

**Course Name/Number: Science**

**Grade Level: 7<sup>th</sup> grade**

Unit	Standards & Skills	Learning Activities	Resources/Technology
<b>Getting to Know You</b> <b>Introduction to Life Science</b> <b>Measurement and the Metric System</b> <b>LAB SAFETY</b> <b>Science Skills</b> <b>Scientific Method</b>	<b>NGSS:</b>  MS-ETS1-1. Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.  MS-ETS1-2. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.  MS-ETS1-3. Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.  MS-ETS1-4. Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.  .	Go over lab equipment and their uses.  Measuring of different items.  Metric conversions  Lab safety examples.  Identifying variables.  Writing hypothesis.	<b>Computers</b>  <b>Online Resources</b>  <b>Supplementary Handouts</b>  <b>Student Notebooks</b>

Unit	Standards & Skills	Learning Activities	Resources/Technology
<b>Photosynthesis</b> <b>Food Chains/Webs</b> <b>Cycling of Material in Ecosystems</b> <b>Dynamic Ecosystems</b> <b>Biomes</b> <b>Interactions among Organisms</b> <b>Symbiotic Relationships</b> <b>Changing Ecosystems</b>	<p><b>NGSS:</b></p> <p>MS-LS1-6. Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms</p> <p>MS-LS2-1. Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.</p> <p>MS-LS2-3. Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.</p> <p>MS-LS2-4. Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.</p> <p>MS-LS2-2. Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems</p> <p>MS-LS2-5. Evaluate competing design solutions for maintaining biodiversity and ecosystem services.</p>	<p>Populations activity</p> <p>Interactions Activity</p> <p>Biomes Research</p> <p>Energy Cycles Model</p> <p>Virtual Labs  Environmental Factors  Predator Inclusion</p> <p>Biome Escape Room</p>	<p><b>Computers</b></p> <p><b>Lab Kits</b></p> <p><b>Online Resources</b></p> <p><b>Textbooks</b></p>

Unit	Standards & Skills	Learning Activities	Resources/Technology
<b>Changing Traits</b>  <b>DNA Structure and Function</b>  <b>Natural Selection</b>  <b>Artificial Selection</b>  <b>Adaptations</b>  <b>Classification</b>  <b>Fossil and Biological Evidence of Evolution</b>	<p>MS-LS1-4. Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively</p> <p>MS-LS1-5. Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.</p> <p>MS-LS4-1. Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth under the assumption that natural laws operate today as in the past</p> <p>MS-LS4-2. Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships.</p> <p>MS-LS4-3. Analyze displays of pictorial data to compare patterns of similarities in the embryological development across multiple species to identify relationships not evident in the fully formed anatomy</p> <p>MS-LS4-4. Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment.</p> <p>MS-LS4-6. Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time.</p> <p>MS-LS3-2 Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation.</p>	<p>Build DNA Model</p> <p>DNA Extraction Lab</p> <p>Protein Synthesis from DNA Code</p> <p>Mutation Activity</p> <p>Survival of the Fittest Activity</p> <p>Virtual Labs</p> <p>Vocabulary Activities</p> <p>Evolution Escape Room</p> <p>Natural Selection 5E Activities</p>	<p><b>Computers</b></p> <p><b>Lab Kits</b></p> <p><b>Online Resources</b></p> <p><b>Textbooks</b></p>

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<p><b>Plants and their structures</b>  <b>Classification</b>  <b>Structures</b>  <b>Reproduction</b>  <b>Responses</b></p> <p><b>Animals</b>  <b>Body plans</b>  <b>Classification</b>  <b>Invertebrates</b>  <b>Vertebrates</b>  <b>Diversity</b>  <b>Adaptations</b>  <b>Reproduction</b></p>	<p><b>NGSS:</b>  MS-LS1-3. Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.</p> <p>MS-LS1-8. Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories</p> <p>MS-LS1-6. Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms</p> <p>MS-LS1-7. Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and/or release energy as this matter moves through an organism.</p> <p>MS-LS1-4. Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively.</p> <p>MS-LS1-5. Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.</p> <p>MS-LS4-1. Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth under the assumption that natural laws operate today as in the past</p> <p>MS-LS4-2. Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships.</p> <p>MS-LS4-3. Analyze displays of pictorial data to compare patterns of similarities in the embryological development across multiple species to identify relationships not evident in the fully formed anatomy</p> <p>MS-LS4-4. Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment.</p> <p>MS-LS4-6. Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time.</p>	<p>Flower dissection</p> <p>Flower model</p> <p>Virtual lab</p> <p>Leaf identification</p> <p>Monocot/dicot slides</p> <p>Make wet mount slide</p> <p>Worm dissection</p> <p>Fish dissection</p> <p>Adaptation survival</p>	<p><b>Computers</b></p> <p><b>Lab Kits</b></p> <p><b>Online Resources</b></p> <p><b>Textbooks</b></p> <p><b>Microscopes</b></p>

Unit	Standards & Skills	Learning Activities	Resources/Technology
<b>Introduction to Cells</b> <b>Discovering Compounds in Cell Environment</b>  <b>Cell Processes</b> <b>Photosynthesis</b> <b>Respiration</b> <b>Division</b>  <b>Genetics</b> <b>Heredity</b> <b>Probability</b> <b>Patterns of Inheritance</b> <b>Chromosomes</b>  <b>Genetic Technology</b> <b>Disorders</b> <b>Advances</b> <b>Using Genes</b>	<p>MS-LS1-1. Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells</p> <p>MS-LS1-2. Develop and use a model to describe the function of a cell as a whole and ways the parts of cells contribute to the function.</p> <p>MS-LS1-3. Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells</p> <p>MS-LS1-6. Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms</p> <p>MS-LS4-5. Gather and synthesize information about technologies that have changed the way humans influence the inheritance of desired traits in organisms.</p> <p>MS-LS3-1. Develop and use a model to describe why structural changes to genes (mutations) located on chromosomes may affect proteins and may result in harmful, beneficial, or neutral effects to the structure and function of the organism</p> <p>MS-LS4-4. Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment.</p> <p>MS-LS4-6. Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time.</p>	<p>Microscope Slides of plant and animal cells</p> <p>Cell models</p> <p>Slides of cell division</p> <p>Punnett Square Activity</p> <p>Genetic Research</p> <p>Dna Models</p> <p>Making Proteins</p> <p>Mutation Activity</p>	<p><b>Computers</b></p> <p><b>Lab Kits</b></p> <p><b>Online Resources</b></p> <p><b>Textbooks</b></p> <p><b>Microscopes</b></p>