Science: Grade 8

MATTER AND ITS INTERACTIONS	**1a**	**Using a model(s), identify that an atom's nucleus as made of protons and neutrons and is surrounded by electrons.** LC-8-MS-PS1-1A
	1b	**Using a model(s), identify that individual atoms of the same or different types that repeat to form extended structures (e.g., sodium chloride).** LC-8-MS-PS1-1B
	3a	**Compare and contrast characteristics of natural and synthetic materials (e.g., fibers) from provided information (e.g., text, media, visual displays, data).** LC-8-MS-PS1-3A
	3b	**Identify ways in which natural resources undergo a chemical process to form synthetic materials (e.g., medicine, textiles, clothing) which impact society.** LC-8-MS-PS1-3B
	6a	**Identify a chemical process that releases or absorbs thermal energy (e.g., dissolving ammonium chloride or calcium chloride) which, given the features of a problem, may provide a solution.** LC-8-MS-PS1-6A
	6b	**Identify a way to test or modify a device that either releases or absorbs thermal energy by chemical processes** LC-8-MS-PS1-6B
ENERGY	**3a**	**Use information (e.g., graph, model) to identify a device (e.g., foam cup, insulated box) that either minimizes or maximizes thermal energy transfer (e.g., keeping liquids hot or cold).** LC-8-MS-PS3-3A
	5a	**Using information from graphical displays of data and models, describe the change in the kinetic energy of an object as energy transferred to or from an object.** LC-8-MS-PS3-5A
EARTH'S PLACE IN THE UNIVERSE	**4a**	**Sequence the relative order of events from Earth's history shown by rock strata and patterns of layering (organize was more complex as a task/term than sequence).** LC-8-MS-ESS1-4A
EARTH'S SYSTEMS	**1a**	**Identify relationships between components in a model showing the cycling of energy flows and matter within and among Earth's systems, including the sun and Earth's interior as primary energy sources.** LC-8-MS-ESS2-1A
		Identify examples of processes to explain that change Earth's surface at varying time and spatial scales that can be large (e.g., plate motions) or small (e.g., landslides). LC-8-MS-ESS2-2A

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	3a	Using graphical displays of data, identify how the shapes of the continents (e.g., fit like a jigsaw puzzle) and fossil comparisons (e.g., fit together) along the edges of continents to demonstrate lithospheric plate movement. LC-8-MS-ESS2-3A
EARTH AND HUMAN ACTIVITY	1a	Identify explanations of the uneven distributions of Earth's minerals, energy, and groundwater resources due to past and current geoscience processes or by removal of resources. LC-8-MS-ESS3-1A
	2a	Use maps, charts, and images of natural hazards to look for patterns in past occurrences of catastrophic events in each of two regions to predict which location may receive a future similar catastrophic event. LC-8-MS-ESS3-2A
	2b	Identify technologies that mitigate the effects of natural hazards (e.g., the design of buildings and bridges to resist earthquakes, storm shelters for tornados, levees along rivers to prevent flooding). LC-8-MS-ESS3-2B
	3	Using data from a design solution for minimizing a human impact on the environment, identify limitations of the solution. LC-8-MS-ESS3-3
FROM MOLECULES TO ORGANISMS: STRUCTURES AND PROCESSES	4a	Identify behaviors animals engage in (e.g., vocalization) that increase the likelihood of reproduction. LC-8-MS-LS1-4A
	4b	Identify specialized plant structures (e.g., bright flower parts) that increase the likelihood of reproduction. LC-8-MS-LS1-4B
	5a	Identify a scientific explanation for how environmental factors (e.g., availability of light, space, water, size of habitat) affect the growth of animals and plants. LC-8-MS-LS1-5A
	5b	Identify a scientific explanation for how genetic factors (e.g., specific breeds of plants and animals and their typical sizes) affect the growth of animals and plants. LC-8-MS-LS1-5B
HEREDITY: INHERITANCE AND VARIATION OF TRAITS	1a	Use a model to explain how genetic variations in specific traits may occur as organisms pass on their genetic material from one generation to the next, along with small changes. LC-8-MS-LS3-1A
BIOLOGICAL EVOLUTION: UNITY AND DIVERSITY	1a	Use data to identify that fossils of different animals that lived at different times are placed in chronological order (i.e., fossil record) and located in different sedimentary layers. LC-8-MS-LS4-1A
	2a	Recognize that similarities and differences in external structures can be used to infer evolutionary relationships between living and fossil organisms. LC-8-MS-LS4-2A
		Identify an explanation of the evolutionary relationships between modern and fossil organisms. LC-8-MS-LS4-2B

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3a **Identify patterns (i.e., pictorial displays, representations, data) in the embryological development as evidence of relationships among species.** LC-8-MS-LS4-3A

6a **Analyze numerical data sets that represent a proportional relationship between some change in the environment and corresponding changes in genetic variation (i.e., traits) over time.** LC-8-MS-LS4-6A