

**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](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>