



7th Grade Science Curriculum & Pacing Guide



Content Area: Science		Grade Level: 7 th	
Title of Unit: All 7 th Grade Science Units		Number of Weeks/Days: 36 Weeks	
Standards: Engineering Design Standards		Assessment:	Resources:
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.			FOSS Curriculum Guides: ✓ “Chemical Interactions” ✓ “Diversity of Life” ✓ “Human System Interactions” ✓ “Planetary Science”
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.			



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Content Area: Science		Grade Level: 7 th	
Title of Unit: Chemical Interactions		Number of Weeks/Days: 12 Weeks	
Standards:		Assessment:	Resources:
MS-PS1-1 Develop models to describe the atomic composition of simple molecules and extended structures.			Foss “Chemical Interactions” Curriculum
MS-PS1-3 Gather and make sense of information to describe that synthetic materials come from natural resources and impact society.			
MS-PS1-4 Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed.			
MS-PS1-2 Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred.			
MS-PS1-5 Develop and use a model to describe how the total number of atoms does not change in a chemical reaction and thus mass is conserved.			
MS-PS1-6 Undertake a design project to construct, test, and modify a device that either releases or absorbs thermal energy by chemical processes.*			
MS-PS3-3 Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer. *			
MS-PS3-4 Plan an investigation to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample.			



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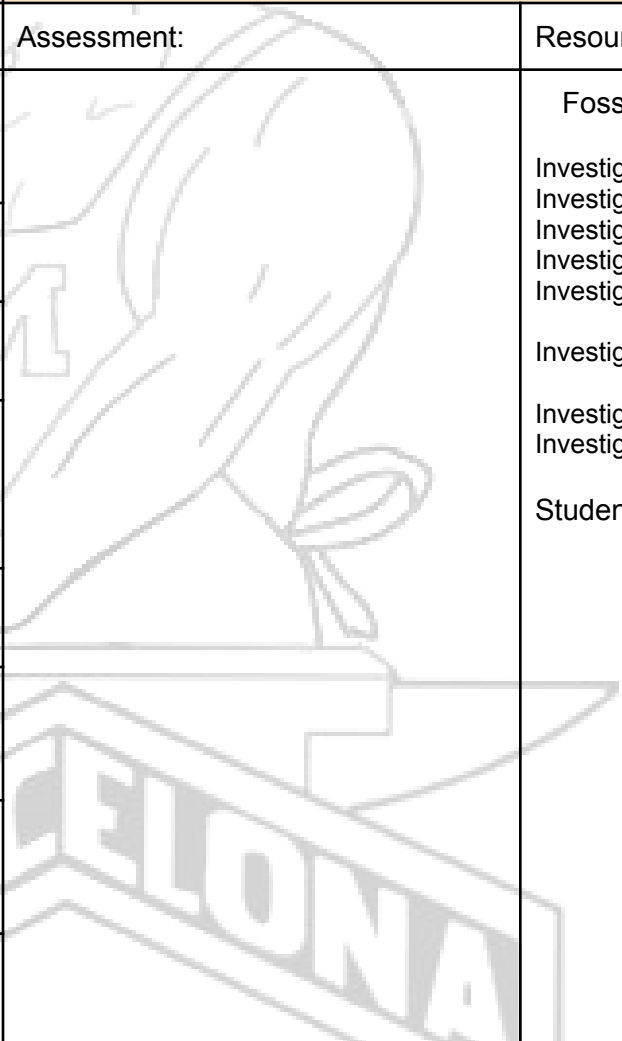


MS-PS3-5 Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object.		



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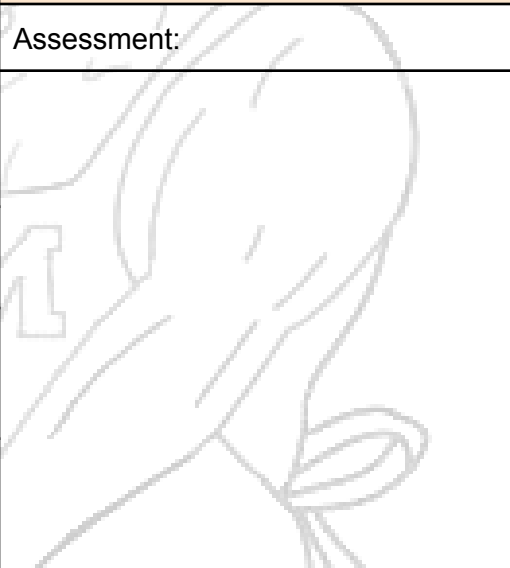


Content Area: Science		Grade Level: 7th	
Title of Unit: Diversity of Life		Number of Weeks/Days: 12 Weeks	
Standards:		Assessment:	Resources:
MS-LS1-1 Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells.			Foss “Diversity of Life” Curriculum Investigation 1 “What is Life” Investigation 2 “The Microscope” Investigation 3 “The Cell” Investigation 4 “Domains” Investigation 5 “Plants: The Vascular System” Investigation 6 “Plant Reproduction & Growth” Investigation 7 “Insects” Investigation 8 “Diversity of Life” Student Edition & Online Resources
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.			
MS-LS1-3 Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.			
MS-LS1-4 Use arguments 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.			
MS-LS1-5 Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.			
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.			
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.			
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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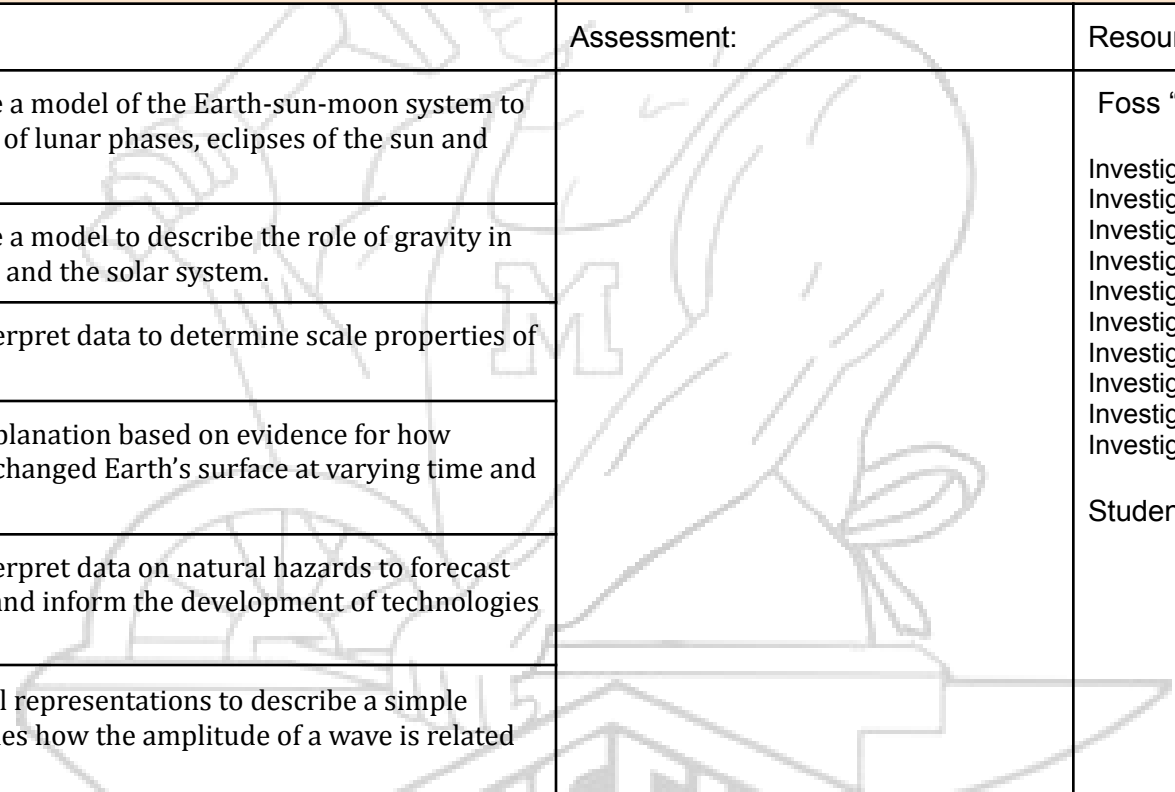


Content Area: Science		Grade Level: 7th	
Title of Unit: Human System Interactions		Number of Weeks/Days: 4 Weeks	
Standards:		Assessment:	Resources:
MS-LS1-1 Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells.			Foss “Human System Interactions” Curriculum
MS-LS1-3 Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.			Investigation 1 “Systems Connections” Investigation 2 “Supporting Cells” Investigation 3 “The Nervous System”
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.			Student Edition & Online Resources
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.			



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Content Area: Science		Grade Level: 7th	
Title of Unit: Planetary Science		Number of Weeks/Days: 8 weeks	
Standards:		Assessment:	Resources:
MS-ESS1-1 Develop and use a model of the Earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons.			Foss “Planetary Science” Curriculum Investigation 1 “Where Am I?” Investigation 2 “A Round, Spinning Earth” Investigation 3 “Seasons” Investigation 4 “Moon Study” Investigation 5 “Phases of the Moon” Investigation 6 “Craters” Investigation 7 “Beyond the Moon” Investigation 8 “The Solar System” Investigation 9 “Space Exploration” Investigation 10 “Orbits & New Worlds” Student Edition & Online Resources
MS-ESS1-2 Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.			
MS-ESS1-3 Analyze and interpret data to determine scale properties of objects in the solar system.			
MS-ESS2-2 Construct an explanation based on evidence for how geoscience processes have changed Earth’s surface at varying time and spatial scales.			
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.			
MS-PS4-1 Use mathematical representations to describe a simple model for waves that includes how the amplitude of a wave is related to the energy in a wave.			