

The Geologist's Dilemma

OBJECTIVE:

Students will explain the relationship between supply and demand and its impact on energy resources.

CONCEPTS:

- There are renewable and non-renewable energy sources.
- These energy sources have costs and benefits associated with them.
- Demand for energy sources is shaped by supply and cost.

SKILL REINFORCEMENT:

Critical thinking
Math-number manipulation
Cooperative learning
Evaluation of multiple factors

GRADE LEVEL:

4-12

TIME NEEDED:

One or two class periods

MATERIALS:

- chalkboard or graph paper for recording
- glass jar
- five different colors of beads or types of beans
- rice in same quantity as beads

About 31 percent of the beads should be black (or black beans), 27 percent white (or navy beans), 19 percent blue (or kidney beans), 13 percent green (or rice) and 10 percent red (or lentils).[1] Since the beads represent our energy sources, which are unknown to all, do not attempt to count all the beads or beans. NOTE: Any resources not found the first time are waiting to be recovered the next time the game is played.

[1] Percentages from EIA Total U.S. Energy Production figures, 1996.

PROCEDURE:

1. Throw the beads high into the air, letting them scatter over the room. Divide the class into five exploration companies. Each of the companies will search for one of our energy resources represented by one color bead.

Company #1:	black bead/black bean = coal
Company #2	blue bead/kidney bean = oil
Company #3	white bead/navy bean = natural gas
Company #4	red bead/lentil = nuclear
Company #5	green bead/rice = solar/other

NOTE: Do not interfere or comment if any company starts to collect all colors.

2. Allow the exploration companies to search for one minute. Each company counts its resources. Keep the resources in separate piles. Record the totals for each group for each round on the chalkboard or on graph paper. (See graph.)

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(Continued)

		<u>TRIAL</u>		
		1	2	3
SOURCE	Coal			
	Oil			
	Natural Gas			
	Nuclear			
	Solar/Other			

3. Start a second search for one minute. Each company must search for resources still missing. Record totals.
4. Do the same for a third one-minute round.
5. Discuss the following questions:
 - a. Which energy sources were easier to collect? Why? Which were the most difficult? Why?
 - b. What makes them easy or difficult to find? Is it the availability of the beads or the skill of the searchers?
 - c. Looking at the piles of energy from each of the different rounds, which is greater? Why? Which round is the smallest? Why?
 - d. Did anyone collect more than one energy resource? Is it realistic to collect more than one?
 - e. As energy resources become more scarce and demand continues to increase, what should happen to the price or cost of energy resources?

ACTIVITY DEVELOPED BY

Mary Rose Cameron, Alabama Teacher