

Unit	Essential Questions	Standards & Skills	Common Assessments	Learning Activities	Resources/Technology	Unit Reflection
<p>Name: Metric System Quarter: 1 Length (Days): 4</p>	<p>-What is the metric system? -What units are commonly used in the metric system? -How can we easily convert between units in the metric system</p>	<p>ILS: National Standards: CRS: Interpretation of Data 16-19 and 20-23 24-27 SI 16-27 WorkKeys Skills: CCSS: RST 11-12.3</p>	<p>Formative: -Metric System Lab. -Metric System Quiz -Measurement Activity Summative:</p>	<p>-Direct Instruction -Hands on lab activity -Worksheets (individually)</p>	<p>-Power point</p>	<p>This unit introduces the metric system to students which is an integral part of both Chemistry. It will be used for the majority of the year in this class and all sciences classes so it's good to start off with this unit.</p>
<p>Name: Chapter 5 Measurements and Calculations Quarter: 1 Length (Days): 13</p>	<p>-What is scientific notation? -How do I put a number into and take out of scientific notation? - Why are units important? -How do you measure length, volume, and mass? -What are significant figures? How do you count them? How do you use them in calculations? -How do you convert between units that are not both metric? -How do you convert between temperatures? -How do you calculate density, mass or volume when given 2 of 3 of those things?</p>	<p>ILS: National Standards: CRS: Interpretation of Data 16-19 and 20-23 WorkKeys Skills: CCSS:</p>	<p>Formative: -Scientific Notation Worksheet -5.1 quiz -Density Worksheet -Chapter 5 Review - Various Homework - -Problems from pages 164-167 Summative: -Chapter 5 test</p>	<p>-Direct Instruction -Worksheets -Individual Work -Group Work -Student Lead examples on the board</p>	<p>-Power Point</p>	<p>This unit shows students how to convert between many different things including temperatures and from metric units to English units. They also learn how to calculate density and how to count and use significant figures in calculations. I would like to move this unit later in the year next year, because the units after this unit are not as math based and this information isn't as important until after that unit.</p>
<p>Name: Chapter 3: Chapter 3 Chemical Foundations: Elements, Atoms, and Ions</p>	<p>-What are the elements? How do they get their names and symbols?</p>	<p>ILS: National Standards: CRS: Interpretation</p>	<p>Formative: -Element Bingo -Periodic Table Worksheet -Isotope Worksheet</p>	<p>-Direct Instruction -Worksheets -Hands-on Lab activity -Review Games</p>	<p>-Power Point</p>	<p>This unit introduces the periodic table to students. Also all the elements on it and how it works. This is a</p>

<p>Quarter: 1 Length (Days): 14</p>	<p>-How do you make a chemical formula? - What is the element name and symbol of the first 54 elements on the periodic table? -Who discovered the different parts of the atom? -What is the modern concept of the atomic structure? - What is an isotope or an ion? -How do ionic compounds form? -How can I use and read the periodic table?</p>	<p>of Data 16-19 and 20-23</p> <p>WorkKeys Skills: CCSS:RST 11-12.3 RST 11-12.7</p> <p>NGSS: HS-PS4-1</p>	<p>-3.1-3.4 Quiz -Chapter 3 Review -Various Homework Problems from pages 86-89</p> <p>Summative: -Element Quiz -Electrolysis Lab - Chapter 3 Test -Element Project</p>	<p>-Student lead presentations</p>		<p>very important unit in the class because it builds the foundation for everything that they will continue to use for the entire year. In the future I would put this unit before Chapter 5 though because I think it works more as an earlier unit than chapter 5. Also the units that immediately follow this unit fit this unit way more than they do chapter 5.</p>
<p>Name: Chapter 11: Modern Atomic Theory Quarter: 2 Length (Days): 16</p>	<p>-What are the major parts of the different models of the atom? -What is electromagnetic radiation? -What is the electromagnetic spectrum? -How do waves work? -How do atoms gain and lose energy? How does this cause them to lose light? -What is the electron configuration of an atom? -How do I find the electron configuration of an atom?</p>	<p>ILS: National Standards: CRS: Interpretation of Data 16-19 WorkKeys Skills: CCSS: RST 11-12.3 RST 11-12.1</p> <p>NGSS: HS-PS4-1 HS-PS4-3 HS-PS4-4</p>	<p>Formative: -Various homework problems from pages 392-393 -Chapter 11 Review -Electron Configuration Worksheet -11.1-11.3 Quiz -Flame Test Lab Summative: -Chapter 11 Test</p>	<p>-Direct Instruction -Group Work -Individual Work -Demonstration -Lab Activity -Electron configuration board races</p>	<p>-Power Point</p>	<p>This unit is the introduction into how the atom works and how electrons are arranged inside the atom. It covers the various models and the current most accepted model. This introduction to how the atom works allows students to understand how chemical bonding works in the next chapter and how chemical reactions work in chapters to be covered next semester.</p>
<p>Name: Chapter 12 Chemical Bonding Quarter: 2 Length (Days): 11</p>	<p>-What is an ionic bond and what does it form between? -What is a covalent bond and what does it form between?</p>	<p>ILS: National Standards: CRS: Interpretation of Data 16-19 WorkKeys Skills: CCSS:</p>	<p>Formative: -Homework problems from 435-437 -Lewis Structure Worksheet -12.1 Bookstudy worksheet</p>	<p>-Direct Instruction -Group Work -Individual Work -Molecular Shape demonstrations -VSPER Modeling lab</p>	<p>-Power Point</p>	<p>This chapter goes into chemical bonding. It allows students to finally understand what molecules look like in 3D as well as how molecules share</p>

	<ul style="list-style-type: none"> -What is bond polarity? -What is electronegativity? -How do you predict the formula of an ionic compound? -What are stable electron configurations? -What factors affect ionic size? -What are Lewis Structures? -How do you draw them? -How do you predict the molecular shape of a molecule? -How do you apply the VSEPR model to molecules? 	<p>RST 11-12.7</p> <p>NGSS: HS-PS1-1</p>	<ul style="list-style-type: none"> -VSPER Model Lab -Chapter 12 Review Summative: -Chapter 12 Quiz Pt 1 -Chapter 12 Quiz pt 2 - VSPER model lab practical 			<p>electrons in order to achieve stable electron configurations. There were many activities in this chapter using the 3D molecule modeling kits that allows students to visualize the shapes that molecules form. This chapter will help students better understand chapters in the 3rd quarter about chemical reactions because it will help them visualize how atoms interact to form molecules during reactions.</p>
<p>Name: Chapter 4 Nomenclature Quarter: 2 into 3 Length (Days): 13</p>	<ul style="list-style-type: none"> -How do I name all types of binary compounds? -How do I find the formula from the name of all types of binary compounds? -Memorize the names of 22 common polyatomic ions -How do you name acids? -How do you write the formula of an acid from a name? 	<p>ILS: National Standards: CRS: Interpretation of Data 16-19 WorkKeys Skills: CCSS: RST 11-12.3 RST 11-12.9</p>	<p>Formative: -Homework Problems from pages 118-119 -4.1 Pop Quiz -Nomenclature Worksheets Summative: -Chapter 4 Test -Polyatomic Ion Quiz</p>	<ul style="list-style-type: none"> -Direct Instruction -Group Work -Nomenclature Board Races -Polyatomic Bingo -Polyatomic Dot game 	-Power point	<p>This is one of the most important chapters students will study in chemistry. It builds the foundation for all of semester two. Students need to know how to name compounds or how to form a formula from a name for almost every single chapter next semester.</p>
<p>Name: Chapter 7: Chemical Reactions: An Introduction Quarter: 3 Length (Days): 9</p>	<ul style="list-style-type: none"> -What types of signals show a chemical reaction has occurred? -What types of characteristics do chemical reactions show? 	<p>ILS: National Standards: CRS: Interpretation of Data 16-19 WorkKeys Skills: CCSS: RST 11-12.3 RST 11-12.9</p>	<p>Formative: -Homework problems from pages 234-236 -Balancing equations worksheet -Pre-lab chemical reactions -Chemical Reactions Lab</p>	<ul style="list-style-type: none"> -Direct Instruction -Hands on lab activity -Group Work -Review Game -Chemical Reaction Demonstrations 	<ul style="list-style-type: none"> -Power Point -Lab materials 	<p>This chapter introduces the students to how to write balanced chemical equations from the description of the chemical reactions. This chapter is important</p>

	<ul style="list-style-type: none"> -What type of information can be found inside a chemical equation? -How do you write a balanced equation from a chemical reaction? 	<p>NGSS: HS-PS1-7</p>	<ul style="list-style-type: none"> -Chapter 7 Review Summative: -Chapter 7 Test 			and is information students will use for the rest of the quarter.
<p>Name: Chapter 8: Reactions in aqueous solutions Quarter: 3 Length (Days): 14</p>	<ul style="list-style-type: none"> -What factors cause chemical reactions? - How can I determine what solid forms in a precipitation reaction? -How to write a complete ionic, net ionic, and molecular equation? -What happens when you mix a strong acid and a strong base? -How to classify reactions 	<p>ILS: National Standards: CRS: Interpretation of Data 16-19 WorkKeys Skills: CCSS: RST 11-12.3 RST 11-12.9</p>	<p>Formative: -Homework problems from 271-274 -8.1 to 8.2B worksheet -Review Packet Summative: -Solubility lab -Chapter 8 Test</p>	<ul style="list-style-type: none"> -Direct Instruction -Hands on lab activity -Group Work -Individual Work -Review Game 	<ul style="list-style-type: none"> -Power Point -Lab Materials 	This chapter goes more in depth on chemical reactions. Students learn about precipitates and do a lab which involves precipitates.
<p>Name: Chapter 6: Chemical Composition Quarter: 3 Length (Days): 12</p>	<ul style="list-style-type: none"> -How to count by weighing? -What does the atomic mass mean? -What is a mole? -Whats Avogadro's number? -How to convert between mass, moles, and atoms? -How to I calculate the mass percent of each element in a compound? 	<p>ILS: National Standards: CRS: Interpretation of Data 16-19 20-23 WorkKeys Skills: CCSS:</p>	<p>Formative: -Homework problems from page 210-213 -6.1-6.2A Worksheet -Chemical Composition Lab -Review Packet Summative: -Chapter 6 Test</p>	<ul style="list-style-type: none"> -Direct Instruction -Hands on Lab activity -Individual Work -Review Game 	<ul style="list-style-type: none"> -Power Point -Lab Materials 	This chapter covers the beginning of stoichiometry. This chapter is also very interdisciplinary because it brings a lot of math into the unit. Students learn how to convert between different elements, and also how to determine how much percent of a compound each element is. It is very important to introduce the next unit.
<p>Name: Chapter 9: Quarter: 3-4 Length (Days): 18</p>	<ul style="list-style-type: none"> -How can I use a balanced equation to compare moles of products and reactants? 	<p>ILS: National Standards: CRS: Interpretation of Data 16-19</p>	<p>Formative: -Various homework problems from pages 310-313</p>	<ul style="list-style-type: none"> -Direct Instruction -Individual Work -Group Work -Review Games 		This chapter is the stoichiometry unit. Everything that the students have been learning since the end

	<ul style="list-style-type: none"> -How can I use balanced equations to compare mass of products and reactants? -What is a limiting reactant? -How can I recognize the limiting reactant in a problem? -How do I use the limiting reactant in stoichiometric calculations? -How do I calculate percent yield? 	<p>WorkKeys Skills: CCSS: RST 11-12.3</p> <p>NGSS: HS-PS1-4</p>	<ul style="list-style-type: none"> -Mass to Mass Worksheet -Formative Quiz over 9.1 -Moles to Atoms Worksheet -Chapter 9 Review Packet Summative: -Chapter 9 Test 			<p>of quarter 1 comes together in this chapter. Since this is just the regular class I do not have them bring all the knowledge in, but it still pulls everything together that they have been learning all year. This is a very common area of chemistry. It is also extremely math based so it is very interdisciplinary.</p>
<p>Name: Chapter 13: Gases Quarter: 4 Length (Days): 11</p> <p>(Did not include in 13-14 school year)</p>	<ul style="list-style-type: none"> -What is atmospheric pressure? -How can we measure it? -What units can we use? -What is Boyle's law and how do we use it? -What is Charles's law and how do we use it? -How are volume of a gas and the number of moles related? -What is avogadro's law and how do we use it? 	<p>ILS: National Standards: CRS: Interpretation of Data 16-19 24-27</p> <p>WorkKeys Skills: CCSS:</p>	<p>Formative: -Homework problems from pages 480-483</p> <ul style="list-style-type: none"> -Boyle's Law worksheet -Charles's Law Worksheet -Formative Quiz over Boyles and Charles and ideal gas law <p>Summative: -Chapter 13 Review -Chapter 13 Test</p>	<ul style="list-style-type: none"> -Direct Instruction -Individual/Group Work -Demonstrations (atmosphere bar, can crush) -Review Games 	<ul style="list-style-type: none"> -Materials for demonstrations -Star Board example slides 	<p>This chapter covers the gas laws of chemistry. It's a concept that many students can understand with a series of demonstrations with everyday things including balloons. The Chapter also includes a lot of math and is once again interdisciplinary.</p>
<p>Name: Energy and phase changes Quarter: 4 Length (Days): 11</p> <p>(Did not include in 13-14 school year)</p>	<ul style="list-style-type: none"> -How do molecules interact during phase changes? -What does the phase change graph for water look like? -How do you calculate specific heat? -How do you calculate heat of fusion? -How do you calculate heat of vaporization? 	<p>ILS: National Standards: CRS: Interpretation of Data 16-19 20-23</p> <p>Scientific Investigation 20-23</p> <p>WorkKeys Skills: CCSS:</p>	<p>Formative: -Specific Heat Worksheet</p> <ul style="list-style-type: none"> -Energy Worksheet <p>Summative: -Energy Quest -Phase Change Graph Worksheet</p> <ul style="list-style-type: none"> -Heat of fusion and Heat of vaporization lab 	<ul style="list-style-type: none"> -Direct Instruction -Individual/Group Work -Hands on lab activity 	<ul style="list-style-type: none"> -Power Point -Materials for heat of fusion and heat of vaporization lab 	<p>This unit is a brief introduction to energy. Students will be using equations to calculate energy transfers and how much energy is need to covert ice to water and water to gas or vice versa. This unit is a good introductory unit for a unit that students will be doing</p>

	-How do you determine how much energy is absorbed or released when something changes temperatures.					in physics if they choose to go that route.
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Name: Organic Chemistry (Chapter 20) Quarter: 4 Length (Days): 17	<ul style="list-style-type: none"> -What types of bonds can carbon form? -What is an alkane? -What is a structural isomer and how do I draw one? -How do I name Alkanes? -How do I name Alkenes and Alkynes? -What is an aromatic hydrocarbon and how do you name it? -What is an alcohol and how do you name it? -What is the difference between aldehyde and ketone and how do I name them? -What is a carboxylic Acid and how do I name it? 	ILS: National Standards: CRS: Interpretation of Data 16-19 Scientific Investigation 20-23 WorkKeys Skills: CCSS: RST 9-10.1 RST 9-10.4 RST 9-10.7	Formative: -Homework problems from pages 746-747 -Alkanes worksheet -Alkenes, Alkynes, Alkanes Worksheet -Benzene ring Workshet -Aldehyde and Ketone Practice Worksheet -Carboxylic Acid WKST -More Practice Worksheet -Organic Chemistry Review Packet Summative: -Alkane-enes-yne Quest -Orangic Mixed Quest -Chapter 20 Test(part of EQA 4)	-Direct Instruction -Group Work -Cooperative Learning groups -demonstrations with modeling kits -Review Games	-Power Point -Organic Chemistry Model Test	This chapter is an introduction to organic chemistry. I feel this is an important chapter because for any of these students who are planning on going to college for any kind of science degree they will be exposed to organic chemistry and it is nice to get a background in it before entering college.
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