

Unit 3: Earth's Evolution
6th Grade Science
Class Meetings 10

Created July 2020

Essential Questions

- How do natural disasters impact and effect our planet?
- What is the origin, function, and use of natural resources?
- What is Global Warming?
- El Nino is Spanish for.... The Nino!

Enduring Understandings with Unit Goals

EU 1: Explain natural disasters occur.

- Examine how data can help guide weather scientist in making accurate predications
- Explain of natural phenomena can allow for reliable predications, while others occur suddenly.

EU 2: Describe how the use of natural resources impacts Earth.

- Explain humans use of fossil fuels and their effect on the environment.
- Examine fossil fuels and how they are formed and their locations.

EU 3: Examine global climate change.

- Compare and Contrast fossil fuel usage and climate changes.
- Explain global warming and how humans impact changes within their environments.

Standards

Common Core State 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.
- **6-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.
- **6-ESS3-5** Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.
- **RST.6-8.:** Cite specific textual evidence to support analysis of science and technical texts.
- **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.
- **6.NS.C.5:** Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.

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ISAAC Vision of the Graduate Competencies

Competency 1: Write effectively for a variety of purposes.

Competency 2: Speak to diverse audiences in an accountable manner.

Competency 3: Develop the behaviors needed to interact and contribute with others on a team.

Competency 4: Analyze and solve problems independently and collaboratively.

Competency 5: Be responsible, creative, and empathetic members of the community.

Unit Content Overview

1. Natural Disasters

- Outline a natural disaster of choice and how it develops.
- Define the process of how scientist identify and track natural disasters.
- Examine how technology helps identify natural disasters.

2. Fossil Fuels

- Show how fossil fuels are formed.
- Define how fossil fuels are consumed and used by humans.
- Examine the use of fossil fuels and their impacts on Earth.

3. Global Warming

- Explain the use of natural energy impacts Earth's climate.
- Analyze temperature change and assess its relationship to fossil fuels.
- Compare and contrast variances in climate, weather, and temperature over Earths history.

Interdisciplinary Connection:

- Language Arts - Writing
- Math– Computation/Word Problems
- Art – Illustration of systems and creating maps

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Daily Learning Objectives with *Do Now* Activities

Students will be able to...

- Identify a natural disaster.*
 - *Using scientific identification and analysis, list the characteristics of each natural disaster identified and its inherent markers.*
- Examine how scientist identify when natural disasters occur.***
 - *Create a model to describing a natural disaster and the process used by scientist to identify it ?*
 - *Evaluate how technology helps scientist warn people of impending disasters.*
 - *Compare and contrast two natural disasters and explain their cause and effect.*
- Analyze how fossil fuels are utilized as energy consumed by humans.**
 - *How does the use of fossil fuels impact the environment*
- Analyze and interpret data to determine similarities and differences in findings. *
 - *Compare and contrast specific historical data in the development of Earth ?*
- Students will be able to explain global warming and human impact. ***
 - *Create a presentation demonstrating global warming and how fossil fuels may lead to the “green house effect”,*
 - *Evaluate and defend human impact on global warming. Use scientific data and evidence collected.*

Instructional Strategies/Differentiated Instruction

- Power Point Lecture with notetaking
- Guided notetaking
- Warm up activities
- Flexible grouping
- Independent reading
- Lab activities
- Exit slips
- Graphic Organizers
- Creating authentic connections for students
- Vocabulary word bank
- Rephrasing and restatement of information and concepts
- Tiered instruction
- Alternative test settings
- Reading and accountable talk discussions of texts
- Student-led instruction
- Homework assignments
- Hands-on activities
- SIOP strategies- Teachers implement SIOP strategies to introduce academic vocabulary and use multiple modes of representation including gestural, oral, pictorial, graphic and textual.

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Assessments

FORMATIVE ASSESSMENTS:

- Guided notes
- Homework
- Daily Think-Write-Pair-Share (TWPS) Activities
- Accountable Talk Discussions
- Oral questioning
- Exit slips
- Warm Up activities
- Close reading and interpretation of text
- Performance Task – Man, It's Hot!
 - Future Rubrics Assessment in 2021-2022 school year

SUMMATIVE ASSESSMENTS:

- Quiz on EU 1
- Quiz on EU 2/ EU 3
- Performance Task – Man, It's Hot!
- Unit 2 Test

Unit Task

Unit Task Name: Man, It's Hot!***

Description: The conversation about global warming is heating up and the topic at the coffee table is the weather. The question is, what does 'global warming' mean and we are really seeing climate change(EU3)? In this lesson the kids will do some investigation to determine for themselves if our climate is changing at all.

The average global temperature and concentrations of carbon dioxide, one of the major greenhouse gases (or GHGs) have fluctuated on a cycle of hundreds of thousands of years as the Earth's position relative to the sun has varied. As a result, ice ages have come and gone.

However, for thousands of years now, emissions of greenhouse gasses to the atmosphere have been balanced by the green house gasses that are naturally absorbed. As a result, green house gas concentrations and temperature have been fairly stable. This stability has allowed human civilization to develop within a consistent climate.

Occasionally, other factors briefly influence global temperatures. Volcanic eruptions, for example, emit particles that temporarily cool the Earth's surface. But these have no lasting effect beyond a few years.

Other cycles, such as El Niño, also work on fairly short and predictable cycles (EU1).

Humans have increased the amount of carbon dioxide in the atmosphere by more than a third since the beginning of the industrial revolution(EU2). Changes this large have historically taken thousands of years, but are now happening over the course of decades. <https://www.nps.gov/teachers/classrooms/man-its-hot.htm>

Evaluation: Summative Assessment and Future Rubric in 2021-2022 school year

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Unit Resources
<ul style="list-style-type: none">● Non-Fiction Text● Internet databases● Large format poster printer● Microsoft Power Point or Prezi● Laptops● NOAA website● Lab materials