



PASS THE SACK

ENERGY CONSUMPTION AND CONSERVATION

NEF

Time Frame:	Standards:
30-45 minutes	8-9.ES.5.1.1 Analyze environmental issues such as water and air quality, hazardous waste, and depletion of natural resources. (656.01a) 8-9.ES.5.3.1 Describe the difference between renewable and nonrenewable resources. (656.03a)
Objectives:	
The student will be able to describe the difference between renewable and nonrenewable resources and explain how resources can be obtained.	
Background Information:	
<p>All statistical research available agrees that world consumption of natural resources is increasing every year. Population growth ensures that the demand for renewable and nonrenewable energy sources necessary to maintain our living habits will continue to increase. This creates a problem with the use of nonrenewable resources. Nonrenewable resources are just that – resources that cannot be renewed. If we continue to use energy at our present rate, the demand will actually increase. For example, a resource used at our present rate might last about 100 years. Factor in population growth and new technologies, and that resource may only last 79 years.</p> <p>Conservation, though not providing more of these resources, can help stretch out the years of availability and give scientists a greater chance of finding alternatives for the nonrenewable resources.</p>	
Materials:	
Two different types of small individually wrapped candy – enough pieces for one and half times the class size (for example, Tootsie Rolls for nonrenewables and Starbursts for renewables) Clear plastic bag or paper sack	
Procedure:	
<ol style="list-style-type: none">1. Count out enough candy so that there is one piece per student (some of each type of candy, with less of one so it will run out faster). Put it in the sack or bag. Save the remaining candy. If you have a very polite class, count enough candy for half of the class. You want the bag to run out before everyone gets some.2. Before Passing out the candy, review renewable and nonrenewable resources and give	

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examples of each.

- Renewable resources: wood, water, wind, sun
- Nonrenewable resources: coal, oil, natural gas, uranium

While this discussion is taking place, pass around the bag of candy without any rules about how many pieces students may take. Occasionally, add four or five pieces of one of the types of candy you are using. (This will be your renewable resource.) The sack will be empty before it reaches all the students.

3. Ask students who did not get any candy, if they were a country, how they might obtain energy from other students. Barter? Buy? Trade? Invade and take? Go to war? What effect did the availability of candy have on relationships between students? What effect might the availability of fossil fuels have on the relationship among nations, provinces, states, people, standards of living, and quality of life?
4. Explain how our resources are like the candy. Which type was the nonrenewable resource? How could you tell? (No more was added to the bag once it was being passed around) Which type was renewable? How could you tell? (It was added periodically.)
5. Point out that fossil fuels have limits just like the candy. Emphasize that fossil fuels are nonrenewable and are being consumed faster than they are being replaced by nature. Discuss the fact that it would be more difficult for students to eat the candy if they had to seek resource deposits and obtain rights to drill or mine for them. They don't just magically appear. Point out that natural gas, coal, and oil companies must look harder for more resources as supplies dwindle.

With the class, now plan to pass out the candy you set aside. Should rules be established? Do oil, coal, and natural gas companies have rules (regulations) that they must follow to find resources? Should there be rules and regulations on how much oil, coal, and natural gas people use? How would they obtain resources then? How do the class's social decisions influence the availability of candy?

Assessment:

Did the students show an increased understanding of the difference between renewable and nonrenewable resources?

Ask students to write a short essay describing their personal views on if and how fossil fuels should be regulated.

Ask students to collect current news articles about energy and write a short summary of each article.



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References:

Lesson taken from National Energy Foundation's Energy Action Technology booklet.

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