



Grades 6–8

3.4.6-8.H Environmental Literacy and Sustainability: Sustainability and Stewardship

Students who demonstrate understanding can *design a solution to an environmental issue in which individuals and societies can engage as stewards of the environment.*

Clarifying Statement: Examples of design solutions could include written or drawn plans, as well as implementing project actions.

Assessment Boundary: N/A

Science and Engineering Practices (SEP)	Disciplinary Core Ideas (DCI)	Crosscutting Concepts (CCC)
<p>Constructing Explanations and Designing Solutions</p> <p>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 ideas, principles, and theories.</p> <ul style="list-style-type: none"> Design, evaluate, and/or refine a solution to a complex real-world problem, based on scientific knowledge, student-generated sources of evidence, prioritized criteria, and tradeoff considerations. 	<p>ETS1.B: Developing Possible Solutions</p> <ul style="list-style-type: none"> There are systematic processes for evaluating solutions with respect to how well they meet the criteria and constraints of a problem. <p>ESS3.C: Human Impacts on Earth Systems</p> <ul style="list-style-type: none"> Human activities have significantly altered the biosphere, sometimes damaging or destroying natural habitats and causing the extinction of other species. But changes to Earth’s environments can have different impacts (negative and positive) for different living things. 	<p>Connections to Nature of Science</p> <p>Science Addresses Questions About the Natural and Material World</p> <ul style="list-style-type: none"> Scientific knowledge can describe the consequences of actions but does not necessarily prescribe the decisions that society takes.

Pennsylvania Context: Examples of Pennsylvania context include but are not limited to Pennsylvania Environmental Justice Area designations or Environmental Health Indicators.

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.04.01.01.c: Devise strategies for stewarding natural resources at home and within community.
Science, Environmental Literacy and Sustainability (NAEE)	5-8 Strand 3.1.C. Identifying and critiquing alternative solutions and courses of action: Learners identify and develop action strategies, including design solutions, appropriate for addressing a range of environmental issues at community and regional levels. They describe how their action strategies and design solutions might impact environmental quality and other people now and in the future.



Standard Source	Possible Connections to Other Standard(s) or Practice(s)
PA Core Standards: ELA	CC.3.6.6-8.F: Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.
PA Core Standards and Practices: Math	MP.2: Reason abstractly and quantitatively. CC.2.4.6.B.1: Demonstrate an understanding of statistical variability by displaying, analyzing, and summarizing distributions. CC.2.4.7.B.3: Investigate chance processes and develop, use, and evaluate probability models.
PA Standards: Social Studies	7.4.6.B: Describe and explain the effects of people on the physical systems within regions.
Educational Technology (ISTE)	1.4. Innovative Designer: Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.
Technology and Engineering (ITEEA)	STEL-7Q: Apply the technology and engineering design process.