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Renewable Resources

Activity Instructions

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Renewable vs. Nonrenewable Resources Activity

Adapted from Project Learning Tree activity

Objectives: 2.01 Evaluate data related to population growth, along with problems and solutions: resource availability.

2.02 Conclude that some ecosystem resources are finite.

Pre-activity: Show “Resources” powerpoint, have students come up with definitions of vocabulary words based on pictures; discuss where in the world the most energy is used and compare energy consumption to population; discuss different types of renewable resources, their advantages and disadvantages, and ways of conserving energy.

Time required: One 45-minute class period

Materials needed: One large bag of popcorn per class
One paper towel per student
One sheet of paper and pencil per team of 4
Broom for cleaning up at the end!

Procedure: Renewable Resources

1. Students are split into teams of four. Each team begins with 16 pieces of popcorn. Each student must take at least one piece of popcorn per round in order to survive, and may take as much as he/she likes. One student per team records the number of pieces each team member takes per round, and the number of pieces remaining for the team. The resource is then “renewed” by half (e.g. if each student takes 2 pieces of popcorn from the initial pile, then there are 8 remaining pieces, so the teacher will add 4 more pieces at the end of round 1, leaving 12 pieces to start the second round).
2. Six rounds are played in this manner. The object of the game is to have the most pieces of popcorn per team member after the final round.
3. At the end of the game, discuss different strategies used by teams (some will probably die because they’ll consume all the resource early on; others will take one piece each time and build up a store by the end; others will take more throughout, but always keep enough in reserve to be sufficiently renewed).

Non-renewable Resources

1. Students each pick a slip of paper from a bag (there are 4 “1st generation”, 6 “2nd generation”, 9 “3rd generation”, and 14 “4th generation” slips)



2. Teacher goes to the front of the classroom with a bag of popcorn, and leads a brief discussion of what it means when one generation finds a resource and how future generations are affected by it.
3. “1st generation” students then come up and take as much popcorn as they want back to their seats. “2nd generation” students then do the same, followed by 3rd and 4th generations.
4. Teacher and students should then discuss how the students acted at the resource, any waste that occurred (popcorn dropped on the floor), whether any thought was given to students coming afterwards, if there were protests from other students, the degraded quality of popcorn towards the end (everyone’s hands were in it before, and it’s been crushed into smaller, less desirable pieces, etc.)

Follow-up questions:

1. Categorize the following as renewable, non-renewable, or perpetual resources:
 - a. a field of corn
 - b. oil in the Arctic tundra
 - c. coal in the Appalachian mountains
 - d. sunshine
 - e. tides in the Bay of Fundy
 - f. trees in a forest
 - g. tuna in the ocean
 - h. gold mines in western U.S.
 - i. hot springs in Alaska
 - j. sand on a beach
 - k. a breeze over the Texas plains
 - l. salmon in a stream
 - m. water in a river
2.
 - a. List as many renewable resources as you can that are found in your classroom.
 - b. List as many non-renewable resources as you can that are found in the classroom.
3. What are some advantages and some disadvantages of using renewable resources in place of non-renewable resources?
4. Under what circumstances would a renewable natural resource NOT be renewable?
5. Which resources would continue to be available no matter how much people used them?
6. What could be some effects of population growth, natural disasters, improved educational systems, disease, and advanced technology systems on resource availability?

