03 UNIT 3 -Energy Resources and Consumption

Content Area: **Science**
Course(s): **Environmental Science**
Time Period: **Semester 1**
Length: **3 weeks**
Status: **Published**

Standards

HS-PS1	Matter and Its Interactions
PS3.A	Definitions of Energy
PS3.B	Conservation of Energy and Energy Transfer
	Cause and Effect
	Systems and System Models
	Energy and Matter
HS-LS2	Ecosystems: Interactions, Energy, and Dynamics
	Asking Questions and Defining Problems
	Analyzing and Interpreting Data
	Obtaining, Evaluating, and Communicating Information
	Constructing Explanations and Designing Solutions
	Engaging in Argument from Evidence
HS-ESS3	Earth and Human Activity
ESS3.C	Human Impacts on Earth Systems
HS-ETS1	Engineering Design

Enduring Understandings

1. Humans use energy from a variety of sources, resulting in positive and negative consequences.
2. Each type of energy source has its own pros and cons including externalities such as what it takes to extract the source and any long term effects of pollution.
3. Energy use and its consequences impacts many aspects of the environment such as pollution, human health, climate change etc.
4. The laws of thermodynamics means that energy is lost along the way and not all energy sources will have the same efficiency.

Essential Questions

1. What are the patterns of energy use in our country/world?
2. How is energy moved from a resource to our homes?

3. What are the pros of the different nonrenewable resources such as fossil fuels and nuclear power?
4. What are the cons of the different nonrenewable resources such as fossil fuels and nuclear power?
5. What are the differences between energy conservation and energy efficiency?
6. What are the pros of the different renewable energy sources such as solar, wind, hydrogen, geothermal. biomass and water?
7. What are the cons of the different renewable energy sources such as solar, wind, hydrogen, geothermal. biomass and water?
8. What is the "best" path forward in planning our energy future?

Knowledge and Skills

Knowledge

1. Students will know the patterns of energy use in our country and the world.
2. Students will know the basics of energy transmission.
3. Students will know the difference between and examples of nonrenewable and renewable energy resources.
4. Students will understand the pros and cons to each type of energy source including how it is obtained, its efficiency in providing energy and the impact on the environment.
5. Students will know how to connect the use of different forms of energy to other topics like the atmosphere, climate differences, food, human health, and pollution.

Skills

1. Interpret graphs for topics including energy use and energy efficiency.
2. Construct an argument about energy sources,using evidence about the advantages or disadvantages of each type.
3. Investigate the efficiency of a resource for providing energy.

Modifications

https://docs.google.com/document/d/1wR7bQF-8AQoRrt0g4C3hKja0yjwDjC9_BiAmONWbTcI/edit?usp=sharing

Assessments

https://docs.google.com/document/d/1wR7bQF-8AQoRrt0g4C3hKja0yjwDjC9_BiAmONWbTcI/edit?usp=sharing