



# High School Life Science Essential Standards

## Essential Standards Quick Guide

Essential standards are explicitly taught, assessed more than once, and targeted for intervention if students have not yet reached proficiency. Assessments can be both formative and summative. Interventions are implemented within the classroom to support students who are not yet proficient.

All Idaho Content Standards are detailed in the Essential Standards Extended Guide. For the complete standards booklets and for further clarification on supporting content, explanations of standards, and assessment limits please utilize the Idaho Content Standards page. [Idaho Content Science Standards](#)

<b>Essential Standards</b>
<b>From Molecules to Organisms: Structures and Processes</b>
HS-LS-1.1 Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins which carry out the essential functions of life through systems of specialized cells.
HS-LS-1.3 Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.
HS-LS-1.4 Use a model to illustrate the role of cellular division (mitosis) and differentiation in producing complex organisms.
HS-LS-1.7 Use a model to illustrate that cellular respiration is a chemical process whereby the bonds of food molecules and oxygen molecules are broken and the bonds in new compounds are formed, resulting in a net transfer of energy.
<b>Ecosystems: Interactions, Energy, and Dynamics</b>
HS-LS-2.1 Use mathematical and/or computational representations to support explanations of factors that affect carrying capacity of ecosystems at different scales.
HS-LS-2.3 Construct an explanation using mathematical representations to support claims for the flow of energy through trophic levels and the cycling of matter in an ecosystem.
HS-LS 2.4 Develop a model to illustrate the role of photosynthesis and cellular respiration in the cycling of carbon among the biosphere, atmosphere, hydrosphere, and geosphere.
HS-LS-2.5 Evaluate the claims, evidence, and reasoning that changing the conditions of a static ecosystem may result in a new ecosystem.

<b>Essential Standards</b>
HS—LS-2.6 Design, evaluate, and/or refine practices used to manage a natural resource based on direct and indirect influences of human activities on biodiversity and ecosystem health.
<b>Heredity: Inheritance and Variation of Traits</b>
HS-LS-3.1 Ask questions to clarify relationships about the role of DNA and chromosomes in coding the instructions for characteristic traits passed from parents to offspring.
HS-LS-3.2 Make and defend a claim based on evidence that inheritable genetic variations may result from: (1) new genetic combinations through meiosis, (2) viable errors occurring during replication, and/or (3) mutations caused by environmental factors.
HS-LS-3.3 Apply concepts of probability and statistical analysis to explain the variation and distribution of expressed traits in a population.
<b>Biological Adaptation: Unity and Diversity</b>
HS-LS-4.1 Communicate scientific information that common ancestry and biological evolution are supported by multiple lines of empirical evidence.
HS-LS-4.2 Construct an explanation based on evidence that the process of evolution, through the mechanism of natural selection, primarily results from four factors: (1) the potential for a species to increase in number, (2) the heritable genetic variation of individuals in a species due to mutation and sexual reproduction, (3) competition for limited resources, and (4) the proliferation of those organisms that are better able to survive and reproduce in the environment.
HS-LS-4.5 Evaluate models that demonstrate how changes in an environment may result in the evolution of a population of a given species; the emergence of new species over generations; or the extinction of other species due to the process of genetic drift, gene flow, and natural selection.

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**For Questions Contact**

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