## Grades 6–8

**3.1.6-8.E Life Science:** Growth, Development, and Reproduction of Organisms

**Students who demonstrate understanding can** *construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.*

**Clarifying Statement:** Examples of local environmental conditions could include availability of food, light, space, and water. Examples of genetic factors could include large breed cattle and species of grass affecting growth of organisms. Examples of evidence could include drought decreasing plant growth, fertilizer increasing plant growth, different varieties of plant seeds growing at different rates in different conditions, and fish growing larger in large ponds than they do in small ponds.

**Assessment Boundary:** Assessment does not include genetic mechanisms, gene regulation, or biochemical processes.

| Science and Engineering Practices (SEP) | Disciplinary Core Ideas (DCI) | Crosscutting Concepts (CCC) |
|---|---|---|
| **Constructing Explanations and Designing Solutions**<br>Constructing explanations and designing solutions in 6–8 builds on K–5 experiences and progresses to include constructing explanations and designing solutions supported by multiple sources of evidence consistent with scientific knowledge, principles, and theories.<br>• Construct a scientific explanation based on valid and reliable evidence obtained from sources (including the students' own experiments) and the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future. | **LS1.B: Growth and Development of Organisms**<br>• Genetic factors as well as local conditions affect the growth of the adult plant. | **Cause and Effect**<br>• Phenomena may have more than one cause, and some cause and effect relationships in systems can only be described using probability. |

**Pennsylvania Context:** N/A

**PA Career Ready Skills:** Distinguish among various social contexts and how they impact personal feelings.

### Connections to Other Standards Content and Practices

| Standard Source | Possible Connections to Other Standard(s) or Practice(s) |
|---|---|
| **Agriculture (AFNR)** | CS.02.02.01.a: Identify and summarize the components within AFNR systems (e.g., Animal Systems: health, nutrition, genetics, etc.; Natural Resources Systems: soil, water, etc.). |
| **Science, Environmental Literacy and Sustainability (NAAEE)** | 5-8 Strand 2.1.B. Earth's living systems: Learners identify basic similarities and differences among a wide variety of living organisms. They explain ways that living organisms, including humans, affect the environment in which they live, and how their environment affects them.<br>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.<br>CC.3.5.6-8.B: Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.<br>CC.3.6.6-8.B: Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.<br>CC.3.6.6-8.H: Draw evidence from informational texts to support analysis reflection, and research. |
| **PA Core Standards and Practices: Math** | CC.2.4.6.B.1: Apply and extend previous understandings of arithmetic to algebraic expressions.<br>CC.2.4.6.B.2: Understand the process of solving a one-variable equation or inequality and apply it to real-world and mathematical problems.<br>CC.2.4.6.B.1: Demonstrate an understanding of statistical variability by displaying, analyzing, and summarizing distributions. |
| **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. |