

Science Core Units

Course Title: Science 8

Unit Title: Mystery of Mark

Length of Unit: 12 weeks

Grade Level: 8

Page 1 **of** 2

Standards & Benchmarks	Essential Questions, Learning Targets & “I can” Statements	Key Vocabulary	Suggested Assessment	Possible Resources
<p>MS-LS2-2: Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.</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>I can identify the major phyla of organisms, their characteristics and roles in the ecosystem.</p> <p>I can explain how these organisms affect each other and my life.</p>	<p>Arthropods, mollusks, echinoderms, worms, fish, amphibians, chordates, cnidarians, lichen, mammals, birds, predator/prey, symbiosis, biodiversity</p>	<p>Formative: Stop light, What I learned this week, box chart, warm ups, exit slips, daily assignments, observations</p> <p>Summative: Tests and quizzes</p>	<p>Worms and frogs for dissection</p> <p>Dissection equipment</p> <p>Microscopes</p> <p>Slides and coverslips</p> <p>Lab supplies</p> <p>Samples of organisms to view</p>
<p>MS-LS2-5: Evaluate competing design solutions for maintaining biodiversity and ecosystem services.</p>	<p>I can explain why biodiversity is important to an ecosystem’s health.</p> <p>I can explain how the biodiversity of an ecosystem affects us as humans.</p>	<p>Biodiversity, ecosystem, symbiosis, commensalism, parasitism, human resources</p>	<p>Formative: Stop light, What I learned this week, box chart, warm ups, exit slips, daily assignments, observations</p> <p>Summative: Tests, coral reef project</p>	<p>Materials for model of coral reef</p>
<p>MS-LS1-2: Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function.</p>	<p>I can identify major parts of a cell and their functions.</p>	<p>Cell, organelle, nucleus, mitochondria, golgi body, ribosome, endoplasmic reticulum, lysosome, cell membrane, DNA</p>	<p>Formative: Stop light, What I learned this week, box chart, warm ups, exit slips, daily assignments, observations</p> <p>Summative Model of a cell</p>	<p>Materials to create the model</p> <p>Model of an animal cell</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 of memories.</p>	<p>I can explain how messages are sent to the brain and this information affects my body.</p>	<p>Stimuli, receptors, neuron, axon, dendrite, cell body, nucleus, behavior, brain</p>	<p>Formative: Stop light, What I learned this week, box chart, warm ups, exit slips, daily assignments</p> <p>Summative: Tests, model of a neuron</p>	<p>Materials for the model</p>

Science Core Units

Course Title: Science 8

Unit Title: Mystery of Mark

Length of Unit: 12 weeks

Grade Level: 8

Page 2 **of** 2

Standards & Benchmarks	Essential Questions, Learning Targets & "I can" Statements	Key Vocabulary	Suggested Assessment	Possible Resources
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.	I can explain how organisms are dependent on each other and other factors found in their ecosystems.	Organism, ecosystem, predator/prey, competition	Formative: Stop light, What I learned this week, box chart, warm ups, exit slips, daily assignments Summative: Tests, coral reef project	Graphing paper, materials for project
MS-LS2-3: Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.	I can draw an example of how energy is transferred in an ecosystem.	Food chain, food web, producer, consumer, decomposer	Formative: Stop light, What I learned this week, box chart, warm ups, exit slips, daily assignments Summative: Tests, drawing of food chain	Life Science from Prentice Hall and all supplementary materials
MS-LS2-4: Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.	I can explain how changes in an ecosystem can affect the organisms within that ecosystem and how it can also affects organisms outside of that ecosystem.	Ecosystem, population, evidences, inference	Formative: Stop light, What I learned this week, box chart, warm ups, exit slips, daily assignments Summative: Tests, coral reef project	

Science Core Units

Course Title: Science 8

Unit Title: What Happened to Rita?

Length of Unit: 12 weeks

Grade Level: 8

Page 1 **of** 2

Standards & Benchmarks	Essential Questions, Learning Targets & "I can" Statements	Key Vocabulary	Suggested Assessment	Possible Resources
MS-PS1-1: Develop models to describe the atomic composition of simple molecules and extended structures.	I can develop a model of simple molecules.	Molecules, atoms, protons, neutrons, electrons, ions, bonds, element	Formative: Stop light, What I learned this week, box chart, warm ups, exit slips, daily assignments, observations, meetings Summative: Create a model, test	Toothpicks, marshmallow or plastic pieces to represent atoms
MS-ESS1-4: Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth's 4.6 billion-year-old history.	I can explain how volcanic activity relates to Earth's geologic history.	Volcano, geologic, stratovolcano, shield volcano, cinder cone volcano	Formative: Stop light, What I learned this week, box chart, warm ups, exit slips, daily assignments, observations, etc Summative: Test	Model of the Earth
MS-ESS3-1: Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes.	I can explain how volcanic activity affects the composition of the Earth's interior.	Subduction, convergent boundary, divergent boundary, transform plate boundary, renewable, and nonrenewable resources, hot spots	Formative: Stop light, What I learned this week, box chart, warm ups, exit slips, daily assignments, observations, etc Summative: Test	Graham crackers, frosting, fruit roll ups, wax paper,
MS-ESS3-2: Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.	I can explain how earthquakes and volcanoes are predicted (or not), how they are measured, and what humans can do to try to prevent damage from them.	Volcano, earthquake, mercalli scale, richter scale, damper, tsunami, p waves, s waves, surface waves	Formative: Stop light, What I learned this week, box chart, warm ups, exit slips, daily assignments, observations, etc Summative: research project, test	Poster paper, graph paper
MS-ESS3-3: Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment. MS-ESS3-4: Construct an argument supported by evidence for how increases in human population and	I can explain how humans have impacted the Earth.	Pollution, populations, natural hazards	Formative: Stop light, What I learned this week, box chart, warm ups, exit slips, daily assignments, observations Summative: Test	United Streaming, posters, markers, crayons

<p>per-capita consumption of natural resources impact Earth's systems.</p> <p>MS-ESS3-5: Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.</p> <p>MS-ESS2-6: Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determines regional climates.</p>	<p>I can explain how volcanic activity and human activities have caused a rise in global temperatures.</p> <p>I can explain the Coriolis effect and how it impacts the climate/weather where I live.</p>	<p>Global warming, fossil fuels, agriculture,</p> <p>Coriolis effect, climate, weather, trade winds</p>	<p>Formative: Stop light, What I learned this week, box chart, warm ups, exit slips, daily assignments, observations</p> <p>Summative: Test, poster presentation</p> <p>Formative: Stop light, What I learned this week, box chart, warm ups, exit slips, daily assignments, observations, etc</p> <p>Summative: Create a model, test</p>	<p>Posters, index cards, markers, united streaming</p> <p>Cardboard, united streaming</p>
--	--	---	---	---

Science Core Units

Course Title: Science 8

Unit Title: 3

Length of Unit: 12 weeks

Grade Level: 8

Page 1 of 2

Standards & Benchmarks	Essential Questions, Learning Targets & "I can" Statements	Key Vocabulary	Suggested Assessment	Possible Resources
<p>MS-LS2-5: Evaluate competing design solutions for maintaining biodiversity and ecosystem services.</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-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>MS-LS4-5: Gather and synthesize information about the technologies that have changed the way humans influence the inheritance of desired traits in organisms.</p>	<p>I can identify how changes in biodiversity could affect human resources.</p> <p>I can explain how mutations occur and how they can affect organisms.</p> <p>I can identify how traits are inherited and passed on to offspring.</p> <p>I can explain new genetic advances</p>	<p>Biodiversity, ecosystem</p> <p>Organism, mutation, proteins, DNA,</p> <p>Punnett square, pedigree, trait, homozygous, heterozygous, gene, chromosome</p> <p>Cloning, genetic engineering, gene therapy, DNA fingerprinting, karyotype, selective breeding, hybridization</p>	<p>Formative: Stop light, What I learned this week, box chart, warm ups, exit slips, daily assignments, observations, meeting.</p> <p>Summative: Students will evaluate different ecosystems to determine which one maintains biodiversity and ecosystem services the best. Habitat Project</p> <p>Formative: Stop light, What I learned this week, box chart, warm ups, exit slips, daily assignments, observations, meeting.</p> <p>Summative: Test</p> <p>Formative: Stop light, What I learned this week, box chart, warm ups, exit slips, daily assignments, observations, meeting.</p> <p>Summative: Test, Genetic cross between designed organisms</p> <p>Formative: Stop light, What I learned this week, box chart, warm ups, exit slips, daily assignments, observations, meeting.</p> <p>Summative: Test</p>	<p>Diagrams with ecosystem pictures/descriptions.</p> <p>Cloning movie, electrophoresis machine and materials for DNA fingerprinting</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>I can explain how fossils show how organisms have changed over time.</p>	<p>Fossils, evolution</p>	<p>Formative: Stop light, What I learned this week, box chart, warm ups, exit slips, daily assignments, observations, meeting. Summative: Evidence of evolution project, test</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>I can explain evidence that supports that organisms are related.</p>	<p>Anatomical similarities, evolution, natural selection, homologous structures</p>	<p>Formative: Stop light, What I learned this week, box chart, warm ups, exit slips, daily assignments, observations, meeting. Summative: Test</p>	<p>Internet research, textbook</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>I can explain evidence that supports that organisms are related.</p>	<p>Embryological development, species</p>	<p>Formative: Stop light, What I learned this week, box chart, warm ups, exit slips, daily assignments, observations, meeting. Summative: Test</p>	<p>Pictures of species as embryos</p>
<p>MS-LS4-4: Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individual's probability of surviving and reproducing in a specific environment.</p>	<p>I can explain natural selection and how it affects organisms.</p>	<p>Natural selection, adaptation, variation</p>	<p>Formative: Stop light, What I learned this week, box chart, warm ups, exit slips, daily assignments, observations, meeting. Summative: Test and evidence of evolution through natural selection project</p>	<p>Movies, "The making of a theory" and "The beak of a finch" and materials associated with these. Lab consumables such as skittles and whoppers.</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>I can explain natural selection and how it affects organisms.</p>	<p>Natural selection, adaptations, population, variation</p>	<p>Formative: Stop light, What I learned this week, box chart, warm ups, exit slips, daily assignments, observations, meeting. Summative: Test and evidence of evolution through natural selection project</p>	
