

**Curriculum Unit
Title**

Fossil Fuels and Our Changing Climate

Author

Tim Dorsey

KEY LEARNING, ENDURING UNDERSTANDING, ETC.

Students will learn how to interpret data from a variety of sources to make predictions, learning about the concept of scale and how a collection of variables can be used to make a climate forecast. Students will then learn how the concentration of greenhouse gases can influence the earth's temperature. Next students will learn about the choices and trade off of using fossil fuels to meet an energy demand.

ESSENTIAL QUESTION(S) for the UNIT

How are fossil fuels impacting our environment?

CONCEPT A

Climate Change

CONCEPT B

The Greenhouse Effect

CONCEPT C

Managing Energy Choices

ESSENTIAL QUESTIONS A

How has the earth changed throughout its history? What are the climate trends and forecast for the atmosphere? What are the climate trends and forecast for the hydrosphere? What are the climate trends and forecast for the cryosphere?

ESSENTIAL QUESTIONS B

How do greenhouse gases warm the earth?
How can you model the warming affect of carbon dioxide?
How can the color of a surface affect its temperature?

ESSENTIAL QUESTIONS C

What are the tradeoffs for generating energy from coal, oil, or natural gas?

VOCABULARY A

Hydrosphere, Cryosphere, Scale, Sea Ice, Acidity, Gravimetry, Altimetry

VOCABULARY A

Greenhouse gas, carbon dioxide, greenhouse effect, albedo

VOCABULARY A

Fracking, mining, bituminous coal, anthracite coal, trade off

ADDITIONAL INFORMATION/MATERIAL/TEXT/FILM/RESOURCES

Variety of Data Sets for Concept A – please follow this link: <https://docs.google.com/spreadsheets/d/1QWRPTzI12-QS87EswEsuE6KZKiRqGYbhiSIX006w8CY/edit?usp=sharing>

Variety of Videos and Simulations are optional for Concept B – please follow this link: https://docs.google.com/document/d/1HS7IP6T_pb4p3Xy41rSGEXH-tbm_V6APnRgJq0THI4/edit?usp=sharing

Game directions and cards for Concept C – please follow this link: <https://docs.google.com/document/d/1EEOt72D9xCd4cXHgcXbclYrOtJVjHh8c4Rdouw-bqL8/edit?usp=sharing>