

## Mt. Zion High School Curriculum Map

Name: Neysa Downs Department: Science Subject: Integrated Science

Quarter	Essential Skills	Strategies and Activities	CC Standards	Assessments
1	A. Chapter 1: "The Nature of Science" - Students will identify how science and technology influence everyday life, and examine the steps used to solve problems in a scientific way.	<ol style="list-style-type: none"> <li>1. Launch Activity on Senses</li> <li>2. Battle of Beverage Mixes Lab</li> <li>3. Scientific Discovery Articles</li> <li>4. Comparing Paper Towel Lab</li> <li>5. Dimensional Analysis</li> </ol>	LS1.1 LS1.2 LS1.3	Ch 1 Homework, Lab Reports & Test
	B. Chapter 2: "Traits and how they Change" - Students will compare and contrast phenotype and genotype, describe some of the effects the environment has on traits, explain the results of basic genetic crosses, and explain how natural selection occurs in a species.	<ol style="list-style-type: none"> <li>1. Launch Activity on Fingerprints</li> <li>2. Prefix &amp; Suffix Activity</li> <li>3. Pepper Seeds Lab</li> <li>4. Bean Trait Lab</li> <li>5. Toothpick Lab</li> </ol>	LS1.1 LS3.1 LS3.2 LS3.3 LS4.2 LS4.3 LS4.4 LS4.5 LS4.6	Ch 2 Homework, Lab Reports & Test
	C. Chapter 3: "Interactions of Human Systems" - Students will learn how the components of living organisms such as cells, organs, organ systems interact to carry out important life processes. Students will learn how systems work together to maintain homeostasis.	<ol style="list-style-type: none"> <li>1. Mineral &amp; Good Health Activity</li> <li>2. Observing Gases Lab</li> <li>3. Observing the Cell under Microscope Lab</li> <li>4. Transporting Nutrients Lab</li> <li>5. Chemical Reaction Lab</li> <li>6. Effects of Exercise on Respiration Lab</li> </ol>	LS1.1 LS1.2 LS1.3 LS1.5 LS2.5 ESS3.1 PS4.5	Ch 3 Homework, Lab Reports & Test
	D. Chapter 4- "Interactions of Life" – Students will define ecology recognize ecosystems, habitats, and communities, identify methods for estimating population sizes, and explain how the	<ol style="list-style-type: none"> <li>1. Community Lab</li> <li>2. Plants and Seedlings Lab</li> <li>3. Planarian Lab</li> <li>4. Predator &amp; Prey Lab</li> </ol>	LS1.2 LS2.1 LS2.2 LS2.3 LS2.4 LS2.5 LS2.6	Ch 4 Homework, Lab Reports & Test

	<p>interactions of organisms affect population sizes and the ability of an organism to survive.</p> <p>E. Chapter 5: “Non-living environment” – Students will identify abiotic factors in most ecosystems, explain how climate influences life in an ecosystem and describe the cycling of nutrients and energy.</p> <p>F. Chapter 6: “Ecosystems”- Students will explain how Earth’s diverse ecosystems can change over time and describe how succession affects the environment, identify the terrestrial and aquatic biomes, and describe the adaptations of organisms found in each biome.</p>	<p>1. Launch Lab: Latitude of your city  2. Ecosystem Foldable/Presentation  3. Comparing Fertilizer Mini-lab  4. Rainshadow Effect Lab</p> <p>1. Biome Photostory Project &amp; Presentations</p>	<p>LS2.7  LS2.8  ESS3.4</p> <p>LS1.6  LS1.7  LS2.3  LS2.4  LS2.7  ESS2.5</p> <p>LS2.1-7  ESS2.6  ESS3.1  ESS3.2  ESS3.4  ESS3.5</p>	<p>Ch 5 Homework,  Lab Reports &amp; Test</p> <p>Ch 6 Homework,  Lab Reports &amp; Test</p>
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2	<p>A. Chapter 7: “Plate Tectonics”- Students will describe the theory of plate tectonics, and explain how many of the Earth’s features and geologic events were affected by continental drift.</p> <p>B. Chapter 8: “Earthquakes and Volcanoes” – Students will explain how energy generated by forces inside of earth is released as seismic waves during an earthquake, describe how materials are produced by volcanoes and explain how the locations of volcanoes and earthquake epicenters are related to plate tectonics.</p> <p>C. Chapter 9: “Clues to Earth’s Past” – Students will list the conditions necessary for fossils to form and describe the processes involved, determine how fossils are used to explain changes in Earth’s surface, life, and environment, describe methods used to assign relative ages to rock layers, and identify how absolute ages of rocks can be determined by using properties of atoms that make up materials.</p> <p>D. Chapter 10: “Geologic Times” – Students will explain how geologic time can be divided into units, relate changes of Earth’s organisms to those divisions, and draw conclusions about how species adapted to the changing environments caused by plate tectonics.</p> <p>E. Chapter 11: “The Sun-Earth-Moon System” – Students will examine Earth’s physical characteristics, including rotation and revolution, and the effects of each; they will identify the phases of the moon and what causes them, and explain why solar and lunar eclipses occur.</p>	<ol style="list-style-type: none"> <li>1. Paleographic Mapping Lab</li> <li>2. Sea Floor Spreading Lab</li> <li>3. Earthquake Epicenter Lab</li> </ol> <ol style="list-style-type: none"> <li>1. Wave Detection Lab</li> <li>2. Disruptive Volcano Lab</li> </ol> <ol style="list-style-type: none"> <li>1. Launch Activity: Plaster of Paris Mold</li> <li>2. Relative Ages Lab</li> <li>3. Modeling Carbon-14 Dating</li> <li>4. Principle of Superposition Lab</li> <li>5. Fossil Works Lab</li> <li>6. Cast Lab</li> </ol> <ol style="list-style-type: none"> <li>1. Dating Rock Layers Lab</li> <li>2. Looking at Geologic Time Scale Lab</li> <li>3. Changing Species Lab</li> <li>4. Calculating the Age of the Atlantic Ocean Lab</li> <li>5. Differences in a Species Lab</li> </ol> <ol style="list-style-type: none"> <li>1. Earth Spin Lab</li> <li>2. Earth Shape Lab</li> <li>3. Tilt &amp; Temperature Lab</li> </ol>	<p>ESS2.1 ESS2.2 ESS3.3 ESS3.4</p> <p>ESS2.1 ESS2.2 ESS3.1 PS4.1</p> <p>ESS1.1-6 PS1.8</p> <p>ESS1.1-6 ESS2.1-6</p> <p>ESS1.1 ESS2.7</p>	<p>Ch 7 Homework, Lab Reports &amp; Test</p> <p>Ch 8 Homework, Lab Reports &amp; Test</p> <p>Ch 9 Homework, Lab Reports &amp; Test</p> <p>Ch 10 Homework, Lab Reports &amp; Test</p> <p>Ch 11 Homework, Lab Reports &amp; Test</p>

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3	<p>A. Chapter 12: "The Solar System" – Students will compare models of the solar system, explain the gravity that holds the planets in their orbits, describe the characteristics of the planets and how they formed, and differentiate between, comets, meteoroids, and asteroids.</p> <p>B. Chapter 13: "Stars and Galaxies" – Students will explain why some constellations are visible only during certain seasons, describe the structure of our closest star, and study other galaxies. The major themes of this chapter deal with the vast scale and structure of the universe and the matter that it contains.</p> <p>C. Chapter 14: "Inside the Atom" – Students will describe the structure of an atom, explain that all matter is made of atoms, and describe the process of radioactive decay and how radioactive isotopes are used.</p> <p>D. Chapter 15: "The Periodic Table" – Students will describe the history of the periodic table, explain how the table is organized, and recognize the properties of representative elements.</p> <p>E. Chapter 16: "Atomic Structure and Chemical Bonds" –</p>	<p>1. Planetary Orbits Lab 2. Drawing Inner &amp; Outer Planets 3. Modeling Planets 4. Inferring Effects of Gravity Lab</p> <p>1. Spectral Analysis Lab 2. Graphing Sunspots &amp; Finding Trends Lab 3. Venn Diagram Activity 4. H-R Diagram Lab</p> <p>1. Modeling the Nuclear Atom Mini-lab 2. Graphing half-lives 3. Applying Math 4. Isotopes &amp; Atomic Mass Lab 5. Half-life Lab</p> <p>1. Relationship among Elements &amp; Graphing Lab 2. Periodicity Lab 3. Metal &amp; Non-metal Lab 4. Internet Activity</p> <p>1. Drawing electron dot diagrams &amp; Ionic Bonds</p>	<p>ESS1.1-6</p> <p>ESS1.1-6 PS3.2 PS4.4</p> <p>ESS1.2 PS1.1 PS3.2 PS4.5</p> <p>PS1.1</p> <p>PS1.1 PS1.2</p>	<p>Ch 12 Homework, Lab Reports &amp; Test</p> <p>Ch 13 Homework, Lab Reports &amp; Test</p> <p>Ch 14 Homework, Lab Reports &amp; Test</p> <p>Ch 15 Homework, Lab Reports &amp; Test</p> <p>Ch 16 Homework, Lab Reports &amp; Test</p>

	Students will identify how electrons are arranged in an atom and compare how they arrangement is related to its place in the periodic table.	<ol style="list-style-type: none"> <li>Modeling Methane Lab</li> <li>Modeling Covalent &amp; Ionic Bonds</li> <li>Chemical Activity Lab</li> </ol>		
Quarter			CC Standards	Assessments
4	<p>A. Chapter 17: "Chemical Reactions" – Students will determine how to read and understand a balanced equation, examine some reactions that release energy and others that absorb energy, explain the law of conservation of mass, and determine how to describe and measure the speed of a chemical reaction.</p> <p>B. Chapter 18: "Motion and Momentum" – Students will define distance, speed, velocity, momentum and acceleration, graph the motion of an object, predict what effect acceleration will have on motion.</p> <p>C. Chapter 19: "Force and Newton's Laws" – Students will distinguish between balanced and net forces, describe Newton's laws of motion, and identify the relationship between the forces that objects exert on each other.</p> <p>Chapter 20: "Work and Simple Machines" – Students will calculate how much work is done, explain the relationship between work and power, explain how machines make work easier, calculate the mechanical advantages and efficiency of a machine, and describe the mechanical advantage of each simple machine.</p> <p>Chapter 21: "Thermal Energy" – Students will explain how temperature is related to kinetic energy, describe three scales for measuring temperature, explain the difference between thermal energy and heat, identify materials that are</p>	<ol style="list-style-type: none"> <li>Chemical Reactions Lab</li> <li>Exothermic &amp; Endothermic Lab</li> <li>Physical &amp; Chemical Changes Lab</li> </ol> <ol style="list-style-type: none"> <li>What is Motion Lab</li> <li>Measuring Average Speeds Lab</li> <li>Applying Math Activity</li> <li>Collision Lab</li> </ol> <ol style="list-style-type: none"> <li>Observing Friction Mini-Lab</li> <li>Launch Lab: Forces &amp; Motion</li> <li>Static &amp; Sliding Friction Lab</li> <li>Newton's Second Law Lab</li> </ol> <ol style="list-style-type: none"> <li>Applying Math to Calculate Work &amp; Power</li> <li>Applying Math to Calculate Mechanical Advantage &amp; Efficiency</li> </ol> <ol style="list-style-type: none"> <li>Mini-Field Trip around the school to find different types of energy &amp; how energy is transferred</li> </ol>	<p>PS1.1 PS1.2</p> <p>PS2.1</p> <p>PS2.1 PS3.2 ETS1.1</p> <p>PS3.2</p> <p>PS3.2</p>	<p>Ch 17 Homework, Lab Reports &amp; Test</p> <p>Ch 18 Homework, Lab Reports &amp; Test</p> <p>Ch 19 Homework, Lab Reports &amp; Test</p> <p>Ch 20 Homework, Lab Reports &amp; Test</p> <p>Ch 21 Homework, Lab Reports &amp; Test</p>

	<p>conductors or insulators, describe what a heat engine does, explain that energy can exist in different forms, but is never created or destroyed and describe how an internal combustion engine works.</p>			
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