

Get a Clue!

Objective

Students will identify and use vocabulary words related to the topic of energy sources in a game situation.

Curriculum Focus:

Science
Social Studies
Language Arts

Materials

- Index cards for energy source word clues
- Markers

Key Vocabulary:

biomass, coal, energy, fossil fuels, garbage, geothermal, hydroelectric, methane, natural gas, nonrenewable energy, nuclear energy, ocean tides, ocean waves, oil, oil shale, petroleum, plants, renewable energy, solar (sun), steam, uranium, water, wind, wood

Next Generation Science Correlations

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Introduction

Energy is essential in our daily lives. We depend on energy for our heat, air-conditioning, lights, clothing, food, transportation and communication. Where does this seemingly endless supply of energy come from?

There are many sources from which we get our energy. Some are endless or renewable, such as energy we get from the sun, wind and water. Other sources are limited or nonrenewable, such as fossil fuels like coal, oil and natural gas. Some sources are only available in certain areas, such as geothermal features or uranium. Some sources are readily available but difficult to harness, such as ocean tides; others are expensive to extract or might present environmental concerns.

Scientists are constantly searching for sources of energy and more efficient ways to use them. Many sources of energy have been used for hundreds, even thousands of years. Sources such as coal and natural gas can be burned to produce energy. Wind can be harnessed as well as the sun's power (solar energy). In the late 1800s it was discovered that these sources could be used to generate electricity and distribute it as needed. In the middle 1900s fuel cells and photovoltaic cells were discovered. These are just a few of the sources and their uses we take advantage of each day.



Procedure

1. The success of this activity depends upon adequate student preparation. Class time should be spent learning to spell and define the following energy source words:

geothermal	coal	nuclear energy	natural gas
oil	solar	wind	wood
fossil fuels	gasoline	ocean waves	biomass
oil shale	methane	uranium	battery
steam	hydroelectric	petroleum	garbage
ocean tides	plants		

To learn more, visit thinkenergy.org/NIPSCO.

2. Divide the class into two groups of approximately equal ability. Choose one student from each team to give clues and have them sit at the front of the room. Each clue giver will be giving clues to their team.
3. You may want to use the list of suggested words included or add your own choices.
4. How the game is played:
 - a. Each of the clue givers is shown an energy source word.
 - b. The clue givers then give clues alternately to their teams as to the identity of the energy source word. Some teachers allow only one word clue to be given, or you may prefer to allow more clues within a certain time period, such as 15 seconds. (Have one student be the timekeeper.)
 - c. After giving a clue, the clue giver chooses someone on their team to guess what the energy source word is. If that team member guesses the correct word, their team scores (see step f) and a new round begins using a new energy source word. Alternately, team members guess the word by order of seating rather than being chosen by the clue giver to guess the word.
 - d. If the team member guesses incorrectly, the turn goes to the other team's clue giver who gives a new clue for the same energy source word to a member from their team.
 - e. After the word has been guessed correctly by one team or the other, the new word goes first to the clue giver who did not start the previous round.
 - f. Scoring is as follows:
 - 10 points for the team guessing the word correctly on the first clue.
 - 9 points if the correct word is guessed on the second clue.
 - 8 points if the team guesses the energy source word after hearing the third clue, etc.
 - g. New clue givers should be chosen from each team after every three or four rounds have been played.



Discussion

Have students categorize the energy source words as either renewable or nonrenewable. A sample chart is provided below. Use the words and definitions learned to create an energy crossword puzzle. Puzzle creation software is readily available on the internet.

Renewable	Nonrenewable
geothermal	oil, petroleum
ocean tides, waves	nuclear energy, uranium
hydroelectric	coal
biomass, plants, wood	natural gas
solar	methane
garbage	gasoline
wind	battery



To Know and Do More

Write the energy source words on index cards. (Duplicate the cards, if necessary, to have one for each student.) Tape one card on the back of each student; they should not know what their own card says. Allow students to ask each other yes or no questions to try to identify their energy source. Once they have identified their own energy source, they still continue answering others' questions. As students identify their energy sources, they may remove the card from their backs and place it on their chests.

Have students research the energy sources used to generate electricity in your area. Sources of information include your local utility provider and government agencies such as the United States Energy Information Administration (eia.gov). Discuss the reasons behind the energy sources used in your area, such as costs of transporting fuels, availability of sunlight or wind, etc.



Career Awareness Activity

Using the following careers or others you might think of, have students match them with the correct source of energy. Some careers will match with more than one energy source.

Meteorologist (wind)	Tank truck driver (gasoline, oil)
Reactor operator (nuclear)	Welder (all sources)
Hydrologist (geothermal)	Pipefitter (all sources)
Electrician (all sources)	Plumber (all sources)
Geologist (geothermal, hydroelectric, coal, oil, natural gas)	Accountant (all sources)
Physicist (nuclear)	President and CEO (all sources)

Choose some energy related careers and use them as tiebreakers or bonus rounds in your energy source word game.