ENERGIZE YOUR FUTURE WITH SHELL

ENERGY SOURCES AROUND THE WORLD

TEACHER'S GUIDE

Activity Three: Energy Sources Around the World

BACKGROUND

In this lesson, students will be introduced to energy resources that various countries consume depending on climate, natural resources, industrialization, economic status and culture. Industrialized countries consume a larger share of the world's energy resources. The availability of resources, the climate, culture, level of industrialization and economic well-being contribute significantly to the type of resources consumed in each country. Students will research statistical information from an assigned country and demonstrate their knowledge by presenting their findings in a group presentation.

Lesson Printable: Energy Sources Around the World Activity Sheet
Lesson Printable: Country Information Answer Key

OBJECTIVES

- Students will understand that various energy resources distributed throughout the world are not equal.
- Students will research statistical information pertaining to an assigned country.
- Students will analyze information and draw conclusions on global energy supply and demand.
- Students will demonstrate findings by presenting information in a group setting.

NEXT GENERATION SCIENCE STANDARDS:

MS-ESS3-1: Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes.
ESS3.A: Natural Resources: Humans depend on Earth's land, ocean, atmosphere, and biosphere for many different resources. Minerals, fresh water, and biosphere resources are limited, and many are not renewable or replaceable over human lifetimes. These resources are distributed unevenly around the planet as a result of past geologic processes.

MATERIALS

- Sample script for teacher demonstration
- United States profile for comparison and contrast
- One country profile for each student printable
- Internet for research

TIME CONSIDERATIONS

Introductory activity: 15 minutes
Research/Printable: 90 minutes (involves internet research)
Presentation: 15 minutes

DIRECTIONS

1. Introduce the activity to the class by explaining that each group will be preparing a short presentation to the class on his/her assigned country.

2. Distribute the assigned country profile to each group.

(cont.)

3. Present the sample profile of the United States to the class.

4. Give students the remainder of the class period to familiarize themselves with the information about their assigned countries. Briefly discuss the US profile as a class so that the students can compare and contrast their countries' data and have an example for reference. If the students are unfamiliar with some of the statistics, explain the meaning of them at this time.

5. Energy statistics can be found using the following websites:
https://www.eia.gov/
https://www.britannica.com
https://data.worldbank.org/

6. Go over the following terms of measurements with the class:

1 Btu (British thermal unit) is a measure of the heat content of fuels or energy sources. It is the quantity of heat required to raise the temperature of one pound of liquid water by 1 degree Fahrenheit at the temperature that water has its greatest density (approximately 39 degrees Fahrenheit).

1 Q (quad – 1 quadrillion (1015)Btu). Quads are used to measure very large quantities of energy.

1MMT (million metric ton) is a measurement of the amount of carbon dioxide released by fuel use.

7. Tell students they will create a presentation that displays the country and the location. Presentations can be multimedia, including posters, PowerPoints, or animations. Student should divide up responsibilities. For example, one member might create the presentation, one might do the research, one might write the script, and one might deliver the presentation. Give students the rest of the class period to plan presentations.

8. Give each group 10 – 15 minutes to share their presentations.

9. Instruct the class to take notes from the other group presentations which will be used in a separate activity.