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
	2a	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

	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
	2b Identify an explanation of the evolutionary relationships between modern and fossil organisms. LC-8-MS-LS4-2B

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