



Grades 6–8

3.3.6-8.O Earth and Space Science: Weather and Climate

Students who demonstrate understanding can ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.

Clarifying Statement: Examples of factors include human activities (such as fossil fuel combustion, cement production, and agricultural activity) and natural processes (such as changes in incoming solar radiation or volcanic activity). Examples of evidence can include tables, graphs, and maps of global and regional temperatures, atmospheric levels of gases such as carbon dioxide and methane, and the rates of human activities. Emphasis is on the major role that human activities play in causing the rise in global temperatures.

Assessment Boundary: N/A

Science and Engineering Practices (SEP)	Disciplinary Core Ideas (DCI)	Crosscutting Concepts (CCC)
Asking Questions and Defining Problems Asking questions and defining problems in 6–8 builds on K–5 experiences and progresses to specifying relationships between variables, and clarifying arguments and models. <ul style="list-style-type: none"> Ask questions to identify and clarify evidence of an argument. 	Global Climate Change <ul style="list-style-type: none"> Human activities, such as the release of greenhouse gases from burning fossil fuels, are major factors in the current rise in Earth's mean surface temperature (global warming). Reducing the level of climate change and reducing human vulnerability to whatever climate changes do occur depend on the understanding of climate science, engineering capabilities, and other kinds of knowledge, such as understanding of human behavior and on applying that knowledge wisely in decisions and activities. 	Stability and Change <ul style="list-style-type: none"> Stability might be disturbed either by sudden events or gradual changes that accumulate over time.

Pennsylvania Context: Examples of Pennsylvania context include but are not limited to heat islands, consumption of fossil fuels, industrial centers, and methane from livestock in Pennsylvania.

PA Career Ready Skills: Interact with others demonstrating respect, cooperation, and acceptance.

Connections to Other Standards Content and Practices

Standard Source	Possible Connections to Other Standard(s) or Practice(s)
Agriculture (AFNR)	CS.02.01.01.a: Research and describe different types of geographic data used in AFNR systems.



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.A. Identifying and investigating issues: Learners use primary and secondary sources of information and apply research and analytical skills to investigate environmental issues, beginning in their own community and region.
PA Core Standards: ELA	CC.3.5.6-8.A: Cite specific textual evidence to support analysis of science and technical texts.
PA Core Standards and Practices: Math	CC.2.2.6.B.2: Understand the process of solving a one-variable equation or inequality and apply it to real-world and mathematical problems.
PA Standards: Social Studies	7.4.6.B: Describe and explain the effects of people on the physical systems within regions.
Educational Technology (ISTE)	1.1. Empowered Learner: Students leverage technology to take an active role in choosing, achieving, and demonstrating competency in their learning goals, informed by the learning sciences.
Technology and Engineering (ITEEA)	STEL-4K: Examine the ways that technology can have both positive and negative effects at the same time.