

## Lesson Plan

### Green Energy Graphs

**Book:** *All About Green Tech*

**Series:** Cutting-Edge Technology

**Level:** Navigator

#### Objective

To help students practice interpreting information presented in graphs and charts.

#### Supplies

- *All About Green Tech* book
- Computer or projector
- “Energy Sources: Renewable” web page from the US Energy Information Administration’s Energy Kids website: <https://www.eia.gov/kids/energy-sources/renewable/>
- Green Energy Graphs worksheet (attached)
- Pencils

#### Before the Activity

Read the *All About Green Tech* book, or assign it to students to read on their own. Print a Green Energy Graph worksheet for each student.

#### Activity

*All About Green Tech* describes some of the ways that people use and produce energy. To help students learn more about these energy sources, pull up the “Energy Sources: Renewable” web page and scroll down to display the pie chart titled “U.S. primary energy consumption by energy source, 2021.” Explain that this chart shows the different sources that people in the United States used to get energy in 2021. It also shows what percent of the total energy used that year came from each source. To make this information easy to understand, the chart uses a different color for each source. Pass out the worksheets and have students use the chart to answer the questions in Part 1.

Give students a few minutes to write their answers. Then scroll down to display the bar graph titled “Shares of total U.S. energy consumption by major sources in selected years (1776–2021).” Explain that this graph shows the different sources that people used to get energy at different times throughout history. Each bar also shows what percent of the total energy used that year came from each source. The larger the percentage, the bigger the colored section is. Students should use this graph to answer the questions on Part 2 of the worksheet. After giving students a few minutes to write their answers for Part 2, collect the worksheets.

**Evaluation**

Use the attached answer key to give each student 1 point for each correct answer, for up to 12 points total.

**Standards**

This lesson may be used to address the Common Core State Standards' reading standards for informational text, grade 4 (RI 4.7), and the National Science Education Standards' Content Standard F, grades K–4.

# Green Energy Graphs

## Part 1

1. What was the largest source of energy used in the United States in 2021?
2. Did people in 2021 use more coal or nuclear electric power?
3. In 2021, what percentage of renewable energy came from biomass?
4. Did wood or biofuels make up more of the biomass used in 2021?
5. What was the smallest source of renewable energy in 2021?
6. Did people in 2021 use more solar power or hydroelectric power?

## Part 2

1. In which three years did people get 100% of the energy they used from wood?
2. What is the first year on the graph that shows people using petroleum?
3. When does the graph show people began using nuclear energy?
4. In which two years did people get the most energy from coal?
5. In which two years did people use the most hydroelectric energy?
6. Did people get more energy from natural gas in 2021 or 1950?

# Green Energy Graphs **ANSWER KEY**

## Part 1

1. What was the largest source of energy used in the United States in 2021?

**petroleum, 36%**

2. Did people in 2021 use more coal or nuclear electric power?

**They used more coal.**

3. In 2021, what percentage of renewable energy came from biomass?

**40%**

4. Did wood or biofuels make up more of the biomass used in 2021?

**biofuels, 19%**

5. What was the smallest source of renewable energy in 2021?

**geothermal, 2%**

6. Did people in 2021 use more solar power or hydroelectric power?

**They used more hydroelectric power.**

## Part 2

1. In which three years did people get 100% of the energy they used from wood?

**1776, 1800, and 1825**

2. What is the first year on the graph that shows people using petroleum?

**1875**

3. When does the graph show people began using nuclear energy?

**1975**

4. In which two years did people get the most energy from coal?

**1900 and 1925**

5. In which two years did people use the most hydroelectric energy?

**1950 and 1975**

6. Did people get more energy from natural gas in 2021 or 1950?

**2021**