



# At the end of High School, students can...



## Science

Life Science  
High School



**COLORADO**  
Department of Education

[www.cde.state.co.us](http://www.cde.state.co.us)



[www.copta.org](http://www.copta.org)

## Science Learning Expectations for High School Life Science

Recognize the relationship between structure and function in living systems; explain the role of natural selection in living systems.

Explore how living systems interact with the living and nonliving environment.

Determine how various organisms grow, develop, and differentiate during their lifetimes; analyze and describe the interplay between genetics and an organisms' environment.

Understand how biological change over time accounts for the unity and diversity of living organisms.

## Throughout High School, you may find students...

- Developing an explanation that shows how ecosystems follow the laws of conservation of matter and energy; analyzing how energy flows through trophic levels (food webs); describing how various cycles work (carbon, nitrogen, phosphorus, and water).
- Describing or evaluating communities as they progress over time; evaluating data and assumptions about different scenarios and possible consequences for future human population growth; examining,

evaluating, questioning, and using information from a variety of resources to investigate ecosystem interactions.

- Identifying the structure and function of biomolecules, their building blocks, and the optimal conditions required for enzyme activity; analyzing and interpreting data about the body's utilization of carbohydrates, lipids, and proteins; describing how body systems interact to promote health and balance.
- Explaining the optimal environment for photosynthesis; describing the flow of a carbon atom from the atmosphere, to a leaf, through the food chain, and back to the atmosphere; explaining how carbon compounds are altered to provide energy.
- Using tools to explore passive and active cellular transport, the energy requirements and/or rates of substance transport across cell membranes, and proteins within the cell membrane.
- Analyzing and interpreting data on genes; demonstrating how DNA processes are the same in all organisms; developing, communicating, and justifying an explanation of how cells form specialized tissues; modeling homeostasis.
- Analyzing multiple lines of evidence supporting the idea that all species are related by common ancestry; analyzing data on biological changes driven by three key components of natural selection (heritability, genetic variation, and differential survival and reproduction).