

# GRADES 11-12: CHEMISTRY CURRICULUM FRAMEWORKS

## UNIT 1: MATTER AND ENERGY

Big Questions		Formative/ Summative Assessments		
<ol style="list-style-type: none"> <li>1. What do chemists study and how do they use the scientific method to solve problems?</li> <li>2. How do chemists distinguish between potential and kinetic energy in chemical systems?</li> <li>3. What categories and concepts do chemists use to classify matter?</li> <li>4. How have chemists impacted and improved society with the study of matter and its changes?</li> <li>5. How is measurement uncertainty expressed in the results of calculations such as density?</li> <li>6. How is confidence of an experimental result expressed as percent error (accuracy error)?</li> <li>7. What does the Law of Definite Composition tell us about compounds?</li> <li>8. How is percent composition of an element in a compound determined?</li> </ol>		Options include, but are not limited to: <ul style="list-style-type: none"> <li>- Significant figures and density problem sets</li> <li>- Density quiz (created by department)</li> <li>- Lab reports</li> <li>- Percent composition lab and problem set</li> <li>- Unit 1 test (created by department)</li> </ul>		
Substrand/Standard	Curriculum Benchmark	MCA III Test Item Specifications	Standards of Proficiency Description of what students must show to demonstrate proficiency (created by teachers/teams)	Resources/ Activities
<u>Substrand:</u> Interactions Among Science, Technology, Engineering, Mathematics, and Society <u>Standard:</u> Understand that developments in chemistry affect society and societal concerns affect the field of chemistry.	Explain the political, societal, economic and environmental impact of chemical products and technologies. (For example: Pollution effects, atmospheric changes, petroleum products, material use or waste disposal) <i>(Standard NSE: 9C.1.3.3.1)</i>			Textbook: <a href="#"><u>Chemistry: Connections to Our Changing World</u></a> (Prentice Hall)
<u>Substrand:</u> Interactions Among Science, Technology, Engineering, Mathematics, and Society <u>Standard:</u> Understand that physical and mathematical models are used to describe physical systems.	Use significant figures and an understanding of accuracy and precision in scientific measurements to determine and express the uncertainty of a result. <i>(Standard NSE: 9C.1.3.4.1)</i>			
<u>Substrand:</u> Matter <u>Standard:</u> Understand that chemical and physical properties of matter result from the ability of atoms to form bonds.	Determine percent composition, empirical formulas and molecular formulas of simple compounds. <i>(Standard PS: 9C.2.1.2.5)</i>			

## GRADES 11-12: CHEMISTRY CURRICULUM FRAMEWORKS

<b>UNIT 1: MATTER AND ENERGY (CONTINUED)</b>				
Substrand/Standard	Curriculum Benchmark	MCA III Test Item Specifications	Standards of Proficiency Description of what students must show to demonstrate proficiency (created by teachers/teams)	Resources/ Activities
<b>READING IN THE CONTENT AREA FOR UNIT 1: (Taken from “Standards for Literacy in History/Social Studies/Science/Technical Subjects”)</b>				
	Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms. (11.13.2.2) (Quarter 1)		How Assessed: Lab and Analysis Unit 1 Test	Law of Definite Composition
	Follow precisely a complex multistep procedure when carrying out experiments, designing solutions, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text. (11.13.3.3) (Quarter 1)		How Assessed: Lab and Analysis Class discussion	Physical and chemical changes – boiling and freezing points
	By the end of grade 12, read and comprehend technical texts in the grades 11-12 text complexity band independently and proficiently. (11.13.10.10) Quarters 1-4)		How Assessed: All text-based assessments	All text-based readings and activities

## GRADES 11-12: CHEMISTRY CURRICULUM FRAMEWORKS

UNIT 2: PERIODIC TABLE				
Big Questions		Formative/ Summative Assessments		
1. What are the major families and regions on the periodic table and what is a “family”? 2. How did the modern periodic table evolve from early Laws such as the “Law of Triads”? 3. How is the modern periodic table arranged? What information can we obtain from it? 4. What is the periodic law? 5. How can we determine if a property is periodic?		Options include, but are not limited to: - Periodic Table trends group activity - Periodic Table drawing assignment - Unit 2 test (created by department)		
Substrand/Standard	Curriculum Benchmark	MCA III Test Item Specifications	Standards of Proficiency Description of what students must show to demonstrate proficiency (created by teachers/teams)	Resources/ Activities
<u>Substrand:</u> Matter <u>Standard:</u> Understand that the periodic table illustrates how patterns in the physical and chemical properties of elements are related to atomic structure.	Identify and compare trends on the periodic table, including reactivity and relative sizes of atoms and ions; use the trends to explain the properties of subgroups, including metals, non-metals, alkali metals, alkaline earth metals, halogens and noble gases. <i>(Standard PS: 9C.2.1.1.2)</i>			- Textbook: <u>Chemistry: Connections to Our Changing World</u> (Prentice Hall) - Video – “The World Of Chemistry” - “It’s in the Cards” Activity
READING IN THE CONTENT AREA FOR UNIT 2: (Taken from “Standards for Literacy in History/Social Studies/Science/Technical Subjects”)				
	By the end of grade 12, read and comprehend technical texts in the grades 11-12 text complexity band independently and proficiently. (11.13.10.10) (Quarters 1-4)		How Assessed: All text-based assessments	All text-based readings and activities

## GRADES 11-12: CHEMISTRY CURRICULUM FRAMEWORKS

<b>UNIT 3: ATOMIC THEORY</b>				
<b>Big Questions</b>		<b>Formative/ Summative Assessments</b>		
1. How can we describe electromagnetic radiation as a wave and as a particle, and use these concepts to calculate wavelength, frequency, and energy? 2. What is the origin of the atomic theory? 3. How do the Bohr and Schrödinger models of the atom compare and contrast to each other? 4. How do quantum levels explain atomic spectra? 5. How are electron configurations for atoms and ions written? 6. How do electron configurations explain the structure of the periodic table and trends among the elements?		Options include, but are not limited to: - Bohr Model problem set - Atomic Theory PowerPoint Presentations - Quiz on electromagnetic radiation created by department - Lab report - Unit 3 Test created by department		
Substrand/Standard	Curriculum Benchmark	MCA III Test Item Specifications	Standards of Proficiency Description of what students must show to demonstrate proficiency (created by teachers/teams)	Resources/ Activities
<u>Substrand:</u> Matter <u>Standard:</u> Understand that the periodic table illustrates how patterns in the physical and chemical properties of elements are related to atomic structure.	Explain the relationship of an element's position on the periodic table to its atomic number and electron configuration. <i>(Standard PS: 9C.2.1.1.1)</i>			- Textbook: <u>Chemistry: Connections to Our Changing World</u> (Prentice Hall) - Video – “Atoms” - Video - “Ring of Truth” - Uncle Tungsten chapter - “Right and Wrong” - Chapter Reading
<b>READING IN THE CONTENT AREA FOR UNIT 3: (Taken from “Standards for Literacy in History/Social Studies/Science/Technical Subjects”)</b>				
	Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem. (11.13.7.7) (Quarters 1, 2)		How Assessed: Quizzes and tests, Text questions	Atomic Theory – visual illustrations
	Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. (11.13.9.9) (Quarters 1, 2)		How Assessed: Writing on Reading of Supplemental Text, Unit Test	Supplemental Readings on Atomic Theory
	By the end of grade 12, read and comprehend technical texts in the grades 11-12 text complexity band independently and proficiently. (11.13.10.10) (Quarters 1-4)		How Assessed: All text-based assessments	All text-based readings and activities

## GRADES 11-12: CHEMISTRY CURRICULUM FRAMEWORKS

<b>UNIT 4: IONIC AND COVALENT COMPOUNDS</b>				
<b>Big Questions</b>		<b>Formative/ Summative Assessments</b>		
<ol style="list-style-type: none"> <li>How do concepts of valence electrons and Lewis dot symbolism explain ionic bonding?</li> <li>How do ionic compound names derive from their formulas?</li> <li>What are the properties of ionic compounds, and how do they result from the structure of ionic compounds?</li> <li>How do ionic compound formulas derive from their names?</li> <li>How are ionic and covalent bonds different?</li> <li>What are the properties of covalent compounds?</li> <li>How do Lewis dot symbols demonstrate the formation of covalent bonds?</li> </ol>		Options include, but are not limited to: <ul style="list-style-type: none"> <li>Nomenclature assignments</li> <li>Ionic compounds quiz (created by department)</li> <li>Covalent compounds assignment</li> <li>Unit 4 test (created by department)</li> </ul>		
<b>Substrand/Standard</b>	<b>Curriculum Benchmark</b>	<b>MCA III Test Item Specifications</b>	<b>Standards of Proficiency</b> Description of what students must show to demonstrate proficiency (created by teachers/teams)	<b>Resources/ Activities</b>
<u>Substrand:</u> Matter <u>Standard:</u> Understand that chemical and physical properties of matter result from the ability of atoms to form bonds.	Explain how elements combine to form compounds through ionic and covalent bonding. <i>(Standard PS: 9C.2.1.2.1)</i>			- Textbook: <u>Chemistry: Connections to Our Changing World</u> (Prentice Hall) - Video – “The World of Chemistry”
<u>Substrand:</u> Matter <u>Standard:</u> Understand that chemical and physical properties of matter result from the ability of atoms to form bonds.	Use IUPAC (International Union of Pure and Applied Chemistry) nomenclature to write chemical formulas and name molecular and ionic compounds, including those that contain polyatomic ions. <i>(Standard PS: 9C.2.1.2.3)</i>			- Textbook: <u>Chemistry: Connections to Our Changing World</u> (Prentice Hall)
<b>READING IN THE CONTENT AREA FOR UNIT 4: (Taken from “Standards for Literacy in History/Social Studies/Science/Technical Subjects”)</b>				
	Cite specific textual evidence to support analysis of technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account. (11.13.1.1) (Quarter 2)		How Assessed: Atomic Spectra Lab, Formal and summative assessments	Electron configuration
	Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem. (11.13.7.7) (Quarters 1, 2)		How Assessed: Quizzes and tests, Text questions	Atomic Theory – visual illustrations
	By the end of grade 12, read and comprehend technical texts in the grades 11-12 text complexity band independently and proficiently. (11.13.10.10) (Quarters 1-4)		How Assessed: All text-based assessments	All text-based readings and activities

## GRADES 11-12: CHEMISTRY CURRICULUM FRAMEWORKS

### UNIT 5: MOLECULAR STRUCTURE

#### Big Questions

1. How can simple molecules and ions be represented using Lewis structures?
2. How does VSEPR Theory aid in the prediction of molecular shapes?
3. How do Lewis structure and VSEPR Theory help us predict properties of compounds such as molecular polarity?
4. How do intermolecular and ionic forces relate to the properties of compounds?

#### Formative/ Summative Assessments

Formative and summative assessments created by teachers/teams

- Options include, but are not limited to:
- Lewis structures quiz (created by department)
  - Lab report
  - Unit 5 test (created by department)

Substrand/Standard	Curriculum Benchmark	MCA III Test Item Specifications	Standards of Proficiency Description of what students must show to demonstrate proficiency (created by teachers/teams)	Resources/ Activities
<u>Substrand</u> : Matter <u>Standard</u> : Understand that chemical and physical properties of matter result from the ability of atoms to form bonds.	Compare and contrast the structure, properties and uses of organic compounds, such as hydrocarbons, alcohols, sugars, fats and proteins. <i>(Standard PS: 9C.2.1.2.2)</i>			- Textbook: <u>Chemistry: Connections to Our Changing World</u> (Prentice Hall) - Model building activity (created by department)
<u>Substrand</u> : Matter <u>Standard</u> : Understand that chemical and physical properties of matter result from the ability of atoms to form bonds.	Describe the dynamic process by which solutes dissolve in solvents, and calculate concentrations, including percent concentration, molarity and parts per million. <i>(Standard PS: 9C.2.1.2.6)</i>			- Textbook: <u>Chemistry: Connections to Our Changing World</u> (Prentice Hall)
<u>Substrand</u> : Matter <u>Standard</u> : Understand that chemical and physical properties of matter result from the ability of atoms to form bonds.	Explain the role of solubility of solids, liquids and gases in natural and designed systems. (For example: The presence of heavy metals in water and the atmosphere; development and use of alloys) <i>(Standard PS: 9C.2.1.2.7)</i>			
READING IN THE CONTENT AREA FOR UNIT 5: (Taken from “Standards for Literacy in History/Social Studies/Science/Technical Subjects”)				
	Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas. (11.13.5.5) (Quarter 2)		How Assessed: Chapter 7 problems from text, Unit Test	Nomenclature (Polyatomic Ions, Transitional Metals)
	By the end of grade 12, read and comprehend technical texts in the grades 11-12 text complexity band independently and proficiently. (11.13.10.10) (Quarters 1-4)		How Assessed: All text-based assessments	All text-based readings and activities

# GRADES 11-12: CHEMISTRY CURRICULUM FRAMEWORKS

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## GRADES 11-12: CHEMISTRY CURRICULUM FRAMEWORKS

UNIT 6: CHEMICAL REACTIONS				
Big Questions		Formative/ Summative Assessments		
1. What types of evidence indicate that a chemical reaction has taken place? 2. How can chemical equations be balanced, including states of matter, and products of reactions predicted? 3. How are chemical reactions classified into the categories of combustion, synthesis, decomposition, single replacement, and double replacement? 4. How is the law of conservation of mass applied in chemical reactions?		Formative and summative assessments created by teachers/teams  Options include, but are not limited to: - Types of chemical reactions assignment - Balancing chemical reactions quiz (created by department) - Types of chemical reactions quiz (created by department) - Two lab reports - Unit 6 test (created by department)		
Substrand/Standard	Curriculum Benchmark	MCA III Test Item Specifications	Standards of Proficiency Description of what students must show to demonstrate proficiency (created by teachers/teams)	Resources/ Activities
<u>Substrand:</u> Matter <u>Standard:</u> Understand that chemical reactions describe a chemical change in which one or more reactants are transformed into one or more products.	Classify chemical reactions as double replacement, single replacement, synthesis, decomposition or combustion. <i>(Standard PS: 9C.2.1.3.1)</i>			- Textbook: <u>Chemistry: Connections to Our Changing World</u> (Prentice Hall)
<u>Substrand:</u> Matter <u>Standard:</u> Understand that chemical reactions describe a chemical change in which one or more reactants are transformed into one or more products.	Use solubility and activity of ions to determine whether a double replacement or single replacement reaction will occur. <i>(Standard PS: 9C.2.1.3.2)</i>			
<u>Substrand:</u> Matter <u>Standard:</u> Understand that chemical reactions describe a chemical change in which one or more reactants are transformed into one or more products.	Balance chemical equations by applying the laws of conservation of mass and constant composition. <i>(Standard PS: 9C.2.1.3.4)</i>			
READING IN THE CONTENT AREA FOR UNIT 6: (Taken from “Standards for Literacy in History/Social Studies/Science/Technical Subjects”)				
	By the end of grade 12, read and comprehend technical texts in the grades 11-12 text complexity band independently and proficiently. (11.13.10.10) (Quarters 1-4)		How Assessed: All text-based assessments	All text-based readings and activities

## GRADES 11-12: CHEMISTRY CURRICULUM FRAMEWORKS

### UNIT 7: INTRODUCTION TO MOLES

Big Questions	Formative/ Summative Assessments
<ol style="list-style-type: none"> <li>1. What is a mole?</li> <li>2. How are molar masses used to determine molar masses of elements and compounds?</li> <li>3. How are molar masses and Avogadro's number used to perform simple molar conversions?</li> <li>4. How are empirical formulas determined and used in combination with molecular masses to determine molecular formulas?</li> <li>5. How are molar volumes and moles used to determine amounts of gases?</li> </ol>	<p>Options include, but are not limited to:</p> <ul style="list-style-type: none"> <li>- Mole conversion problem set</li> <li>- Empirical formula problem set</li> <li>- Lab report</li> <li>- Unit 7 test (created by department)</li> </ul>

Substrand/Standard	Curriculum Benchmark	MCA III Test Item Specifications	Standards of Proficiency Description of what students must show to demonstrate proficiency (created by teachers/teams)	Resources/ Activities
<p><u>Substrand</u>: Matter <u>Standard</u>: Understand that chemical and physical properties of matter result from the ability of atoms to form bonds.</p>	<p>Determine the molar mass of a compound from its chemical formula and a table of atomic masses; convert the mass of a molecular substance to moles, number of particles, or volume of gas at standard temperature and pressure. <i>(Standard PS: 9C.2.1.2.4)</i></p>			<p>- Textbook: <u>Chemistry: Connections to Our Changing World</u> (Prentice Hall)</p>

#### READING IN THE CONTENT AREA FOR UNIT 7: (Taken from "Standards for Literacy in History/Social Studies/Science/Technical Subjects")

	<p>Determine the meaning of symbols, equations, graphical representations, tabular representations, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11-12 texts and topics. (11.13.4.4) (Quarter 3)</p>		<p>How Assessed: Lab, Supplemental questions from text</p>	<p>Chemical Equations (Balancing and Predicting Products)</p>
	<p>By the end of grade 12, read and comprehend technical texts in the grades 11-12 text complexity band independently and proficiently. (11.13.10.10) (Quarters 1-4)</p>		<p>How Assessed: All text-based assessments</p>	<p>All text-based readings and activities</p>

## GRADES 11-12: CHEMISTRY CURRICULUM FRAMEWORKS

UNIT 8: STOICHIOMETRY				
Big Questions		Formative/ Summative Assessments		
		Formative and summative assessments created by teachers/teams		
1. How is a balanced chemical equation and amounts of reactants or products used to determine limiting reactants? 2. How is percent yield calculated from knowledge of limiting reactants? 3. What is meant by concentration of a solution and how is it expressed in terms of molarity, percent concentration, and parts per million? 4. How does concentration and solute size influence a chemical reaction?		Options include, but are not limited to: - Molarity problem set - Limiting reactant problem set - Stoichiometry mini-test (created by department) - Lab report - Unit 8 test (created by department)		
Substrand/Standard	Curriculum Benchmark	MCA III Test Item Specifications	Standards of Proficiency Description of what students must show to demonstrate proficiency (created by teachers/teams)	Resources/ Activities
<u>Substrand:</u> Matter <u>Standard:</u> Understand that chemical and physical properties of matter result from the ability of atoms to form bonds.	Determine the molar mass of a compound from its chemical formula and a table of atomic masses; convert the mass of a molecular substance to moles, number of particles, or volume of gas at standard temperature and pressure. <i>(Standard PS: 9C.2.1.2.4)</i>			- Textbook: <a href="#"><u>Chemistry: Connections to Our Changing World</u></a> (Prentice Hall)
<u>Substrand:</u> Matter <u>Standard:</u> Understand that chemical and physical properties of matter result from the ability of atoms to form bonds.	Describe the dynamic process by which solutes dissolve in solvents, and calculate concentrations, including percent concentration, molarity and parts per million. <i>(Standard PS: 9C.2.1.2.6)</i>			
<u>Substrand:</u> Matter <u>Standard:</u> Understand that chemical and physical properties of matter result from the ability of atoms to form bonds.	Explain the role of solubility of solids, liquids and gases in natural and designed systems. (For example: The presence of heavy metals in water and the atmosphere; development and use of alloys) <i>(Standard PS: 9C.2.1.2.7)</i>			
<u>Substrand:</u> Matter <u>Standard:</u> Understand that chemical reactions describe a chemical change in which one or more reactants are transformed into one or more products.	Use the law of conservation of mass to describe and calculate relationships in a chemical reaction, including molarity, mole/mass relationships, mass/volume relations, limiting reactants and percent yield. <i>(Standard PS: 9C.2.1.3.5)</i>			
<u>Substrand:</u> Matter <u>Standard:</u> Understand that chemical reactions describe a chemical change in which one or more reactants are transformed into one or more products.	Describe the factors that affect the rate of a chemical reaction, including temperature, pressure, mixing, concentration, particle size, surface area and catalyst. <i>(Standard PS: 9C.2.1.3.6)</i>			

## GRADES 11-12: CHEMISTRY CURRICULUM FRAMEWORKS

<b>UNIT 8: STOICHIOMETRY (CONTINUED)</b>				
<b>Substrand/Standard</b>	<b>Curriculum Benchmark</b>	<b>MCA III Test Item Specifications</b>	<b>Standards of Proficiency</b> Description of what students must show to demonstrate proficiency (created by teachers/teams)	<b>Resources/Activities</b>
<b>READING IN THE CONTENT AREA FOR UNIT 8: (Taken from “Standards for Literacy in History/Social Studies/Science/Technical Subjects”)</b>				
	By the end of grade 12, read and comprehend technical texts in the grades 11-12 text complexity band independently and proficiently. (11.13.10.10) (Quarters 1-4)		How Assessed: All text-based assessments	All text-based readings and activities

## GRADES 11-12: CHEMISTRY CURRICULUM FRAMEWORKS

UNIT 9: GAS LAWS				
Big Questions		Formative/ Summative Assessments		
1. How does the Kinetic Molecular Theory (KMT) aid in the understanding of gas behavior? 2. What is the ideal gas law? 3. How does the ideal gas law apply to a variety of problems involving pressure (P), volume (V), temperature (T), and moles (n)? 4. How is the ideal gas law utilized to determine molar mass of a substance? 5. How is stoichiometry used in combination with the ideal gas law to solve for P, V, T, or n?		Options include, but are not limited to: - Ideal gas law problem set - Gas stoichiometry problem set - Lab reports - Unit 9 test (created by department)		
Substrand/Standard	Curriculum Benchmark	MCA III Test Item Specifications	Standards of Proficiency <small>Description of what students must show to demonstrate proficiency (created by teachers/teams)</small>	Resources/ Activities
<u>Substrand:</u> Matter <u>Standard:</u> Understand that chemical reactions describe a chemical change in which one or more reactants are transformed into one or more products.	Describe the factors that affect the rate of a chemical reaction, including temperature, pressure, mixing, concentration, particle size, surface area and catalyst. <i>(Standard PS: 9C.2.1.3.6)</i>			- Textbook: <u>Chemistry: Connections to Our Changing World</u> (Prentice Hall)
<u>Substrand:</u> Matter <u>Standard:</u> Understand that states of matter can be described in terms of motion of molecules. The properties and behavior of gases can be explained using the kinetic molecular theory.	Use kinetic molecular theory to explain how changes in energy content affect the state of matter (solid, liquid and gaseous phases). <i>Standard PS: 9C.2.1.4.1)</i>			- Textbook: <u>Chemistry: Connections to Our Changing World</u> (Prentice Hall) - Video: "Law of Combining Volumes"
<u>Substrand:</u> Matter <u>Standard:</u> Understand that states of matter can be described in terms of motion of molecules. The properties and behavior of gases can be explained using the kinetic molecular theory.	Use the kinetic molecular theory to explain the behavior of gases and the relationship among temperature, pressure, volume and the number of particles. <i>(Standard PS: 9C.2.1.4.2)</i>			- Textbook: <u>Chemistry: Connections to Our Changing World</u> (Prentice Hall)
READING IN THE CONTENT AREA FOR UNIT 9: (Taken from "Standards for Literacy in History/Social Studies/Science/Technical Subjects")				
	By the end of grade 12, read and comprehend technical texts in the grades 11-12 text complexity band independently and proficiently. (11.13.10.10) (Quarters 1-4)		How Assessed: All text-based assessments	All text-based readings and activities

## GRADES 11-12: CHEMISTRY CURRICULUM FRAMEWORKS

### UNIT 10: ACID-BASE CHEMISTRY

Big Questions		Formative/ Summative Assessments		
1. How do we classify compounds a acids, bases, strong acids and bases, or weak acids and bases? 2. What is meant by pH? 3. Use hydronium ion and hydroxide ion concentrations to determine pH of a solution. 4. How can we predict the products of an acid-base reaction? 5. What is a titration and how is it performed?		Options include, but are not limited to: - pH calculations assignment - Lab report - Titration assignment - Unit 10 test (created by department)		
Substrand/Standard	Curriculum Benchmark	MCA III Test Item Specifications	Standards of Proficiency Description of what students must show to demonstrate proficiency (created by teachers/teams)	Resources/ Activities
<u>Substrand:</u> Matter <u>Standard:</u> Understand that chemical reactions describe a chemical change in which one or more reactants are transformed into one or more products.	Relate the properties of acids and bases to the ions they contain and predict the products of an acid-base reaction. <i>(Standard PS: 9C.2.1.3.3)</i>			- Textbook: <u>Chemistry: Connections to Our Changing World</u> (Prentice Hall) - Video – “The World of Chemistry”
<u>Substrand:</u> Matter <u>Standard:</u> Understand that chemical reactions describe a chemical change in which one or more reactants are transformed into one or more products.	Recognize that some chemical reactions are reversible and that not all chemical reactions go to completion. <i>(Standard PS: 9C.2.1.3.7)</i>			- Textbook: <u>Chemistry: Connections to Our Changing World</u> (Prentice Hall)
READING IN THE CONTENT AREA FOR UNIT 10: (Taken from “Standards for Literacy in History/Social Studies/Science/Technical Subjects”)				
	Analyze the author’s purpose in describing phenomena, providing an explanation, describing a procedure, or discussing/reporting an experiment in a text, identifying important issues and questions that remain unresolved. (11.13.6.6) (Quarter 4)		How Assessed: Gas Law Activity and Lab, Unit 10 Test	Gas Laws – Kinetic Molecular theory
	Evaluate the hypotheses, data, analysis, and conclusions in a technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information. (11.13.8.8) (Quarter 4)		How Assessed: Lab, Questions in text, pg. 434/438	Ideal Gas Equation – Mylar Mass Lab
	By the end of grade 12, read and comprehend technical texts in the grades 11-12 text complexity band independently and proficiently. (11.13.10.10) (Quarters 1-4)		How Assessed: All text-based assessments	All text-based readings and activities