

DCI: Energy

MS.PS3.D: Energy in Chemical Processes and Everyday Life

The chemical reaction by which plants produce complex food molecules (sugars) requires an energy input (i.e., from sunlight) to occur. In this reaction, carbon dioxide and water combine to form carbon-based organic molecules and release oxygen. (MS-LS1-6)

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MS.PS3.D: Energy in Chemical Processes and Everyday Life

Cellular respiration in plants and animals involve chemical reactions with oxygen that release stored energy. In these processes, complex molecules containing carbon react with oxygen to produce carbon dioxide and other materials. (MS-LS1-7)

DCI: From Molecules to Organisms: Structures and Processes

MS.LS1.A: Structure and Function

All living things are made up of cells, which is the smallest unit that can be said to be alive. An organism may consist of one single cell (unicellular) or many different numbers and types of cells (multicellular). (MS-LS1-1)

DCI: From Molecules to Organisms: Structures and Processes

MS.LS1.A: Structure and Function

Within cells, special structures are responsible for particular functions, and the cell membrane forms the boundary that controls what enters and leaves the cell. (MS-LS1-2)

DCI: From Molecules to Organisms: Structures and Processes

MS.LS1.A: Structure and Function

In multicellular organisms, the body is a system of multiple interacting subsystems. These subsystems are groups of cells that work together to form tissues and organs that are specialized for particular body functions. (MS-LS1-3)

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MS.LS1.B: Growth and Development of Organisms

Animals engage in characteristic behaviors that increase the odds of reproduction. (MS-LS1-4)

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MS.LS1.B: Growth and Development of Organisms

Plants reproduce in a variety of ways, sometimes depending on animal behavior and specialized features for reproduction. (MS-LS1-4)

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MS.LS1.B: Growth and Development of Organisms

Genetic factors as well as local conditions affect the growth of the adult plant. (MS-LS1-5)

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MS.LS1.C: Organization for Matter and Energy Flow in Organisms

Plants, algae (including phytoplankton), and many microorganisms use the energy from light to make sugars (food) from carbon dioxide from the atmosphere and water through the process of photosynthesis, which also releases oxygen. These sugars can be used immediately or stored for growth or later use. (MS-LS1-6)

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MS.LS1.C: Organization for Matter and Energy Flow in Organisms

Within individual organisms, food moves through a series of chemical reactions in which it is broken down and rearranged to form new molecules, to support growth, or to release energy. (MS-LS1-7)

**DCI: From Molecules to Organisms:
Structures and Processes**

MS.LS1.D: Information Processing

Each sense receptor responds to different inputs (electromagnetic, mechanical, chemical), transmitting them as signals that travel along nerve cells to the brain. The signals are then processed in the brain, resulting in immediate behaviors or memories.

(MS-LS1-8)

