound Heterogeneous Mixture Homogeneous Mixture	1. How does chemistry affect your daily life? 2. How can you work safely in the laboratory? 3. What are the differences between pure substances and mixtures?	Class discussion and notes Word Splash World Café Activity Lab-Safety	Textbook – Chapter 1 Teacher generated notes and lessons	Daily question and answer Exit Slips Chapter 1 Quiz 1 Chapter 1 Quiz 2 Chapter 1 Test Lab Glassware Quiz CDT Beginning Marker
<b>Unit:</b>	Scientific Measurements and Inquiry					
<b>Big Ideas:</b>	Mathematical relationships among numbers can be represented, compared, and communicated.					
<b>Unit Essential Questions:</b>	How are relationships represented mathematically?					
<b>Concept &amp; Pacing</b>	<b>New Emphasis (Pa Core Standard)</b>	<b>Key Vocabulary</b>	<b>Essential Questions</b>	<b>Mini-Lessons/Activities</b>	<b>Instructional Materials</b>	<b>Assessments</b>
<b>Math Skills October</b>	CC.2.1.HS.F.1	Accuracy Precision Qualitative Quantitative SI Temperature Percent Error Density	1. How is mathematics used to quantify, compare, represent, and model numbers? 2. How do we convert between units in chemistry?	Class discussion and notes SI Metric Conversion Packet Temperature Conversions  Labs 1. Basic Laboratory Practices 2. Metric Conversion Lab 3. Density of Unknown Objects	Textbook – Chapter 2 Teacher generated notes and lessons SI Conversion Sheet	Daily question and answer Exit Slips Chapter 2 Quiz 1 Chapter 2 Quiz 2 Chapter 2 Test Lab notebook report for each lab

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<b>Unit:</b>	Atomic Structure					
<b>Big Ideas:</b>	Atomic Theory is the foundation for the study of chemistry.					
<b>Unit Essential Questions:</b>	In what ways has the theory of the atom changed over time due to technological improvements?					
<b>Concept &amp; Pacing</b>	<b>New Emphasis (Pa Core Standard)</b>	<b>Key Vocabulary</b>	<b>Essential Questions</b>	<b>Mini-Lessons/Activities</b>	<b>Instructional Materials</b>	<b>Assessments</b>
<b>Atoms the Building Blocks of Matter</b>  <b>November</b>	3.2.C.A1 3.2.C.A5 3.2.9-12.G	Electron Configurations Atomic Mass Molar Mass Isotopes Moles Ions Average Atomic Mass Energy Levels Quantum numbers Atomic orbitals	1. In what ways has the theory of the atom changed over time due to technological improvements? 2. What factors determine the types of chemical bonds that form between particles?	Law of Conservation of Mass – Use mathematical representation to support the claim that atoms, therefore mass, are conserved during a chemical reaction.  Labs 2. Atomic Model Timeline 3. Weighted Average Isotope	Textbook – Chapter 3 & 4 Teacher generated notes and lessons SI Conversion Sheet Periodic Table	Daily question and answer Exit Slips Chapter 3 Quiz 1 Chapter 3 Quiz 2 Chapter 3 Test Chapter 4 Quiz 1 Chapter 4 Quiz 2 Chapter 4 & 5 Test Lab notebook report for each lab
<b>Unit:</b>	Periodic Trends in the Periodic Table					
<b>Big Ideas:</b>	Periodic trends in the properties of atoms allow for the prediction of physical and chemical properties.					

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<b>Unit Essential Questions:</b>	How does the distribution of electrons in an atom affect the formation of a compound?					
<b>Concept &amp; Pacing</b>	<b>New Emphasis (Pa Core Standard)</b>	<b>Key Vocabulary</b>	<b>Essential Questions</b>	<b>Mini-Lessons/Activities</b>	<b>Instructional Materials</b>	<b>Assessments</b>
<b>The Periodic Table  December</b>	3.2.C.A1 3.2.C.A2 3.2.9-12.A 3.2.9-12.C	Electron Configurations Energy Levels Quantum Numbers Photons Periodic trends Atomic Size Electronegativity Ionization Energy	1. Describe the arrangement of electrons in an atom and how it affects the atom. 2. How does the distribution of electrons in atoms affect the formation of a compound?	Electron Configuration Lab – construct and revise and explanation for the outcome of a simple chemical reaction based on the outermost electron states of atoms.  Family Characteristics Lab – use the periodic table as a model to predict the relative properties of elements based on the patterns of electrons in the outermost energy level of atoms.	Textbook – Chapter 4 & 5 Teacher generated notes and lessons SI Conversion Sheet Periodic Table	Daily question and answer Exit Slips Chapter 4 & 5 Test Lab notebook report for each lab
<b>Unit:</b>	Chemical Nomenclature					
<b>Big Ideas:</b>	Chemistry is the study of matter and the changes it undergoes.					
<b>Unit Essential Questions:</b>	What are the different ways in order to name an inorganic compound?					
<b>Concept &amp; Pacing</b>	<b>New Emphasis (Pa Core Standard)</b>	<b>Key Vocabulary</b>	<b>Essential Questions</b>	<b>Mini-Lessons/Activities</b>	<b>Instructional Materials</b>	<b>Assessments</b>
<b>Naming Inorganic Compounds  January</b>	3.2.C.A1 3.2.C.A2 3.2.9-12.N	Oxidation numbers Chemical formulas Acid Polyatomic Ions Percent composition Empirical formulas Molecular Formulas	1. How do you use the oxidation numbers to write chemical formulas? 2. How do you determine the percent composition? 3. How do you determine the empirical and molecular formulas?	Class discussion and notes Practice worksheets: Naming Inorganic Compounds #2, 3, 4, 5, 6 and 7 Polyatomic Ion Poker  Communicate scientific and technical information about why the molecular level structure is important in the functioning of designed materials.	Textbook – Chapter 7 Teacher generated notes and lessons SI Conversion Sheet Periodic Table Polyatomic Ions Sheet Inorganic Nomenclature Flow Chart	Daily question and answer Exit Slips Polyatomic Ion Quiz Chapter 7 Quiz 1 Chapter 7 Quiz 2 Chapter 7 Test

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<b>Unit:</b>	Chemical Reactions					
<b>Big Ideas:</b>	Chemical Reactions are predictable.					
<b>Unit Essential Questions:</b>	What factors identify the types of chemical reactions?					
<b>Concept &amp; Pacing</b>	<b>New Emphasis (Pa Core Standard)</b>	<b>Key Vocabulary</b>	<b>Essential Questions</b>	<b>Mini-Lessons/Activities</b>	<b>Instructional Materials</b>	<b>Assessments</b>
<b>Chemical Reactions  February</b>	3.2.C.A1 3.2.C.A2	Balancing Chemical Equation Endothermic Exothermic Synthesis Decomposition Single displacement Double displacement Combustion	1. How do you use formulas to write a balanced chemical equation? 2. How do you identify the 5 different types of equations? 3. How will you predict the products in an equation given the starting materials?	Class discussion and notes Practice worksheets: Balancing a Chemical Equation Balancing Packet Predicting Packet	Textbook – Chapter 8 Teacher generated notes and lessons SI Conversion Sheet Periodic Table Polyatomic Ions Sheet Chemical Reaction Flow Chart	Daily question and answer Exit Slips Chapter 8 Quiz 1 Chapter 8 Quiz 2 Chapter 8 Test
<b>Big Ideas:</b>	Chemical Bonding					
<b>Unit Essential Questions:</b>	What different types of bonds are there and how do atoms bond?					
<b>Concept &amp; Pacing</b>	<b>New Emphasis (Pa Core Standard)</b>	<b>Key Vocabulary</b>	<b>Essential Questions</b>	<b>Mini-Lessons/Activities</b>	<b>Instructional Materials</b>	<b>Assessments</b>
<b>Chemical Reactions  March/April</b>	3.2.C.A1 3.2.C.A2	Chemical bonding Ionic Bonds Covalent Bonds Polar Bonds Nonpolar Bonds Intermolecular Forces Intramolecular Forces	1. How do you predict the type of bond that will form between atoms? 2. How do you identify whether a bond is polar or nonpolar? 3. How will you predict the bond shape and angles of a compound?	Class discussion and notes Practice worksheets: Predicting Bonds Types Drawing of molecular models Drawing bond angles of models Use of Molecular model kits Use of online molecular model systems	Textbook – Chapter 6 Teacher generated notes and lessons SI Conversion Sheet Periodic Table Molecular Model Kits Online Tools	Daily question and answer Exit Slips Chapter 6 Quiz Chapter 6 Test Drawing of models packet
<b>Big Ideas:</b>	Gas Laws / Matter and Energy					
<b>Unit Essential Questions:</b>	What are the gas laws and how do gasses behave?					
<b>Concept &amp; Pacing</b>	<b>New Emphasis (Pa Core Standard)</b>	<b>Key Vocabulary</b>	<b>Essential Questions</b>	<b>Mini-Lessons/Activities</b>	<b>Instructional Materials</b>	<b>Assessments</b>

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<b>Chemical Reactions</b> <b>April/May</b>	3.2.C.A3	Gas Laws KMT Model Ideal gas equation Graham's law of effusion	1. What is the KMT model? 2. How do gasses behave? 3. How do pressure, temperature, volume, and number of moles affect each other in terms of gasses.	Class discussion and notes Practice worksheets: All gas laws Ideal gas Equation Graham's law of effusion	Textbook – Chapter 12 Teacher generated notes and lessons SI Conversion Sheet Periodic Table Gas law lab	Daily question and answer Exit Slips Chapter 11 Quiz Chapter 11 Test
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