Content Expectations by Grade Span

Discipline: Life Science (L)

Standard: Organization of Living Things (OL)

Grade Span: Middle School (5-7)

Content Statement Code	Content Statement
L.OL.M.2	***Cell Functions-*** *All organisms are composed of cells, from one cell to many cells. In multicellular organisms, specialized cells perform specialized functions. Organs and organ systems are composed of cells and function to serve the needs of cells for food, air, and waste removal. The way in which cells function is similar in all living organisms.*
Content Expectation Code	**Content Expectation**
L.OL.07.21	Recognize that all organisms are composed of cells (single cell organisms, multicellular organisms).
L.OL.07.22	Explain how cells make up different body tissues, organs, and organ systems.
L.OL.07.23	Describe how cells in all multicellular organisms are specialized to take in nutrients, which they use to provide energy for the work that cells do and to make the materials that a cell or organism needs.
L.OL.07.24	Recognize that cells function in a similar way in all organisms.

Content Expectations by Grade Span

Discipline: Life Science (L)

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Grade Span: Middle School (5-7)

Content Statement Code	Content Statement
L.OL.M.3	***Growth and Development-*** *Following fertilization, cell division produces a small cluster of cells that then differentiate by appearance and function to form the basic tissue of an embryo.*
Content Expectation Code	**Content Expectation**
L.OL.07.31	Describe growth and development in terms of increase of cell number and/or cell size.
L.OL.07.32	Examine how through cell division, cells can become specialized for specific functions.

Content Expectations by Grade Span

Discipline: Life Science (L)

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Grade Span: Middle School (5-7)

Content Statement Code	Content Statement
L.OL.M.4	***Animal Systems-*** *Multicellular organisms may have specialized systems that perform functions which serve the needs of the organism.*
Content Expectation Code	**Content Expectation**
L.OL.05.41	Identify the general purpose of selected animal systems (digestive, circulatory, respiratory, skeletal, muscular, nervous, excretory and reproductive).
L.OL.05.42	Explain how animal systems (digestive, circulatory, respiratory, skeletal, muscular, nervous, excretory and reproductive) work together to perform selected activities.

Content Expectations by Grade Span

Discipline: Life Science (L)

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Grade Span: Middle School (5-7)

Content Statement Code	Content Statement
L.OL.M.5	***Producers, Consumers, and Decomposers-*** *All animals, including humans, are consumers that meet their energy by eating other organisms or their products. Consumers break down the structures of the organisms they eat to make the materials they need to grow and function. Decomposers, including bacteria and fungi, use dead organisms or their products to meet their energy needs.*
Content Expectation Code	**Content Expectation**
L.OL.06.51	Classify organisms (producers, consumers, and decomposers) based on their source of energy for growth and development.
L.OL.06.52	Distinguish between the ways in which consumers and decomposers obtain energy.

Content Expectations by Grade Span

Discipline: Life Science (L)

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Grade Span: Middle School (5-7)

Content Statement Code	Content Statement
L.OL.M.6	***Photosynthesis-*** *Plants are producers; they use the energy from light to make sugar molecules from the atoms of carbon dioxide and water. Plants use these sugars along with minerals from the soil to form fats, proteins, and carbohydrates. These products can be used immediately, incorporated into the cells of a plant as the plant grows, or stored for later use.*
Content Expectation Code	**Content Expectation**
L.OL.07.61	Recognize the need for light to provide energy for the production of carbohydrates, proteins and fats.
L.OL.07.62	Explain that carbon dioxide and water are used to produce carbohydrates, proteins, and fats.
L.OL.07.63	Describe evidence that plants make, use and store food.

Content Expectations by Grade Span

Discipline: Life Science (L)

Standard: Heredity (HE)

Grade Span: Middle School (5-7)

Content Statement Code	Content Statement
L.HE.M.1	***Inherited and Acquired Traits-*** *The characteristics of organisms are influenced by heredity and environment. For some characteristics, inheritance is more important; for other characteristics, interactions with the environment are more important.*
Content Expectation Code	**Content Expectation**
L.HE.05.11	Explain that the traits of an individual are influenced by both the environment and the genetics of the individual.
L.HE.05.12	Distinguish between inherited and acquired traits.

Content Expectations by Grade Span

Discipline: Life Science (L)

Standard: Heredity (HE)

Grade Span: Middle School (5-7)

Content Statement Code	Content Statement
L.HE.M.2	***Reproduction-*** *Reproduction is a characteristic of all living systems; because no individual organism lives forever, reproduction is essential to the continuation of every species. Some organisms reproduce asexually. Other organisms reproduce sexually.*
Content Expectation Code	**Content Expectation**
L.HE.07.21	Compare how characteristics of living things are passed on through generations, both asexually and sexually.
L.HE.07.22	Compare and contrast the advantages and disadvantages of sexual vs. asexual reproduction.

Content Expectations by Grade Span

Discipline: Life Science (L)

Standard: Evolution (EV)

Grade Span: Middle School (5-7)

Content Statement Code	Content Statement
L.EV.M.1	***Species Adaptation and Survival-*** *Species with certain traits are more likely than others to survive and have offspring in particular environments. When an environment changes, the advantage or disadvantage of the species' characteristics can change. Extinction of a species occurs when the environment changes and the characteristics of a species are insufficient to allow survival.*
Content Expectation Code	**Content Expectation**
L.EV.05.11	Explain how behavioral characteristics (adaptation, instinct, learning, habit) of animals help them to survive in their environment.
L.EV.05.12	Describe the physical characteristics (traits) of organisms that help them survive in their environment.
L.EV.05.13	Describe how fossils provide evidence about how living things and environmental conditions have changed.
L.EV.05.14	Analyze the relationship of environmental change and catastrophic events (For example: volcanic eruption, floods, asteroid impacts, tsunami) to species extinction.

Content Expectations by Grade Span

Discipline: Life Science (L)

Standard: Evolution (EV)

Grade Span: Middle School (5-7)

Content Statement Code	Content Statement
L.EV.M.2	***Relationships Among Organisms-*** *Similarities among organisms are found in anatomical features, which can be used to infer the degree of relatedness among organisms. In classifying organisms, biologists consider details of internal and external structures to be more important than behavior or general appearance.*
Content Expectation Code	**Content Expectation**
L.EV.05.21	Relate degree of similarity in anatomical features to the classification of contemporary organisms.

Content Expectations by Grade Span

Discipline: Life Science (L)

Standard: Ecosystems (EC)

Grade Span: Middle School (5-7)

Content Statement Code	Content Statement
L.EC.M.1	***Interactions of Organisms-*** *Organisms of one species form a population. Populations of different organisms interact and form communities. Living communities and nonliving factors that interact with them form ecosystems.*
Content Expectation Code	**Content Expectation**
L.EC.06.11	List examples of populations, communities, and ecosystems including the Great Lakes region.

Content Expectations by Grade Span

Discipline: Life Science (L)

Standard: Ecosystems (EC)

Grade Span: Middle School (5-7)

Content Statement Code	Content Statement
L.EC.M.2	***Relationships of Organisms-*** *Two types of organisms may interact with one another in several ways: They may be in a producer/consumer, predator/prey, or parasite/host relationship. Some organisms may scavenge or decompose another. Relationships may be competitive or mutually beneficial. Some species have become so adapted to each other that neither could survive without the other.*
Content Expectation Code	**Content Expectation**
L.EC.06.21	Describe common patterns of relationships between and among populations (competition, parasitism, symbiosis, predator/prey).
L.EC.06.22	Explain how two populations of organisms can be mutually beneficial and how that can lead to interdependency.
L.EC.06.23	Predict how changes in one population might affect other populations based upon their relationships in the food web.

Content Expectations by Grade Span

Discipline: Life Science (L)

Standard: Ecosystems (EC)

Grade Span: Middle School (5-7)

Content Statement Code	Content Statement
L.EC.M.3	***Biotic and Abiotic Factors-*** *The number of organisms and populations an ecosystem can support depends on the biotic (living) resources available and abiotic (nonliving) factors, such as quality of light and water, range of temperatures and soil composition.*
Content Expectation Code	**Content Expectation**
L.EC.06.31	Identify the living (biotic) and nonliving (abiotic) components of an ecosystem.
L.EC.06.32	Identify the factors in an ecosystem that influence changes in population size.

Content Expectations by Grade Span

Discipline: Life Science (L)

Standard: Ecosystems (EC)

Grade Span: Middle School (5-7)

Content Statement Code	Content Statement
L.EC.M.4	***Environmental Impact of Organisms-*** *All organisms (including humans) cause change in the environment where they live. Some of the changes are harmful to the organism or other organisms, whereas others are helpful.*
Content Expectation Code	**Content Expectation**
L.EC.06.41	Describe how human beings are part of the ecosystem of the Earth and that human activity can purposefully or accidentally alter the balance in ecosystems.
L.EC.06.42	Predict possible consequences of overpopulation of organisms, including humans, (For example: species extinction, resource depletion, climate change, pollution).