Everest Academy

Scope & Sequence
Grade:10 Subject: Chemistry

Revised:April 2024

1st Quarter (44 Days)			
Resources: **STEMScopes**			
Week	**Unit/Lesson**	**Learning Objectives**	**TEKS**
1st: Aug 8-9 *(2days)*	**Welcome to school**	TSW establish class routines and procedures	N/A
2nd: Aug 12-16 *(5 days)*	**The Periodic Table**	TSW explain the development of the Periodic Table over time using evidence such as chemical and physical properties TSW predict the properties of elements i chemical families, including alkali metals, alkaline earth metals, halogens, noble gasses, and transition metals, based on valence electrons patterns using the Periodic Table	C.5(A) C.5(B)
3rd: Aug 19-23 *(3 days)*	**Trends of the Periodic Table**	TSW analyze and interpret elemental data, including atomic radius, atomic mass, electronegativity, ionization energy, and reactivity to identify periodic trends	C.5(C)
4th: Aug 26- Aug 30 *(5 days)*	**Atomic Models**	TSW construct models using Dalton's postulates, Thomson's discovery of electron properties, Rutherford's nuclear atom, Bohr's nuclear atom, and Heisenberg's uncertainty principle to show the development of modern atomic theory over time TSW describe the structure of atoms and ions, including the masses, electrical charges, and locations of protons and neutrons in the nucleus and electrons in the electron cloud	C.6(A) C.6(B)
5th: Sept 2-6 *(4 days)*	Monday: Labor Day Holiday **Light and the Atomic Emission Spectra**	TSW investigate the mathematical relationship between energy, frequency, and wavelength of light using the electromagnetic spectrum and relate it to the quantization of energy in the emission spectrum	C.6(C)
6th: Sept 9-13 *(5 days)*	**Average Atomic Mass**	TSW calculate average atomic mass of an element using isotopic composition	C.6(D)
7th: Sept 16-20 *(5 days)*	**Models of Electron Configuration**	TSW construct models to express the arrangement of electrons in atoms of representative elements using electron configurations and Lewis dot structures	C.6(E)

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8th: Sept 23-27 *(4 days)*	Friday: Professional Development **Different types of bonds**	TSW construct an argument to support how periodic trends such as electronegativity can predict bonding between elements TSW analyze the properties of ionic, covalent, and metallic substances in terms of intramolecular and intermolecular forces	C.7(A) C.7(D)
9th:Sept 30 Oct 4 *(5 days)*	**Naming Molecules**	TSW name and write the chemical formulas for ionic and covalent compounds using International Union of Pure and Applied Chemistry (IUPAC) nomenclature rules	C.7(B)
10th: Oct 7-11 *(5 days)*	**Naming Molecules**	TSW name and write the chemical formulas for ionic and covalent compounds using International Union of Pure and Applied Chemistry (IUPAC) nomenclature rules	C.7(B)

2nd Quarter (43 Days)			
Resources: **STEMScopes**			
Week	**Unit/Lesson**	**Learning Objectives**	**TEKS**
1st: Oct 14-18 *(5 days)*	**VSEPR Shapes**	TSW classify and draw electron dot structures for molecules with linear, bent, trigonal planar, trigonal pyramidal, and tetrahedral molecular geometries as explained by Valence Shell Electron Pair Repulsion (VSEPR) theory	C.7(C)
2nd: Oct 21-25 *(5 days)*	**The Mole**	TSW define mole and apply the concept of molar mass to convert between moles and grams TSW calculate the number of atoms or molecules in a sample of material using Avogadro's number	C.8(A) C.8(B)

2nd Quarter (43 Days)			
Resources: **STEMScopes**			
Week	**Unit/Lesson**	**Learning Objectives**	**TEKS**
3rd: Oct 28- Nov 1 *(4 days)*	Friday: Parent/Teacher Conferences **The Mole**	TSW define mole and apply the concept of molar mass to convert between moles and grams TSW calculate the number of atoms or molecules in a sample of material using Avogadro's number	C.8(A) C.8(B)
4th: Nov 4-8 *(5 days)*	**Empirical Formulas and Percent Composition**	TSW calculate percent composition of compounds TSW differentiate between empirical and molecular formulas	C.8(C) C.8(D)
5th: Nov 11-15 *(5 days)*	**Empirical Formulas and Percent Composition**	TSW calculate percent composition of compounds TSW differentiate between empirical and molecular formulas	C.8(C) C.8(D)
6th : Nov 18-22 *(5 days)*	Review & Assessment	N/A	N/A
Nov 25-29	**Thanksgiving Holiday**		
8th: Dec 2-6 *(5 days)*	**Balancing Equations**	TSW interpret, write, and balance chemical equations, including synthesis, decomposition, single replacement, double replacement, and combustion reactions using the law of conservation of mass TSW differentiate among acid-base reactions, precipitation reactions, and oxidation-reduction reactions	C.9(A) C.9(B)
9th: Dec 9-13 *(5 days)*	**Stoichiometry**	TSW perform stoichiometric calculations, including determination of mass relationships, gas volume relationships, and percent yield TSW describe the concept of limiting reactants in a balanced chemical equation	C.9(C) C.9(D)
10th : Dec 16-20 *(5 days)*	**Stoichiometry**	TSW perform stoichiometric calculations, including determination of mass relationships, gas volume relationships, and percent yield TSW describe the concept of limiting reactants in a balanced chemical equation	C.9(C) C.9(D)
Dec 23- Jan 03	**Winter Break**		

3rd Quarter (44 Days)			
Resources: **STEMScopes**			
Week	**Unit/Lesson**	**Learning Objectives**	**TEKS**
1st : Jan 6-10 *(5 days)*	Monday: Professional Development **The Gas Laws**	TSW describe the postulates of the kinetic molecular theory TSW describe and calculate the relationships among volume, pressure, number of moles, and temperature for an ideal gas TSW define and apply Dalton's law of partial pressure	C.10(A) C.10(B) C.10(C)
2nd: Jan 13-17 *(5 days)*	**The Gas Laws**	TSW describe the postulates of the kinetic molecular theory TSW describe and calculate the relationships among volume, pressure, number of moles, and temperature for an ideal gas TSW define and apply Dalton's law of partial pressure	C.10(A) C.10(B) C.10(C)
3rd : Jan 20-24 *(4 days)*	Monday: MLK Holiday **Types of Solutions**	TSW describe the unique role of water in solutions in terms of polarity TSW distinguish among types of solutions, including electrolytes and nonelectrolytes and unsaturated, saturated, and supersaturated solutions	C.11(A) C.11(B)
4th : Jan 27-31 *(5 days)*	**Solubility and Reactions**	TSW 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 TSW investigate the general rules regarding solubility and predict the solubility of the products of a double replacement reaction	C.11(C) C.11(D)
5th: Feb 3-7 *(5 days)*	**Molarity**	TSW calculate the concentration of solutions in units of molarity TSW calculate the dilutions of solutions using molarity	C.11(E) C.11(F)
6th: Feb 10-14 *(5 days)*	Friday: District Professional Development Defining Acids and Bases	TSW name and write the chemical formulas for acids and bases using IUPAC nomenclature rules TSW define acids and bases and distinguish between Arrhenius and Bronsted-Lowry definitions	C.12(A) C.12(B)

3rd Quarter (44 Days)			
Resources: **STEMScopes**			
Week	**Unit/Lesson**	**Learning Objectives**	**TEKS**
7th: Feb 17-21 *(4 days)*	**pH of Strong and Weak Acids**	TSW differentiate between strong and weak acids and bases TSW define pH and calculate the pH of a solution using the hydrogen ion concentration describe the postulates of the kinetic molecular theory	C.12(C) C.12(E)
8th : Feb 24-28 *(5 days)*	**Acid-Base Products**	TSW predict products in acid-base reactions that form water	C.12(D)
9th: Mar 3-7 *(5 days)*	**Thermodynamics and Reactions**	TSW explain everyday examples that illustrate the four laws of thermodynamics TSW classify processes as exothermic or endothermic and represent energy changes that occur in chemical reactions using thermochemical equations or graphical analysis	C.13(A) C.13(C)
March 10-14	**Spring Break**		

4th Quarter (46 Days)			
Resources: **StemScopes**			
Week	**Unit/Lesson**	**Learning Objectives**	**TEKS**
1st: Mar 17- 21 *(5 days)*	**Thermodynamics and Reactions**	TSW explain everyday examples that illustrate the four laws of thermodynamics TSW classify processes as exothermic or endothermic and represent energy changes that occur in chemical reactions using thermochemical equations or graphical analysis	C.13(A) C.13(C)
Mar 24 - 31	**Ramadan break**		
2nd: Apr 1-4 *(4 days)*	**Calorimetry**	TSW investigate the process of heat transfer using calorimetry TSW perform calculations involving heat, mass, temperature change, and specific heat	C.13(B) C.13(D)

4th Quarter (46 Days)			
Resources: **StemScopes**			
Week	**Unit/Lesson**	**Learning Objectives**	**TEKS**
3rd: April 7-11 *(5 days)*	**Nuclear Chemistry**	TSW describe the characteristics of alpha, beta, and gamma radioactive decay processes in terms of balanced nuclear equations TSW compare fission and fusion reactions	C.14(A) C.14(B)
4th: April 14- 18 *(5 days)*	**STAAR REVIEW**	STAAR REVIEW	STAAR REVIEW
5th: Apr 21-25 *(5 days)*	**STAAR REVIEW**	STAAR REVIEW	STAAR REVIEW
6th: Apr 28 -May 2 *(5 days)*	**STAAR Testing**	STAAR TESTING	STAAR TESTING
7th: May 5- 9 *(5 days)*	**STAAR Testing**	STAAR TESTING	STAAR TESTING
8th: May 12- 16 *(5 days)*	**Nuclear Technology**	TSW give examples of applications of nuclear phenomena such as nuclear stability, radiation therapy, diagnostic imaging, solar cells, and nuclear power	C.14(C)
9th: May 19- 23 *(5 days)*	Award Ceremonies / Graduation Ceremonies	N/A	N/A
10th :May 26-28	**Graduation ceremonies & staff working days**	N/A	N/A