



Grades 6–8

3.1.6-8.I Life Science: Matter and Energy in Organisms and Ecosystems

Students who demonstrate understanding can *analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.*

Clarifying Statement: Emphasis is on cause and effect relationships between resources and growth of individual organisms and the numbers of organisms in ecosystems during periods of abundant and scarce resources.

Assessment Boundary: N/A

Science and Engineering Practices (SEP)	Disciplinary Core Ideas (DCI)	Crosscutting Concepts (CCC)
Analyzing and Interpreting Data Analyzing data in 6–8 builds on K–5 experiences and progresses to extending quantitative analysis to investigations, distinguishing between correlation and causation, and basic statistical techniques of data and error analysis. <ul style="list-style-type: none"> Analyze and interpret data to provide evidence for phenomena. 	Interdependent Relationships in Ecosystems <ul style="list-style-type: none"> Organisms, and populations of organisms, are dependent on their environmental interactions both with other living things and with nonliving factors. In any ecosystem, organisms and populations with similar requirements for food, water, oxygen, or other resources may compete with each other for limited resources, access to which consequently constrains their growth and reproduction. Growth of organisms and population increases are limited by access to resources. 	Cause and Effect <ul style="list-style-type: none"> Cause and effect relationships may be used to predict phenomena in natural or designed systems.

Pennsylvania Context: Examples of Pennsylvania context include but are not limited to the Pennsylvania deer population.

PA Career Ready Skills: Make a decision based upon anticipated consequences.

Connections to Other Standards Content and Practices

Standard Source	Possible Connections to Other Standard(s) or Practice(s)
Agriculture (AFNR)	CS.04.01.02.a: Read and interpret the definition of sustainability and summarize how it relates to AFNR activities.
Science, Environmental Literacy and Sustainability (NAAEE)	5-8 Strand 2.3.B. Resource distribution and consumption: Learners explain that uneven geographic distribution of natural resources influences their use and perceived value. 5-8 Strand 3.1.B. Sorting out the consequences of issues: Learners apply their knowledge of ecological and human processes and systems to describe the short- and long-term consequences of selected environmental issues on sustainability.



Standard Source	Possible Connections to Other Standard(s) or Practice(s)
PA Core Standards: ELA	CC.3.5.6-8.A: Cite specific textual evidence to support analysis of science and technical texts. CC.3.5.6-8.G: Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).
PA Core Standards and Practices: Math	CC.2.4.8.B.1: Analyze and/or interpret bivariate data displayed in multiple representations. CC.2.4.8.B.2: Understand that patterns of association can be seen in bivariate data utilizing frequencies.
PA Standards: Social Studies	6.1.6.A: Explain how limited resources and unlimited wants cause scarcity. 7.4.7.A: Describe and explain the effects of the physical systems on people within regions.
Educational Technology (ISTE)	1.3. Knowledge Constructor: Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.
Technology and Engineering (ITEEA)	STEL-4L: Analyze how the creation and use of technologies consumes renewable and nonrenewable resources and creates waste.