

# 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](#)
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- 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](#)
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- 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](#)
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- 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](#)
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- 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](#)
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- 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](#)
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- 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](#)
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- 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](#)

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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](#)

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**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](#)

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**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](#)

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**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](#)

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**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](#)

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**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](#)

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**4b** Identify specialized plant structures (e.g., bright flower parts) that increase the likelihood of reproduction. [LC-8-MS-LS1-4B](#)

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**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](#)

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**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](#)

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**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](#)

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**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](#)

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**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](#)

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**2b** 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
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- 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