

coal: more than meets the eye

Title: Coal: More Than Meets the Eye!

Time: 1 class period

KERA Goals: 2.4

Objective:

Energy resources are unevenly distributed. Students will participate in a hands-on simulation to help them understand that coal resources are deposited unevenly between the earth's surface and under the ground.

Materials:

Chocolate chip cookie for each student
Napkin for each student
Paper clip for each student
Reference book containing map of U.S. coal deposits.

Activity:

1. Give each child a cookie and a napkin. Tell them not to eat it yet!
2. Tell the students that the cookie represents their country or state. The tan area of the cookie represents the earth's crust and the chocolate chips represent the coal deposits.
3. Instruct students to determine (count) how many visible chunks of coal are in their country. Students should count only the coal deposits visible from the top.
4. Record class data on the chalkboard.
5. Now have each student predict how many coal deposits they think they have in their country or state.
6. Provide each student with a paper clip and instruct them to begin "mining" their coal deposits. Have them place their coal deposits in one pile and the earth's crust in another.
7. Next, have students count the coal deposits. Record the class data on the chalkboard.
8. Compare and contrast the number of coal deposits visibly observed and actually in existence. How does the actual number of coal deposits compare to their predictions?
9. Discuss the following points with the class:
 - A. Our data tell us that there were more "coal deposits" than could be seen on the surface.

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- B. "Mining" the deeper coal took more time and was more trouble mining coal near the surface. (It takes energy to get energy.)
- C. "Mining" the coal has environmental impacts.
- D. The coal deposits were unevenly distributed. Some students had more coal deposits than others.

10. Show the student's a U.S. map of coal deposits which illustrates that some states have more coal deposits than others. Your school librarian should be able to assist you in locating a reference book with a map.

Evaluation Idea:

1. What can you say about the distribution of energy sources?
2. True or false, it takes energy to obtain energy?
3. Can we use energy sources without affecting the environment?

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