

Unit 6: Factors Affecting Global Temperatures

Standard(s):

8.4.4 Analyze and interpret data on the factors that change global temperatures and their effects on regional climates. Examples of factors could include agricultural activity, changes in solar radiation, fossil fuel use, or volcanic activity. Examples of data could include graphs of the atmospheric levels of gasses, seawater levels, ice cap coverage, human activities, or maps of global and regional temperatures. (ESS3.D)

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
Analyzing and Interpreting Data Students analyze various types of data in order to create valid interpretations or to assess claims/conclusions.	ESS3.D Global Climate Change	Cause and Effect Students investigate and explain causal relationships in order to make tests and predictions.
Big Ideas: - Global climate change, shown to be driven by both natural phenomena and by human activities, could have large consequences for all of Earth's surface systems, including the biosphere - Global changes usually happen too slowly for individuals to recognize, but accumulated human knowledge, together with further scientific research, can help people learn more about these challenges and guide their responses. - By using science-based predictive models, humans can anticipate long-term change more effectively than ever before and plan accordingly.		
Preceding Grade Bands:	Target Grade Bands:	Following Grade Bands:
If Earth's global mean temperature continues to rise, the lives of humans and other organisms will be affected in many different ways.	Human activities, such as the release of greenhouse gasses from burning fossil fuels, are major factors in the current rise in Earth's mean surface temperature (global warming).	- Though the magnitudes of humans' impacts are greater than they have ever been, so too are humans' abilities to model, predict, and manage current and future impacts. - Through computer simulations and other studies, important discoveries are still being made about how the ocean, the atmosphere, and the biosphere interact and are modified in response to human activities, as well as to changes in human activities.

Proficiency Scale:

4 Advanced	3 Proficient	2 Approaching Proficiency	1 Beginning Proficiency
I can: Analyze and interpret data on the factors that change global temperatures and explain their <u>effects</u> on regional climates. AND Propose a viable solution for mitigating one of the factors causing climate change.	I can: Analyze and interpret data on the factors that change global temperatures and explain their <u>effects</u> on regional climates.	I can: Use data to determine factors that <u>affect</u> changes to climate.	I can: Use data to understand the difference between climate and weather

Anchoring Phenomenon:

Increase in intensity and occurrence of natural disasters

Essential Question:

What factors can cause a change in climate?

Learning Goals:

6A Analyze data on the factors that cause changes to global temperatures and their effect on regional climates.

	Learning Opportunities	Formative Assessments
Engage	Activity 1 Unit 6 Phenomenon Natural Disasters: students will look at data provided by NOAA about the increase in occurrence of catastrophic natural hazards.	All activities are found in the Unit 6 Notebook under the title named.
Learning Goal: Analyze data on the factors that cause changes to global temperatures and their effect on regional climates.		
Explore	Activity 2 Climate or Weather: Students will come up with a definition of climate and weather and sort cards to determine which are examples of each.	Students individual answers to questions Classroom discussion
Explore & Explain	Activity 3: Salt Lake City Regional Climate Research Students will be able to analyze data about Salt Lake City to recognize changes in patterns of the annual temperatures. Conclusion statement writing a CER paragraph for the research on the salt lake city climate Activity 4: Factors Causing Global Temperature Changes Students will look at data of the factors causing Global temperature change. They will choose one fact and do research then share with other members of the class what they learned and learn from other students about other factors.	Use the conclusion paragraph to determine if the students are understanding what climate change is and what the data is showing.

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Elaborate	Activity 5 Effects of Global Temperature Changes Students use data to explore what effects the global temperature has had on the different factors. Activity 6: What Can Be Done? Students will research an effect of climate change and identify what this will in turn affect and propose a way that people can deal with this effect.	● Presentations ● Quiz 6A level 1 & 2 ● Quiz 6A level 3 ● Quiz 6A Level 4
Evaluate		