California Science

7th Grade Integrated Science - NGSS

From Molecules to Organisms: Structures and Processes MS-LS1	1	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-LS1-6
	2	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-LS1-7
Ecosystems: Interactions, Energy, and Dynamics 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. MS-LS2-1
	2	Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems. MS-LS2-2
	3	Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem. MS-LS2-3
	4	Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations. MS-LS2-4
	5	Evaluate competing design solutions for maintaining biodiversity and ecosystem services.* MS-LS2-5
Earth's Systems MS-ESS2	1	Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process. MS-ESS2-1
	2	Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales. MS-ESS2-2
	3	Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions. MS-ESS2-3
Earth and Human Activity 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. MS-ESS3-1

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	2 **Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.** MS-ESS3-2
Matter and Its Interactions MS-PS1	1 **Develop models to describe the atomic composition of simple molecules and extended structures.** MS-PS1-1
	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-PS1-2
	3 **Gather and make sense of information to describe that synthetic materials come from natural resources and impact society.** MS-PS1-3
	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-PS1-4
	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-PS1-5
	6 **Undertake a design project to construct, test, and modify a device that either releases or absorbs thermal energy by chemical processes.*** MS-PS1-6
Engineering Design 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-ETS1-1
	2 **Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.** MS-ETS1-2
	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-ETS1-3
	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.** MS-ETS1-4