

Grade 8: Human Impacts

Stage 1 Desired Results

ESTABLISHED GOALS:

Competencies:

- **Patterns-** Students will observe, predict, and analyze patterns in order to support evidence-based claims about relationships (e.g., cause and effect, structure and function, macroscopic and microscopic).
- **Cause and Effect:** Students will investigate, explain, and evaluate potential causal relationships, using evidence to support claims and predictions about the mechanisms that drive those relationships.
- Students will demonstrate the ability to analyze and summarize text and integrate knowledge to make meaning of discipline-specific materials.
- Students will demonstrate the ability to produce coherent and supported writing in order to communicate effectively for a range of discipline-specific tasks, purposes, and audiences.
- Students will demonstrate the ability to speak purposefully and effectively by strategically making decisions about content, language use, and discourse style.

Content Standards:

- MS-ESS3-2. Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.
- MS-ESS3-3. Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.
- MS-ESS3-4. Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.
- MS-ESS3-5. Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.

Transfer

*Students will independently apply their learning to **make informed decisions regarding the reciprocal relationship between human activities and the environment, recognizing the vulnerability of both humans and other living things to climate changes.***

Meaning

ENDURING UNDERSTANDINGS

Students will understand that...

- graphs, charts, and images can be used to identify patterns in data.
- relationships can be classified as causal or correlational, and correlation does not necessarily imply causation.
- cause and effect relationships may be used to predict phenomena in natural or designed systems.

ESSENTIAL QUESTIONS

- In what ways can the reciprocal relationship between human activities and the environment be sustained as the human population grows?

Acquisition

Students will know...

- that mapping the history of natural hazards in a region, combined with an understanding of related geologic forces can help forecast the locations and likelihoods of future events.
- that 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.
- that typically as human populations and per-capita consumption of natural resources increase, so do the negative impacts on Earth unless the activities and technologies involved are engineered otherwise.
- that 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 applying that knowledge wisely in decisions and activities.

vocabulary: environment, catastrophe, extinction, biosphere, per capita consumption, natural resources, technology, economic, consequences, fossil fuels, greenhouse gases, climate change, global warming

Students will be skilled at...

- analyzing and interpreting data.
- applying scientific principles of design.
- constructing an argument supported by evidence.
- asking questions to clarify evidence.

Content Area Literacy Standards	21 st Century Skills
• RST.6-8.1 Cite specific textual evidence to support analysis of science and technical texts. • RST.6-8.2 Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions. • RST.6-8.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to <i>grades 6-8 texts and topics</i>. • RST.6-8.7 Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually. • RST.6-8.9 Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic. • WHST.6-8.1 Write arguments focused on <i>discipline-specific content</i>. • WHST.6-8.2 Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. • WHST.6-8.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. • WHST.6-8.6 Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently. • WHST.6-8.7 Conduct short research projects to answer a question drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration. • WHST.6-8.8 Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation. • WHST.6-8.9 Draw evidence from informational texts to support analysis, reflection, and research.	• <i>collaborate with others</i> • <i>manage goals and time</i> • <i>solve problems</i> • <i>communicate clearly</i> • <i>work creatively with others</i>

Stage 2 - Evidence

<i>Evaluative Criteria</i>	<i>Assessment Evidence</i>
	PERFORMANCE TASK(S):
	OTHER EVIDENCE:

Stage 3 – Learning Plan

Summary of Key Learning Events and Instruction

<i>Science and Engineering Practices</i>	<i>Mathematics Integration</i>
S&EP 1. Asking questions and defining problems S&EP 7. Engaging in argument from evidence S&EP 8. Obtaining, evaluating, and communicating information	• MP.2 Reason abstractly and quantitatively. • 6.RP.A.1 Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. • 7.RP.A.2 Recognize and represent proportional relationships between quantities. • 6.EE.B.6 Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set. • 7.EE.B.4 Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities
<i>Technology Integration</i>	<i>District Materials</i>