

## High School Science

Level/Course	Quarter 1	Quarter 2	Quarter 3	Quarter 4
<b>Conceptual Science</b>	<p><b>Content:</b> Physics (Motion, Energy, Momentum)</p> <p><b>Skills:</b> explaining and solving problems involving motion, force, energy and momentum</p>	<p><b>Content:</b> Chemistry (Atomic Structure, Periodic Table, Bonding)</p> <p><b>Skills:</b> analyzing electron configurations of atoms, , predicting bonding behavior</p>	<p><b>Content:</b> Biology (Macromolecules, Cells, Genetics)</p> <p><b>Skills:</b> applying understanding of molecular and cellular structure to explain cell processes of respiration, photosynthesis, and cell division</p>	<p><b>Content:</b> Environmental Science (Ecosystems, Climate, Plate Tectonics)</p> <p><b>Skills:</b> distinguishing between the major biomes on Earth, evaluating the effects of plate tectonics and climate on producing them</p>
<b>Environmental Science</b>	<p><b>Content:</b> Sustainability, Economics and Ethics, Energy</p> <p><b>Skills:</b> determining human impact on the environment, explaining how energy flows through ecosystems</p>	<p><b>Content:</b> Ecosystems</p> <p><b>Skills:</b> discussing sources and sinks in matter and energy cycles, diagramming and explaining trophic levels in an ecosystem, explaining the phenomena that occur beneath the earth's surface</p>	<p><b>Content:</b> Population issues</p> <p><b>Skills:</b> defining the impact of population dynamics, identifying the factors that control population fluctuations in a given ecosystem leading to dynamic equilibrium, describing stages of succession leading to a climax community</p>	<p><b>Content:</b> Nonrenewable Resources</p> <p><b>Skills:</b> assessing the advantages and disadvantages of using various sources of nonrenewable energy, evaluating the impact of industry on our society and environment in terms of energy use</p>
<b>Biology</b>	<p><b>Content:</b> Evolution and Biochemistry (Digestive System)</p> <p><b>Skills:</b> synthesizing data on how organisms change over time to create Darwinian explanations, applying knowledge of molecular structures to physiological functions</p>	<p><b>Content:</b> Membranes and Transport (Excretory System), Communication (Nervous System)</p> <p><b>Skills:</b> applying concepts of osmosis and diffusion to excretion, relating cell structure, membranes, ion movement, and protein interactions to neurons</p>	<p><b>Content:</b> Communication (Endocrine, Immune Systems), Energy Transfer (Plant Anatomy, Photosynthesis)</p> <p><b>Skills:</b> applying protein interactions to homeostasis maintenance with hormones and white blood cells, applying membrane/protein/cell structures and laws of thermodynamics to photosynthesis and respiration</p>	<p><b>Content:</b> Energy Transfer (Cellular Respiration, Circulatory and Respiratory Systems), Reproduction</p> <p><b>Skills:</b> connecting photosynthesis and cell respiration to physiological processes of circulation and respiration, relating reproductive structures to their respective functions</p>
<b>Chemistry</b>	<p><b>Content:</b> Standard Units, Matter, Nomenclature, Reactions</p> <p><b>Skills:</b> demonstrating proper measuring techniques, understanding the language of chemistry, understanding reactions and predicting if they will occur</p>	<p><b>Content:</b> Moles, Solution Stoichiometry, Energy, Gases</p> <p><b>Skills:</b> calculating moles in reactions and solutions and using them to analyze reactions, understanding the concept of energy in reactions, applying pressure and moles to</p>	<p><b>Content:</b> Liquids and Solids, Acids and Bases, Oxidation Reduction</p> <p><b>Skills:</b> understanding phase changes and intermolecular forces, creating models of acids and bases, calculating pH and applying this to reactions, calculating oxidation/</p>	<p><b>Content:</b> Equilibrium, Atomic Theory and Bonding, Organic Chemistry</p> <p><b>Skills:</b> knowing the factors that affect equilibrium and reversible reactions, applying the concept of bonding and atomic theory, incorporating the language of organic chemistry</p>

		gases	reduction values and applying these to reactions	
<b>Physics</b>	<p><b>Content:</b> Mechanics I</p> <p><b>Skills:</b> analyzing physical situations including measurement uncertainty, kinematics, vector analysis and projectile motion.</p>	<p><b>Content:</b> Mechanics II</p> <p><b>Skills:</b> analyzing physical situations using force diagrams, Newton's Laws, work, energy, momentum,</p>	<p><b>Content:</b> Electricity and Magnetism</p> <p><b>Skills:</b> analyzing circular motion, and universal gravitation, analyzing electrostatics, DC electrical circuits, and electromagnetism.</p>	<p><b>Content:</b> Waves and Optics, Thermodynamics</p> <p><b>Skills:</b> analyzing simple harmonic motion, travelling waves, standing waves and harmonics. Analyzing systems with lenses, mirrors and prisms using geometric optics.</p>
<b>AP Environmental Science</b>	<p><b>Content:</b> Renewable Energy, Water and Soil Resources</p> <p><b>Skills:</b> assessing the advantages and disadvantages of using various sources of renewable energy, evaluating the impact of industry on our society and environment in terms of energy use</p>	<p><b>Content:</b> Mineral and Land Resources, Biodiversity</p> <p><b>Skills:</b> analyzing the diversity of living organisms and how they can be compared scientifically, evaluating the impact of industry on our society and environment in terms of energy use</p>	<p><b>Content:</b> Food Resources, Air Pollution and Climate Change</p> <p><b>Skills:</b> understanding how monitoring environmental factors assists scientists in determining the health of the environment, discussing the ethics and implications of genetic engineering</p>	<p><b>Content:</b> Water Pollution, Pesticides, Waste</p> <p><b>Skills:</b> analyzing examples of natural and human-initiated environmental changes that may influence levels of harmful substances and affect society</p>
<b>AP Biology</b>	<p><b>Content:</b> Ecology, Biochemistry, Cells</p> <p><b>Skills:</b> analyzing interactions between organisms and environment; relating molecular and cellular structure to function of macromolecules, organelles, and membranes</p>	<p><b>Content:</b> Cell Cycle, Molecular Genetics, Transmission Genetics,</p> <p><b>Skills:</b> explaining how the cell cycle ensures both continuity and change in hereditary material, modeling the flow of information from DNA to protein, applying knowledge of DNA and protein to biotechnology tools and their use in genetic applications</p>	<p><b>Content:</b> Evolution, Diversity, Plants</p> <p><b>Skills:</b> explaining how and why allele frequencies change over time, relating plant structure to function and evolutionary history</p>	<p><b>Content:</b> Ecology (review), Body Systems</p> <p><b>Skills:</b> applying concepts of structure and function to explain the human body's maintenance of homeostasis and comparing to other animal systems from an evolutionary standpoint</p>
<b>AP Chemistry</b>	<p><b>Content:</b> Matter, Stoichiometry, Gases, Energy</p> <p><b>Skills:</b> applying the language of chemistry, balancing reactions and using laws to analyze gases, calculating energy of reactions</p>	<p><b>Content:</b> Solutions, Liquids and Solids, Electrochemistry</p> <p><b>Skills:</b> applying moles to solutions, understanding phase changes and intermolecular forces, using applications of galvanic cells</p>	<p><b>Content:</b> Equilibrium, Kinetics, Acids and Bases</p> <p><b>Skills:</b> analyzing chemical equilibria, concentrations, pressure and solubility; applying models of acids and bases, pH, and titrations to reactions</p>	<p><b>Content:</b> Atomic Structure, Bonding</p> <p><b>Skills:</b> applying electromagnetic radiation, wave, and particle theory to reactions; applying bonding theories to molecules</p>
<b>AP Physics</b>	<p><b>Content:</b> Newtonian Mechanics</p>	<p><b>Content:</b> Thermodynamics, Fluid Dynamics, Waves</p>	<p><b>Content:</b> Geometric and Physical Optics, Electromagnetism</p>	<p><b>Content:</b> Atomic and Quantum Physics, Nuclear Physics</p>

	<p><b><u>Skills:</u></b> analyzing complex physical situations using Newtonian mechanics with multi-body translational motion, circular motion, gravitation and rotational statics and dynamics.</p>	<p><b><u>Skills:</u></b> analyzing heat transfer, laws of thermodynamics including heat engines, fluids statics and dynamics, simple harmonic motion, and wave motion</p>	<p><b><u>Skills:</u></b> analyzing complex situations using physical optics electrostatics, complex DC circuits and electromagnetism.</p>	<p><b><u>Skills:</u></b> analyzing atomic energy levels, wave-particle duality, and nuclear reactions</p>
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