



Grades 6–8

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

Students who demonstrate understanding can *construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.*

Clarifying Statement: Emphasis is on recognizing patterns in data and making warranted inferences about changes in populations, and on evaluating empirical evidence supporting arguments about changes to ecosystems.

Assessment Boundary: N/A

Science and Engineering Practices (SEP)	Disciplinary Core Ideas (DCI)	Crosscutting Concepts (CCC)
<p>Engaging in Argument From Evidence Engaging in argument from evidence in 6–8 builds on K–5 experiences and progresses to constructing a convincing argument that supports or refutes claims for either explanations or solutions about the natural and designed world(s).</p> <ul style="list-style-type: none"> Construct and present oral and written arguments supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for a phenomenon or a solution to a problem. <hr/> <p>Connections to Nature of Science Scientific Knowledge is Based on Empirical Evidence</p> <ul style="list-style-type: none"> Science disciplines share common rules of obtaining and evaluating empirical evidence. 	<p>Ecosystem Dynamics, Functioning, and Resilience</p> <ul style="list-style-type: none"> Ecosystems are dynamic in nature; their characteristics can vary over time. Disruptions to any physical or biological component of an ecosystem can lead to shifts in all its populations. 	<p>Stability and Change</p> <ul style="list-style-type: none"> Small changes in one part of a system might cause large changes in another part.

Pennsylvania Context: Examples of Pennsylvania context include but are not limited to Pennsylvania's invasive species, such as the spotted lanternfly.

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.04.01.01.c: Devise strategies for stewarding natural resources at home and within community.



Standard Source	Possible Connections to Other Standard(s) or Practice(s)
Science, Environmental Literacy and Sustainability (NAAEE)	5-8 Strand 2.3.A. Human-environment interactions: Learners describe human-caused changes that affect the immediate environment as well as other places, other people, and future times. 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.
PA Core Standards: ELA	CC.3.5.6-8.A: Cite specific textual evidence to support analysis of science and technical texts. CC.1.4.9-10.S: Draw evidence from literary or informational texts to support analysis, reflection, and research, applying grade-level reading standards for literature and literary nonfiction. CC.3.6.6-8.A: Write arguments focused on discipline-specific content.
PA Core Standards and Practices: Math	N/A
PA Standards: Social Studies	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-3G: Explain how knowledge gained from other content areas affects the development of technological products and systems.