



**Course Name: Chemistry**  
**School Year: 2021-2022**

**Course Purpose and Relevance:**

In Chemistry, students conduct laboratory and field investigations, use scientific practices during investigations, and make informed decisions using critical thinking and scientific problem solving. Students study a variety of topics that include characteristics of matter, use of the Periodic Table, development of atomic theory and chemical bonding, chemical stoichiometry, gas laws, solution chemistry, thermochemistry, and nuclear chemistry. Students will investigate how chemistry is an integral part of our daily lives.

**Overview of Student Outcomes:**

- The student, for at least 40% of instructional time, conducts laboratory and field investigations following safety procedures and environmentally appropriate and ethical practices
- The student uses scientific practices to solve investigative questions.
- The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom.
- The student knows the characteristics of matter and can analyze the relationships between chemical and physical changes and properties.
- The student understands the historical development of the Periodic Table and can apply its predictive power.
- The student knows and understands the historical development of atomic theory.
- The student knows how atoms form ionic, covalent, and metallic bonds.
- The student can quantify the changes that occur during chemical reactions.
- The student understands the principles of ideal gas behavior, kinetic molecular theory, and the conditions that influence the behavior of gases.
- The student understands and can apply the factors that influence the behavior of solutions.
- The student understands the energy changes that occur in chemical reactions.
- The student understands the basic processes of nuclear chemistry.

**Available Support for Student Learning:**

Refer to the teacher's Course Syllabus for resources and course specific opportunities.  
Student textbook and/or digital version are available through the CCISD Student Portal.

**Link to Course TEKS on State website:**

<http://ritter.tea.state.tx.us/rules/tac/chapter112/ch112c.html#112.33>

<b>Year-At-A-Glance 2021-2022</b>	<b>Department</b>	Science	<b>PEIMS Code</b>	
	<b>Subject Area</b>	<b>Chemistry</b>	<b>Grade Level</b>	9-12

Area	1 <sup>st</sup> Nine Weeks	2 <sup>nd</sup> Nine Weeks
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	August	September	October	November	December
<b>Week 1</b>		<b>Matter</b> Phys/Chem Prop and Changes State of Matter Phase Diagram Mixture/Pure Substance	<b>Periodic Table</b> History and The POT Trends  End of 1 <sup>st</sup> 9 Weeks	<b>Bonding and Nomenclature</b> Ionic Covalent VSEPR	<b>Chemical Reactions</b> Cons of Mass and Balanced Equations  Review
<b>Week 2</b>		<b>Atomic Structure and Nuclear Chemistry</b> History Review of Atom Isotopes	<b>Periodic Table</b> History and The POT Trends	<b>Bonding and Nomenclature</b> Ionic Covalent VSEPR	Semester Exams
<b>Week 3</b>	<b>Safety &amp; Sci. Practices C.1-C.4</b>  Safety Lab Equipment Sci. Investigations	<b>Atomic Structure and Nuclear Chemistry</b> History Review of Atom Isotopes	<b>Electrons in Atoms</b> Energy Frequency and Wavelength of Light Electron Config	<b>Bonding and Nomenclature</b> Ionic Covalent VSEPR	Winter Holidays
<b>Week 4</b>	<b>Safety &amp; Sci. Practices C.1-C.4</b>  Accuracy, Precision Sci Notation	<b>Nuclear Chemistry</b> Types of Radiation Fission/Fusion	<b>Electrons in Atoms</b> Energy Frequency and Wavelength of Light Electron Config	Thanksgiving Break	Winter Holidays
<b>Week 5</b>	<b>Matter C.4A, C.4B</b>  Phys/Chem Prop and Changes State of Matter			<b>Chemical Reactions</b> Cons of Mass and Balanced Equations	

**Week is based on the month that the first day of the week occurs.**

<b>Year-At-A-Glance</b>	<b>Department</b>	Science	<b>PEIMS Code</b>	03060800
	<b>Subject Area</b>	Chemistry–On Level	<b>Grade Level</b>	9-12

<b>3<sup>rd</sup> Nine Weeks</b>	<b>4<sup>th</sup> Nine Weeks</b>
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	<b>January</b>	<b>February</b>	<b>March</b>	<b>April</b>	<b>May</b>
<b>Week 1</b>	Semester Exam Analysis  <b>Review Bonding, Nomenclature, and Cons. of Mass</b>	<b>Chemical Quantities and Stoichiometry</b> % Composition Moles and Molar Mass Molar Ratios and Conversions Conceptual Limiting Reactant and % Yield	<b>Gas Laws</b> Kinetic Mol. Theory and Conversions Describe and Calculate Using Gas Laws	<b>Solutions</b> Prop. Of Water Solutions Solubility Solubility Rules Molarity and Dilutions	<b>Thermal Chemistry</b> Forms of Energy and Heat Transfer Heat During Phase Change Heat Calculations Enthalpy of Reactions
<b>Week 2</b>	<b>Chemical Reactions</b> Types of Reactions	<b>Chemical Quantities and Stoichiometry</b> % Composition Moles and Molar Mass Molar Ratios and Conversions Conceptual Limiting Reactant and % Yield	<b>Gas Laws</b> Kinetic Mol. Theory and Conversions Describe and Calculate Using Gas Laws  End of 3 <sup>rd</sup> 9 Weeks	<b>Acids, Bases, and Salts</b> Acid/Base Basics pH Strength vs. Concentration Acid/Base Reactions	<b>Thermal Chemistry</b> Forms of Energy and Heat Transfer Heat During Phase Change Heat Calculations Enthalpy of Reactions
<b>Week 3</b>	<b>Chemical Reactions</b> Types of Reactions	<b>Chemical Quantities and Stoichiometry</b> % Composition Moles and Molar Mass Molar Ratios and Conversions Conceptual Limiting Reactant and % Yield	Spring Break	<b>Acids, Bases, and Salts</b> Acid/Base Basics pH Strength vs. Concentration Acid/Base Reactions	Review
<b>Week 4</b>	<b>Chemical Quantities and Stoichiometry</b> % Composition Moles and Molar Mass Molar Ratios and Conversions Conceptual Limiting Reactant and % Yield	<b>Gas Laws</b> Kinetic Mol. Theory and Conversions Describe and Calculate Using Gas Laws	<b>Solutions</b> Prop. Of Water Solutions Solubility Solubility Rules Molarity and Dilutions	<b>Acids, Bases, and Salts</b> Acid/Base Basics pH Strength vs. Concentration Acid/Base Reactions  <b>Thermal Chemistry</b> Forms of Energy & Heat Transfer Heat During Phase Change Heat Calculations Enthalpy of Reactions	Semester Exams
<b>Week 5</b>			<b>Solutions</b> Prop. Of Water Solutions Solubility Solubility Rules Molarity and Dilutions		