



CHEMISTRY
Year at a Glance (YAG)
2024-2025



First Semester		Second Semester	
1 st Nine Weeks		3 rd Nine Weeks	
<p>TEKS C.1A,B,C,D,E,F,G,H C.2A,B,C,D C.3A,B,C C.4A,B,C C.5A,B,C C.6A,B,D C14A,B,C</p>	<p>Scientific and Engineering Practices Students will be able to utilize scientific and engineering practices to demonstrate proper lab techniques and safety procedures, answer questions, explain phenomena using appropriate tools, models or investigations, and design solutions to problems, collect quantitative data using SI and organize quantitative and qualitative data, develop and use models to represent phenomena, systems, processes, or solutions to engineering problems, distinguish between scientific hypotheses, theories, and laws, identify advantages and limitations and analyze and interpret data of models, use calculations to assess quantitative relationships, communicate and engage in scientific argumentation, evaluate experimental and engineering design, relate the impact of past and current research, explore resources to investigate STEM careers.</p> <p>Periodic Table Students will explain the development of the Periodic Table over time using evidence such as chemical and physical properties; predict the properties of elements in chemical families, including alkali metals, alkaline earth metals, halogens, noble gasses, and transition metals, based on valence electrons patterns using the Periodic Table; analyze and interpret elemental data, including atomic radius, atomic mass, electronegativity, ionization energy, and reactivity to identify periodic trends.</p> <p>Atomic Theory/Structure Students will understand and construct models of the experimental design of the atomic model and the evolution of the modern atomic theory and apply it to real-world phenomena, describing the structure of atoms and ions, and calculate average atomic mass of an element using isotopic composition.</p>	<p>TEKS C.8A,B,C,D C.9A,B,C,D C.10A,B,C</p>	<p>Molar Mass Define mole and apply the concept of molar mass to convert between moles and grams; calculate the number of atoms or molecules in a sample of material using Avogadro's number; calculate percent composition of compounds differentiate between empirical and molecular formula.</p> <p>Chemical Equations and Reactions Students use the Law of Conservation of Mass to write and balance equations and will classify the type of reaction, .differentiate among acid-base reactions, precipitation reactions, and oxidation-reduction reactions</p> <p>Stoichiometry Students will perform stoichiometric calculations involving mass, volume, limiting reactants, percent error, and percent yield.</p> <p>Phases and Gasses Describe the postulates of the kinetic molecular theory; describe and calculate the relationships between pressure, temperature, volume, moles, and density of a gas using equations for all of the gas laws.</p>



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2 nd Nine Weeks		4 th Nine Weeks	
<p>TEKS C.6C,E C.7A,B,C,D</p>	<p>Electromagnetic Radiation/Behavior of Electrons Students will understand the electromagnetic spectrum, and be able to calculate mathematical relationships for the properties of waves.</p> <p>Chemical Models, Bonding, Formulas, and Naming Construct models to express the arrangement of electrons in atoms of representative elements using electron configurations and Lewis dot structures. Students will understand how ionic and covalent bonds are formed, and will be able to write and name chemical compounds according to IUPAC nomenclature, analyze bonds in terms of intramolecular and intermolecular forces.</p>	<p>TEKS C.11A,B,C,D,E, F C.12A,B,C,D,E C.13A,B,C</p>	<p>Solutions Describe the unique role of water in solutions in terms of polarity, distinguish among types of solutions, including electrolytes and nonelectrolytes and unsaturated, saturated, and supersaturated solutions, investigate how solid and gas solubilities are influenced by temperature using solubility curves and how rates of dissolution are influenced by temperature, agitation, and surface area, investigate the general rules regarding solubility and predict the solubility of the products of a double replacement reaction; calculate the concentration of solutions and use molarity to calculate a dilution.</p> <p>Acid-Base Name and write the chemical formulas for acids and bases using IUPAC nomenclature rules; define acids and bases according to Arrhenius, Bronsted-Lowry, and Lewis definitions, differentiate between strong and weak acids and base, define and calculate pH from hydrogen and hydroxide concentrations. Students will understand acid-base reactions through a titration equation.</p> <p>Energy Changes Explain everyday examples that illustrate the four laws of thermodynamics; investigate the process of heat transfer using calorimetry; classify processes as exothermic or endothermic and represent energy changes that occur in chemical reactions using thermochemical equations or graphical analysis.</p> <p>Nuclear Chemistry Describe the characteristics of alpha, beta, and gamma radioactive decay processes in terms of balanced nuclear equations; compare fission and fusion reactions, give examples of applications of nuclear phenomena such as nuclear stability, radiation therapy, diagnostic imaging, solar cells, and nuclear power.</p>



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[Texas State](#)

[Plan for the Education of Gifted Talented Students](#)

District meets the needs of GT Students by modifying **depth, complexity and pacing** of the CI ordinarily provided (9)

- **Depth:** Exploration of concrete to abstract/familiar to unfamiliar/details, patterns, trends, ethical considerations (18)
- **Complexity: Extension in b/t and across disciplines** through themes/problems/issues from multiple POV (18)
- **Flexible pacing:** Students at an appropriate instructional level and allowing them to move forward in the curriculum as they master content and skills. Achieved by continuous progress, compacted courses, **advanced level courses**, grade skipping, early entrance, CBE (19)
- **Diversity:** The presence of difference between individuals and among groups including but not limited to age, socioeconomics, education, race and ethnicity, gender, sexual orientation, culture, and religious beliefs (18)
- **Acceleration:** Academic intervention that matches the level, complexity and pace of the curriculum with the **readiness and motivation** of the student. Mastering TEKS at a rate faster or at an age earlier than the norm (18)

- 3.4 Opportunities to **work together as a group, work with other students, and work independently** during the school day (7)
- 4.3 A continuum of learning experiences is provided that leads to the development of **adv-level products** and/or **performances** TPSP (9)
- 4.5 **Opportunities** are provided to accelerate in areas of **student** strength (individual) (9)
- 4.7 Scheduling mods are implemented in order to meet the identified needs of **individual** students (9)