Overview:

This lesson is not meant to foster anxiety or a doomsday foreboding in students. Rather, it is an introduction to how growing populations can affect the environment and the positive steps individuals and communities can take to lessen the strain on natural resources.

With the Earth’s population likely to exceed six billion persons and projections to double to 11 billion by the year 2050, the strain being placed on natural resources is greater than ever before. The sun, water, air, and soil are the most vital natural resources since all other resources depend on these four for their existence.

The more people in a given area, the more quickly natural resources can be used up. The solution, aside from population control, is conservation and careful use of available natural resources. Conservation practices include reducing the amount of natural resources consumed. Recycling, reusing, and rethinking (substituting plentiful materials for more scarce ones, and finishing alternate energy sources that are renewable) are all ways to reduce the consumption of natural resources. Additionally, consumers can refuse to buy products that are not recyclable or biodegradable, or that are considered over-packaged.

This lesson is very effective as a introductory or culminating activity for the study of any natural resource, including water, air, trees, wildlife, and soil. In order to provide examples for this lesson, it is helpful to have researched the specific natural resource, how it can or is being depleted, and how it can be conserved.

Using water as an example, people need and use water daily in many ways, and often in unrealized amounts. Water is used directly for drinking (1/2 gallon/day), cooking (5-10 gallons/day), bathing (20-35 gallons/day), toilet flushing (21-40 gallons/day), etc. We also use water in many indirect ways such as in the production of manufactured items and food, preparation of food, cooling and heating, etc.

There is an abundance of water on this earth. Unfortunately, nearly all of that water, more than 97 percent, is salt water and is neither easily nor economically available for our consumption. Of the fresh water supply (about three percent of the total amount of water on the Earth) most is held as inconsumable in glaciers and icecaps. Less than one percent of the water on the Earth is fresh water and is in the form of ground water, lakes, and streams. A dilemma is created when a limited resource, such as fresh water, has many demands for its use.
Grade Range:  K-12

Connection to Curriculum:  Science, Social Studies, Environmental Education.

Time:  40 minutes to 1 hour

When students have an idea about how they can give back to the environment, have them squeeze the water out of a wet sponge back into the container sharing their idea with the class.  The water level will go up.  It won’t go back o the original mark however.

Ask:  Why doesn’t the water level return to the original mark even after all the sponges are squeezed out?  (Even by recycling resources, some of them will be used up.)

Why is it important to you to reduce, reuse, recycle, and/or make careful demands on water (or other natural resources)?

Can water in this activity represent other resources people use?  What are some resources that cannot be recycled?  Name some.  How can they be conserved?

What one thing have you learned from this demonstration?  (Answers will vary, but should reflect an appreciation for the finiteness of many natural resources, the renew ability of some, and the desirability of using natural resources wisely.)

Suggested Student Assessment

1.  Have students draw a four-picture sequence of the steps in the water/sponge activity.  When evaluating their work, look for an understanding of what is happening with the water level in the container.
2.  Have students draw two pictures.  In the first picture, showing themselves making a demand on a natural resource.  In the second picture, showing how the demand(s) can be made more carefully (reducing, recycling, reusing, etc.)
3.  Have students write a statement or paragraph about one or more ways they personally can reduce, reuse, and recycle any natural resources.

Extending The Lesson

1.  Use different colored sponges, with each color representing a different natural resource (blue=water, green =plants, yellow=minerals, etc.) Have students identify ways they use water, plants, minerals, etc. each time they drop a piece of colored sponge.
2.  Have students draw, “Waste/No Waste” pictures showing people “wasting” and “not-wasting.” Have students fold pieces of white paper in half, students can draw a picture of how they can save that resource
3. Start a class recycling project. Recycle paper from the classroom, items from the cafeteria, home, etc. Challenge another class to match or beat your efforts.

4. Have students role play a demand they make on a natural resource. Let the student who correctly guesses what is being acted out drop the next sponge in the water and act out another demand on natural resources.

5. Other students can take a different slant on the activity by examining how resources are unequally distributed and consumed around the world. Students use selected thematic maps from an atlas, such as petroleum production and consumption, making observations and analyzing relationships regarding the differences among the patterns shown on the maps.

Resources

*Global Science*, John Christenson, Kendall Hunt
Project Learning Tree, 1250 Connecticut Avenue, N.W., Suite 320, Washington DC 20036, (202) 463-2472
Project WILD, 5430 Grosvenor Lane, Bethesda, MD 20814, (301) 493-5447
Mineral Information Institute, 475 17th Street, Suite 510, Denver, CO 80202, (303) 297-3226, posters “If It Can’t Be Grown, It Has To Be Mined” and “From The Earth…A Better Life,” single copies.

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