*Unit 6: Alternative Energies

Content Area: **Technology**
Course(s): **Engineering Design 2**
Time Period: **February**
Length: **12 blocks**
Status: **Published**

Enduring Understandings

The world's supply of fossil fuels in finite.

Energies other than fossil fuels will be needed to sustain future power demand.

Many alternative energies harness the power provided by the environment.

Not all alternative energies are sustainable.

Current alternative energy technologies cannot produce the same power output as fossil fuels.

Essential Questions

What is the future of energy production?

How can we harness power from the environment?

What are the ethical, financial and societal considerations with using alternative energies?

What are the hurdles in moving away from fossil fuels?

Content

Vocabulary:

solar power, solar cell, wind power, tidal turbine, hydro power, geothermal power, hydrogen fuel cell, nuclear power, sustainable energy, kilowatt hour, biofuel

Skills

Compare and contrast alternative energies and fossil fuels.

Calculate power consumption of various electrical devices.

Compile research on a type of alternative energy.

Create an informational poster for a type of alternative energy.

Present research on a type of alternative energy.

Resources

Desktop computers

2D & 3D CAD systems

3D printer

Laser cutter

CNC router

Prototyping equipment

Prototyping materials

Presentation device

Alternative engery lab equipment (solar cells, hydrogen fuel cells, etc.)

Multimeters

Standards

TECH.8.1.12.B.CS1	Apply existing knowledge to generate new ideas, products, or processes.
TECH.8.2.12.B.2	Evaluate ethical considerations regarding the sustainability of environmental resources that are used for the design, creation and maintenance of a chosen product.
TECH.8.2.12.B.CS1	The cultural, social, economic and political effects of technology.
TECH.8.2.12.B.CS2	The effects of technology on the environment.
TECH.8.2.12.B.CS3	The role of society in the development and use of technology.
TECH.8.2.12.C.2	Analyze a product and how it has changed or might change over time to meet human needs and wants.
TECH.8.2.12.C.7	Use a design process to devise a technological product or system that addresses a global problem, provide research, identify trade-offs and constraints, and document the process through drawings that include data and materials.
TECH.8.2.12.C.CS1	The attributes of design.
TECH.8.2.12.C.CS2	The application of engineering design.
TECH.8.2.12.D.3	Determine and use the appropriate resources (e.g., CNC (Computer Numerical Control) equipment, 3D printers, CAD software) in the design, development and creation of a

	technological product or system.
TECH.8.2.12.D.4	Assess the impacts of emerging technologies on developing countries.
TECH.8.2.12.D.CS1	Apply the design process.
TECH.8.2.12.D.CS3	Assess the impact of products and systems.