



Rockwall ISD Chemistry on-level Year-at-a-Glance



	Term 1	Term 2	Term 3	Term 4
Focus TEKS ESSENTIAL	<u>Unit 1</u> 1A, 1B , 1C, 2I, 2F, 2G , 2I, 3F, 8A, 8B <u>Unit 2</u> 1C, 2E, 2I, 4A, 4B, 4C, 4D <u>Unit 3</u> 2A, 2B, 2C, 2D, 2E, 2H, 2I, 3A, 3D, 3F, 6A, 6B, 6C, 6D <u>Unit 4</u> 5A, 5B , 5C	<u>Unit 5</u> (started in Term 1) 1A, 1B , 1C, 2E, 2F, 2H, 2I, 7A , 7B , 7C, 7D <u>Unit 6</u> 1A, 1B , 1C, 2E, 2F, 2H, 2I, 7A , 7B , 7C, 7D, 7E <u>Unit 7</u> 2D, 2E, 2I, 3F, 8E, 8F <u>Unit 8</u> 2D, 2I, 3B, 3D, 3E, 12A , 12B	<u>Unit 9</u> 1A, 1B , 1C, 2I, 2F, 2G , 2I, 3F, 8A , 8B <u>Unit 10</u> 8A , 8B, 8C, 8D <u>Unit 11</u> 2E, 2F, 2G , 2H, 2I, 8E, 8G <u>Unit 12</u> 2E, 2F, 2G , 2H, 2I, 8E, 8G , 8H	<u>Unit 13</u> 2E, 2D, 2G , 2H, 2I, 11A , 11B, 11C, 11D <u>Unit 14</u> 1A, 2D, 2E, 2F, 2G , 2H, 2I, 3F, 8G , 9A, 9B, 9C <u>Unit 15</u> 2E, 2G , 2H, 2I, 10A, 10B, 10C, 10D, 10E , 10F <u>Unit 16</u> 2E, 2G , 2I, 3F, 8F , 10E , 10G, 10H <u>Unit 17</u> 2E, 2G , 2I, 8F
Topic Focus	<u>Unit 1</u> Fundamentals of Science: Safety & Equipment <u>Unit 2</u> Matter <u>Unit 3</u> Atomic Theory/Structure/ Electron Configuration <u>Unit 4</u> Periodic Table	<u>Unit 5</u> (started in Term 1) Ionic Bonding <u>Unit 6</u> Covalent Bonding <u>Unit 7</u> Chemical Equations and Reactions <u>Unit 8</u> Nuclear Chemistry	<u>Unit 9</u> Fundamentals of Chemistry: Measurement <u>Unit 10</u> Functions of a Mole <u>Unit 11</u> Stoichiometry I <u>Unit 12</u> Stoichiometry II	<u>Unit 13</u> Thermochemistry <u>Unit 14</u> Gases <u>Unit 15</u> Solutions <u>Unit 16</u> Acid/Base <u>Unit 17</u> Redox
Resources	<u>Unit 1</u> Chapter 1 Section 1 Chapter 2 Sections 1-3 <u>Unit 2</u> Chapter 2 Section 1 Chapter 3 Sections 1-4 Chapter 14 Section 1 <u>Unit 3</u> Chapter 4 Sections 1-3 Chapter 5 ALL <u>Unit 4</u> Chapter 6 ALL	<u>Unit 5</u> (started in Term 1) Chapter 7 Sections 1-3 Chapter 12 Section 2 <u>Unit 6</u> Chapter 7 Section 4 Chapter 8 ALL Chapter 12 Section 2 <u>Unit 7</u> Chapter 9 ALL Chapter 16 Section 2 <u>Unit 8</u> Chapter 4 Section 4 Chapter 24 ALL	<u>Unit 9</u> Chapter 2 Sections 1-3 <u>Unit 10</u> Chapter 10 ALL <u>Unit 11</u> Chapter 11 Sections 1-2 <u>Unit 12</u> Chapter 11 Section 3-4	<u>Unit 13</u> Chapter 15 ALL <u>Unit 14</u> Chapter 12 Section 1 Chapter 13 ALL <u>Unit 15</u> Chapter 14 ALL <u>Unit 16</u> Chapter 18 ALL <u>Unit 17</u> Chapter 19 Section 1
Key Concepts	Unit 1 <ul style="list-style-type: none"> students demonstrate safe practices, including the use of personal protective equipment, such as safety goggles. They also 	Unit 5 <p>These topics will be addressed</p> <ul style="list-style-type: none"> Use Lewis Dot Diagrams to explain electron transfer 	Unit 9 <ul style="list-style-type: none"> students demonstrate safe practices, including the use of personal protective equipment, such as safety goggles. They also 	Unit 13 <ul style="list-style-type: none"> These topics will be addressed: <ul style="list-style-type: none"> Specific heat capacity <ul style="list-style-type: none"> No calorimetry calculations



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learn the locations and use of other types of safety equipment, such as fire blankets, eye wash fountains, safety showers, and fire extinguishers. Students are introduced to safety information contained in MSDS/SDS sheets. Students also learn to conserve and dispose of materials appropriately. Finally, students develop their own science notebooks to collect, record, and analyze data and information.

- These topics will be addressed:
 - Equipment
 - Laboratory safety
 - Scientific notation
 - Accuracy and precision
- Scientific notation should encompass converting between standard and scientific notation. Students should be able to complete computations with and without a calculator.
- Accuracy and precision will be introduced as a conceptual topic during this unit.

Unit 2

- students review and extend their understanding of the physical and chemical properties of matter, as manifested in elements, compounds, and mixtures. In accordance with the TEKS scientific investigation and reasoning skills aligned to this unit (C.2E), students use these properties to plan and choose the tools needed to measure density.
- Topics that will be addressed:
 - Physical/chemical changes

- Ionic names and formulas
 - Include: transition metal and polyatomic rules
- Ionic bond properties

Unit 6

Topics covered in this unit

- Characteristics of covalent bonds
- Polar and nonpolar covalent bonds
- Writing chemical formulas for covalent bonds
- Naming covalent compounds
- Double and triple bonds
- VSEPR and molecular shapes
- Octet Rule
- Lewis dot structure
- Metallic bonds

Unit 7

Topics covered in this unit:

- Identify the types of chemical equations:
 - synthesis
 - decomposition
 - single replacement
 - double replacement
 - combustion
- Balance equations
- Predicting products
- Activity series
- Solubility
- Evidence of Chemical Reactions

Unit 8

- These topics will be addressed
 - Types of radiation
 - Alpha
 - beta
 - Gamma
 - process of radioactive decay and balancing nuclear reactions

learn the locations and use of other types of safety equipment, such as fire blankets, eye wash fountains, safety showers, and fire extinguishers. Students are introduced to safety information contained in MSDS/SDS sheets. Students also learn to conserve and dispose of materials appropriately. Finally, students develop their own science notebooks to collect, record, and analyze data and information.

- These topics will be addressed:
 - Significant figures
 - Main elements (see file in folder)
 - Density--solve using dimensional analysis
 - Dimensional analysis
 - Metric Prefixes and conversions using dimensional analysis
 - Numeric accuracy and precision
 - Percent Error
- Significant figures should include the calculation and measurement. Explain the application of significant figures in the lab.
- Accuracy and Precision should now be taught with numerical values; lending itself to the application in the density lab. Percent error should also be applied to the laboratory data

Unit 10

These topics will be addressed...

- Empirical and Molecular formula
- Percent composition
- Molar conversions

- Joule and Calorie conversions
- Endothermic vs exothermic
 - Phase changes classified as endothermic or exothermic
 - Use graphs or delta H value
- Phase transition graph
 - Explain heat can be added to system without changing states of matter. i.e. potential energy vs kinetic energy
- Heat flow/thermal equilibrium
- Students do not have to calculate enthalpy but do know delta H values in terms of heat moving in or heat moving out. Energy measurements can be given on reactant or product.

Unit 14

Topics to be covered:

- Gas Law equations
 - Combined Gas Law
 - Boyle's Law
 - Charles' Law
 - Gay-Lussac's Law
- Ideal Gas Law
- Relationship of Ideal Gas Law and Stoichiometry
- Dalton's Partial Pressure Equation
- Kinetic Molecular Theory
- Standard Temperature and Pressure (STP)
- Temperature conversions
- Pressure conversions
- Volume conversions

Unit 15

Topics in the unit:

- Molarity



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<ul style="list-style-type: none">○ States of matter○ Phase change diagram○ Physical/chemical properties○ Pure substances/mixtures○ Separation techniques● Separation techniques such as centrifuge, chromatography, distillation, evaporation, and filtration. Techniques woven throughout investigations, those that are not accessible at school should be explained and represented with another media source. <p>Unit 3 Topics that will be addressed in this unit:</p> <ul style="list-style-type: none">● Atomic scientists● Average atomic mass● Calculating subatomic particles● Identifying ions and isotopes● Nuclear notation● Hyphen notation● Electron configuration● Filling rules● Electromagnetic spectrum● Wave, frequency, and energy relationship● Ground state and excited state of atom <p>Unit 4 Topics that will be addressed in this unit:</p> <ul style="list-style-type: none">● Creation of modern periodic table and the history leading up to the one we use today.● Periodic trends● Relationship of periods and atomic structure	<ul style="list-style-type: none">○ comparison of fission and fusion.● Students also research and report on related nuclear history, scientists, and societal impacts and connect nuclear chemistry to careers.	<p>Unit 11 Topics to be addressed</p> <ul style="list-style-type: none">● Mole ratio● Mole to mole conversion● Gram to mole conversion● Mole to gram conversion● Gram to gram conversion● Particles to gram conversion● Gram to particles conversion <p>Unit 12 Topics addressed in this unit</p> <ul style="list-style-type: none">● Limiting reactant● Percent yield	<ul style="list-style-type: none">● Dilutions● Solubility Curve<ul style="list-style-type: none">○ Solubility of Gases○ Solubility of Solids● Like dissolves like● Boiling point elevation● Freezing point depression <p>Unit 16 Topics addressed</p> <ul style="list-style-type: none">● Apply the rules of IUPAC nomenclature to name acids and bases● Define an Acid/Base as<ul style="list-style-type: none">○ Arrhenius○ Bronsted-Lowry● Describe a substances as<ul style="list-style-type: none">○ Acidic○ Basic○ Neutral● pH calculations● Find pOH from pH● pH scale● Strong vs weak acids/bases● Electrolytes and nonelectrolytes <p>Unit 17 Topics to be addressed</p> <ul style="list-style-type: none">● Redox as a subtype of reactions● Oxidation● Reduction● electron transfer● oxidation number
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	<ul style="list-style-type: none">• Chemical families and characteristic• Relationship of columns and atomic structure• Introduce Lewis dot structure for bonding• Where to find the atomic number, atomic mass, electron configuration on the Periodic table			
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