

Integrated Physics and Chemistry Scope & Sequence

1 st Six Weeks (25 Days) August 14th-September 19th	2 nd Six Weeks (27 Days) September 24th-November 1st
<p>Unit 0: Getting Started/ (5 days) Aug. 14th-20th</p> <ul style="list-style-type: none"> ❖ SEL/Safety: Establish Procedures and Routines <ul style="list-style-type: none"> ➤ Science Safety Rules ➤ Lab rules and expectations/Equipment/Setup ➤ Interactive Notebooks <p>Unit 1: Linear Motion (10 Days) Aug. 21st-Sep. 5th</p> <ul style="list-style-type: none"> ❖ Big Ideas: Object moves and change their state of position takes place. The motion of the objects depends upon displacement, speed and acceleration. Linear graphs are constructed while calculating the speed of the objects. <ul style="list-style-type: none"> ➤ Important Concepts : <ul style="list-style-type: none"> ■ Object's motion in terms of position, displacement, speed, and acceleration. ■ Measure and graph distance and speed as a function of time. ➤ Readiness TEKS: I.4A ➤ Supporting TEKS: I.4B <p>Unit 2: Traditional Forces and Motion (10 Days) Sep. 6th-19th</p> <ul style="list-style-type: none"> ❖ Big Ideas: The object is said to be in motion when it shows displacement when force is applied. <ul style="list-style-type: none"> ➤ Important Concepts: <ul style="list-style-type: none"> ■ Relationship between Object's motion changes and net force. 	<p>Unit 3: Gravitational and Electrical Forces (11 Days) Sep. 24th-Oct. 8th</p> <ul style="list-style-type: none"> ❖ Big Ideas: Different forces govern an object and its position. There are forces due to earth's gravity and due to electrical field causes objects to move and perform work. <ul style="list-style-type: none"> ➤ Important Concepts: <ul style="list-style-type: none"> ■ Gravitational attraction between objects of different masses at different distances. ■ Electrical force as a universal force between any two charged objects ➤ Readiness TEKS: None ➤ Supporting TEKS: I.4F, I.4G <p>Unit 4 Energy: Potential and Kinetic; Thermal Energy: & Conservation (16 Days) Oct. 9th-Nov. 1st</p> <ul style="list-style-type: none"> ❖ Big Ideas: Body in motion depends upon mass and acceleration as well as objects moving from a high to lower levels generate energy. These energies are called as kinetic and potential energy. Energy that is generated by heat and measured by heat. The internal energy of a system in thermodynamic equilibrium due to it temperature. <ul style="list-style-type: none"> ➤ Important Concepts: <ul style="list-style-type: none"> ■ Objects and substances in motion have kinetic energy such as vibration of atoms, water flowing down a stream moving pebbles, and bowling balls knocking down pins. Common forms of potential energy. ■ Law of conservation of energy.

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<ul style="list-style-type: none"> ■ Relationship between force, mass, and acceleration using equipment such as dynamic carts, moving toys, vehicles, and falling objects. ■ Conservation of momentum using action and reaction forces ➤ Readiness TEKS: I.4C, I.4D ➤ Supporting TEKS: I.4E 	<ul style="list-style-type: none"> ■ Movement of thermal energy through solids, liquids, and gases by convection, conduction, and radiation. ➤ Readiness TEKS: I.5B, I.5D, I.5E ➤ Supporting TEKS: I.5A
<p>3rd Six Weeks (26 Days)</p> <p>November 6th-December 19th</p>	<p>4th Six Weeks (31 Days)</p> <p>January 7th-February 21st</p>
<p>Unit 5: Societal Impacts of Energy Usage (12 Days) Nov. 6th-21st</p> <ul style="list-style-type: none"> ❖ Big Ideas: Modern world lean extremely on energy and power. The dependency of these energy cause tremendous development in various fields but at the same time there are several hazard to the environment. <ul style="list-style-type: none"> ➤ Important Concepts: <ul style="list-style-type: none"> ■ Energy transformations of renewable and nonrenewable resources. ■ Advantages and disadvantages of various energy sources and their impact on society and the environment ➤ Readiness TEKS: None ➤ Supporting TEKS: I.5H, I.5I <p>Unit 6: Series vs. Parallel Circuits and Conductivity (10 Days) Dec. 2nd-13th</p> <ul style="list-style-type: none"> ❖ Big Ideas: Circuits in parallel and series connections are utilized to carry out several activities like lighting a Christmas light or different electrical connections at home, workplace and in other places. There are materials that conduct electricity For example metals are good conductors of heat and electricity. <ul style="list-style-type: none"> ➤ Important Concepts: 	<p>Unit 0: Getting Started/ (5 days) Jan. 7th-13th</p> <ul style="list-style-type: none"> ❖ SEL/Safety: Establish Procedures and Routines <ul style="list-style-type: none"> ➤ Science Safety Rules ➤ Lab rules and expectations/Equipment/Setup ➤ Interactive Notebooks ➤ Safety Test/Quiz <p>Unit 7: Electricity & Magnetism (15 Days) Jan. 14th-Feb. 4th</p> <ul style="list-style-type: none"> ❖ Big Ideas: Flow of electrons in a circuit generate electricity and moving electric charges cause electrical and magnetic forces that are used in various activities or to run several machines. <ul style="list-style-type: none"> ➤ Important Concepts: <ul style="list-style-type: none"> ■ Moving electric charges produce magnetic forces and moving magnets produce electric forces. ➤ Readiness TEKS: None ➤ Supporting TEKS: I.5C <p>Unit 8: Waves, Sound and Light (11 Days) Feb. 5th-21st</p> <ul style="list-style-type: none"> ❖ Big Ideas: It is important to understand how sound and light flows or travels. Sound travels in the form of waves and light always travel in a straight line. Sound and electrical waves produce energy.

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<ul style="list-style-type: none"> ■ Electrical energy in series and parallel circuits and conductive materials ➤ Readiness TEKS: None ➤ Supporting TEKS: I.5F ❖ Note: There are flex days in December for Semester exams, EOC Retest and District Benchmarks 	<ul style="list-style-type: none"> ➤ Important Concepts: <ul style="list-style-type: none"> ■ Characteristics and behaviors of energy transferred by waves as they reflect, refract, diffract, interfere with one another, and are absorbed by materials ➤ Readiness TEKS: I.5G ➤ Supporting TEKS: None
<p>5th Six Weeks (33 Days) February 24th-April 17th</p>	<p>6th Six Weeks (31 Days) April 20th-June 2nd</p>
<p>Unit 9: Properties of Matter, Atoms and the Periodic Table (19 Days) Feb. 24th-Mar. 27th</p> <ul style="list-style-type: none"> ❖ Big Ideas: Students trace the development of atomic theory to the development of the periodic table and learn to recognize all of the properties of sets of elements that can be determined by the structure of the periodic table. <ul style="list-style-type: none"> ➤ Important Concepts: <ul style="list-style-type: none"> ■ Physical properties of solids, liquids, and gases as explained by the arrangement and motion of atoms or molecules. ■ Physical and chemical properties of elements and compounds. ■ Arrangement of atoms in relationship with their chemical properties. ■ Placement of an element on the Periodic Table to its physical and chemical behavior ➤ Readiness TEKS: I6A, I6C ➤ Supporting TEKS: I.6B, I.6D 	<p>Unit 11: Solutions (10 Days) Apr. 20th-May 1st</p> <ul style="list-style-type: none"> ❖ Big Ideas: Classify solutions into saturated and unsaturated solutions, and acidic and basic nature of solutions. ❖ There are many factors that affect the rate at which a solute will dissolve <ul style="list-style-type: none"> ➤ Important Concepts: <ul style="list-style-type: none"> ■ Water as a universal solvent. ■ Properties of water solutions and factors affecting solid solubility ➤ Readiness TEKS: None ➤ Supporting TEKS: I.6E, I.6F <p>Unit 12: Nuclear Reactions, Nuclear Energy and Impacts (15 Days) May 4th-22nd</p> <ul style="list-style-type: none"> ❖ Big Ideas: Explore the impacts of Nuclear energy and reactions in our daily lives <ul style="list-style-type: none"> ➤ Important Concepts: <ul style="list-style-type: none"> ■ Applications of atomic and nuclear phenomena, nuclear stability, fission and fusion. ■ Environmental and economic impact of the end-products of chemical reactions such as those that

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Unit 10: Changes and Reactions and Law of conservation of mass
(14 Days) Mar. 30th-Apr. 17th

◆ **Big Ideas:** In nature chemical change and reactions occur causing new substances. Mass is conserved when substances undergo chemical change

➤ **Important Concepts**

- Changes of state as it relates to the arrangement of particles of matter and energy transfer.
- Role of valence electrons and reactions.
- Energy changes that accompany chemical reactions.
- Conservation of mass.

➤ **Readiness TEKS: 1.7A, 17C**

➤ **Supporting TEKS: 1.7B, 1.7D**

may result in acid rain, degradation of water and air quality, and ozone depletion

➤ **Readiness TEKS: None**

➤ **Supporting TEKS: 1.7E, 17F**

Note: The process standards are embedded in concept standards so that the student, for at least 40% of instructional time, conducts laboratory and field investigations
