

Course Name/Number: Science**Grade Level: 7th grade**

Unit	Standards & Skills	Learning Activities	Resources/Technology
Getting to Know You	NGSS:		Computers
Introduction to Life Science	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.	Go over lab equipment and their uses.	Online Resources
Measurement and the Metric System	MS-ETS1-2. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.	Measuring of different items.	Supplementary Handouts
LAB SAFETY	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.	Metric conversions	Student Notebooks
Science Skills Scientific Method	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.	Lab safety examples.	
	.	Identifying variables.	
		Writing hypothesis.	

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Photosynthesis	NGSS:	Populations activity	Computers
Food Chains/Webs	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	Interactions Activity	Lab Kits
Cycling of Material in Ecosystems	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.	Biomes Research	Online Resources
Dynamic Ecosystems	MS-LS2-3. Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.	Energy Cycles Model	Textbooks
Biomes	MS-LS2-4. Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.	Virtual Labs Environmental Factors Predator Inclusion	
Interactions among Organisms	MS-LS2-2. Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems	Biome Escape Room	
Symbiotic Relationships	MS-LS2-5. Evaluate competing design solutions for maintaining biodiversity and ecosystem services.		
Changing Ecosystems			

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Changing Traits	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	Build DNA Model	Computers
DNA Structure and Function		DNA Extraction Lab	Lab Kits
Natural Selection	MS-LS1-5. Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.	Protein Synthesis from DNA Code	Online Resources
Artificial Selection	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	Mutation Activity	
Adaptations		Survival of the Fittest Activity	Textbooks
Classification		Virtual Labs	
Fossil and Biological Evidence of Evolution	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.	Vocabulary Activities	
	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	Evolution Escape Room	
	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.	Natural Selection 5E Activities	
	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.		
	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.		

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Plants and their structures Classification Structures Reproduction Responses Animals Body plans Classification Invertebrates Vertebrates Diversity Adaptations Reproduction	<p>NGSS:</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-LS1-8. 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>	Flower dissection Flower model Virtual lab Leaf identification Monocot/dicot slides Make wet mount slide Worm dissection Fish dissection Adaptation survival	Computers Lab Kits Online Resources Textbooks Microscopes

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Introduction to Cells Discovering Compounds in Cell Environment	<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>	Microscope Slides of plant and animal cells Cell models Slides of cell division	Computers Lab Kits Online Resources Textbooks
Cell Processes Photosynthesis Respiration Division	<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>	Punnett Square Activity Genetic Research Dna Models Making Proteins	Microscopes
Genetics Heredity Probability Patterns of Inheritance Chromosomes	<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>	Mutation Activity	
Genetic Technology Disorders Advances Using Genes	<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>		