

LINCOLN PUBLIC SCHOOLS  
Science Learning Expectations: Grade 7

**Strand:**

Life Science

**Mass Standard  
LS7**

Recognize that every organism requires a set of instructions that specifies its traits. These instructions are stored in the organism's chromosomes. Heredity is the passage of these instructions from one generation to another.

See also LS8 LS9, LS10, and LS12, and Inquiry Standards

**Big Ideas**

- DNA provides for the continuity of traits from one generation to the next.

**Key Outcomes**

- Students will demonstrate an understanding that **heredity is the passage of genetic instructions from one generation to another** by analyzing a genetic population and make predictions about future generations.

**Essential Knowledge and Skills**

*Students will know and/or able to:*

- The traits of an organism are inherited from its parents.
- Traits exist in both dominant and recessive forms.
- Genetic mutations may be passed from generation to generation.
- Identify the process by which inheritance of traits occurs in organisms.
- Explain how environmental factors affect genetic variation and diversity.

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**Strand:**

Life Science

**Mass Standard  
LS13**

Give examples of ways in which organisms interact and have different functions within an ecosystem that enable the ecosystem to survive.

See also LS12, LS14, LS15 LS16, LS 17 and LS18 and Inquiry Standards

**Big Ideas**

- ❑ All organisms, including the human species, are part of and depend on interconnected global food webs and ecological cycles.
- ❑ For continued survival, organisms adapt over time in response to change in their environments.

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**Key Outcomes**

- ❑ Students will demonstrate an understanding of the **role of photosynthesis in organism's survival** by explaining the process of photosynthesis and its role at the beginning of food webs.
- ❑ Students will demonstrate an understanding that **human activity can impact organisms in an environment** by describing human activities in specific situations and analyzing impact on organisms and their environments.

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**Essential Knowledge and Skills**

*Students will know and/or be able to:*

- ❑ Demonstrate the relationship between living and nonliving factors in an environment.
- ❑ Organisms interacting with one another and abiotic factors in their environment are part of ecological cycles.
- ❑ Well functioning carbon-oxygen and nitrogen cycles are necessary for the continued health of a biome.
- ❑ Energy pyramids represent how energy is transferred through an ecosystem.
- ❑ Explain the process and importance of photosynthesis as the basis for most food webs on Earth.