

UNIT: Waste Not, Want Not!!

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GRADE LEVEL/SUBJECT: 6th Grade

INTRODUCTION

It is almost impossible to pick up a newspaper or magazine or turn on the television or radio without hearing a report on the sad state of our environment. If we better understand our environment and how our behavior affects it, we can work to make our planet a safer and more enjoyable place in which to live.

Trees , considered one of our greatest natural resources, are a friend to humankind. Trees cool our cities, buffer noise and provide us with many things that we could not do without. Trees face many problems today, including poouction, uncontrolled fires and disease. The greatest threat to trees, however, comes from people . This unit is intended to integrate many of the SOL"s used in sixth grade. Students will be given a variety of activities to work on as well. Activities are action oriented and can be used with special needs students.

OBJECTIVES

Student will be able to define resources. 

Students will be able to define renewable resources, nonrenewable resource and perpetual resource.

Students will learn that renewable resources can be replaced.

Students will learn that trees are a renewable source.

Students will examine various products and determine which ones are made from trees.

Students will become familiar with various issues involving saving one of our most reliable resources--trees.

LESSON PLAN # 1

INSTRUCTIONAL ACTIVITY: The class time alternates between direct instruction conducted by the teacher and project time using self/selected cooperative groups. The following story will be our class case study. Students are to sit, relax and listen to the story, which will be read to them by the teacher.

CAN YOU IMAGINE?

Sit back , relax, close your eyes and come with me on an imaginary journey to a strange and different world. Imagine walking down your street on a warm summer day. Everything looks pretty and fresh. Overhead, leafy trees are giving you plenty of nice cool shade. You hear birds chirping happily high in the branches. The air smells fresh and clean. Off in the distance, you see gently rolling green hills. A sparkling stream runs near you. You think you might want to go fishing later. People are setting up picnic tables. The neighborhood is quiet and peaceful today. You can hardly hear a noise anywhere. But wait! Something strange is happening! You turn a corner, and its a whole different scene.! It's a hot day, and you can't find a spot of shade anywhere. Birds and squirrels are sitting on the ground, nervously looking around for enemies. They can't find safe places to perch. The ground looks sun-baked and dry. The neighborhood doesn't look very pretty because everything is bare. Dust and soil fly through the air and make it hard to breathe. The wind blows all the time. There isn't anything to hold it back. You look at the hillside off in the distance. They are brown and bare, and covered with gullies. Then it rains, water rushes down these hillsides off in the distance. They are brown and bare, and covered with gullies.

Water rushes down these hillside, carrying lots of soil with it. The soil ends up everywhere. Much of it collects in streams and lakes. You wonder if that's what's been killing the fish and making the little stream in your neighborhood flood its banks. People in the park are putting beach umbrellas up over their tables to shade their picnic. You hear humming noises everywhere. Air conditioners are working overtime as people try to keep cool. What has made such a difference in your world? You have the feeling something important is missing---something that use to take care of some of these problems. But what is it? What do you think?

A steward is someone who manages. How would you manage or wisely use resources like trees so they can be enjoyed by you and your grandchildren?

CASE: What are we doing to our trees? Is it possible to assume that we are destroying one of our most valuable resources -- TREES?

Anticipation: Students will sit back , relax and follow along as I read CAN YOU IMAGINE? to them. Each student will have a copy of the story.

Realization: Students will break into small cooperative learning groups to discuss the story and the issues that we are faced with in reference to one of our most valuable resources.

Consolidation : Each student will write a paper on the issue mentioned in the story. Virginia forestry information will be available, books on ecological issues and a video from the Virginia Department of Forestry.

Integration: Language arts and science concepts will be integrated into this issue.

[grade_6_science_sol's.htm#science 11,](#)

LESSON PLAN # 2 What is a renewable resource?

VOCABULARY: Renewable resource, nonrenewable resource, perpetual resource.



INSTRUCTIONAL ACTIVITY: The class time alternates between direct instruction conducted by the teacher and project time using self/selected cooperative groups. Write the term "renewable resource," nonrenewable resources", and

"perpetual resources" on the chalkboard. Ask students to write a definition or give a few examples for each. Tell them not to worry if they're not sure what the terms mean. By the end of the activity they will have a better understanding.

STUDENT ACTIVITY: The class will be divided into teams of four. Explain that teams will be working together to come up with a one or two sentence definition for each of the three terms. Each team will be given a worksheet. They are to cut out the clues and give one to each team member. Each student should read their clue card and share the information with the rest of their team. Then, each team should use these bits of information to synthesize a definition for "renewable," "nonrenewable," and "perpetual" resources. Everyone on the team should understand each of the clues and agree with their team's definitions. Teams should then discuss the questions on the worksheet, with one member designated to record their responses and report them. Review each question with the entire group, with each team reporting its answers. (See Activity sheet # 1)

LESSON PLAN # 3 Can we distinguish between renewable, nonrenewable and perpetual resources?

Instructional Activity: The class alternates between direct instruction conducted by the teacher and project time using self/selected cooperative groups.

Student Activity: Students will work individually on a worksheet categorizing various items as renewable, nonrenewable or perpetual resources. (See worksheet # 2)

[grade_6_science_sol's.htm#science](#) , [english_6_sol's.htm#language arts 3](#)

LESSON PLAN # 4 Are trees important to us?



Instructional Activity: The class time alternates between direct instruction conducted by the teacher and project time using self/selected cooperative

groups. Teacher and student will brainstorm together utilizing the concept development model to list as many reasons as possible as to why trees are important to us. Various books will be available for students to use and read to find out more information as to why trees are important.

Student Activity: Various products will be placed throughout the classroom. The items will be numbered. Students will be in groups of four. Students are to work cooperatively to determine which of the objects placed around the room are made from trees. All team members must agree with the team's decision about each product and must be able to explain why each product is on the teams list. Have students in each team number themselves from one to four. Tell all of the 1's that it is their responsibility to record the information that everyone on their team agrees on and they all have to report their group's findings to the rest of the class.. Tell all of the 2's that they must make sure that everyone in the group has an opportunity to speak as the team tries to reach a team decision. The 3's must make sure that everyone stays on the right track and gets everything accomplished in the time allowed. The 4's are the only team members that may leave the group and ask questions. The team must move around the room and examine the products. After they have decided if an item comes from a tree, they must move on to the next item. Once teams have established their lists, they will be given an article to read. (See student activity sheet # 3) After reading the article, students should explain the contents to their team members. The teams should then reevaluate list of products that they came up with. Are there items that they would like to add or delete? The teams will share their list with the rest of the class. Teacher and students will discuss the diversity of products that come from a tree. Check the students understanding of the articles by asking them to explain why they included certain products. If they didn't realize it during the activity, they should realize by the end of the discussion that all of the products came from trees in some way.



[grade_6_science_sol's.htm#science_11](#)

LESSON PLAN # 5 What is a forester and what is his job?

Instructional Activity: Students will be introduced to the local forester. The forester will work the students to find how out much knowledge they have in reference to his job and what he does each day in or around the forest. The forester will elaborate on the "importance of trees" and the "wise use of the environment" as it pertains to tree conservation.

Student Activity: Students will work in small groups of 4-5 to design posters stressing the importance of one of our most valuable renewable resource-Trees. These posters will be displayed throughout the school by the students.

[grade_6_science_sol's.htm#science_11](#), [english_6_sol's.htm#language arts](#)

LESSON PLAN # 6 How do trees help us?



Instructional Activity: The class time alternates between direct instruction conducted by the teacher and project time using self/selected cooperative groups.

Student Activity: Students will be divided into research groups. Each group will be responsible for gathering information and articles from periodicals relating to trees. Topics for articles should include tree preservation, planting of trees, ways trees are used, products made from trees, and the environment as it pertains to conservation. and environmental impact. Students can also write to state senators and representatives concerning issues and laws that protect our trees and forest. The Reader's Guide to Periodic Literature may be one of the best sources of current information for general readers.

[english_6_sol's.htm#language arts 9](#)

LESSON PLAN # 7 Let's make paper.

Instructional Lab activity: The class time alternates between direct instruction conducted by the teacher and project time using self/selected cooperative groups. Paper is made form cellulose, which is in plant fibers. The cellulose is made by cutting down trees and then grinding up trees and dumping the wood pulp in acid. Recycling uses cellulose over and over again. Recycled paper can be made with less electricity, less pollution and it saves trees from being cut down. Making recycled paper is very messy and lots of fun. A food processor and an iron will be used, so close adult supervision is necessary.

Student lab Activity:

Students will need the following ingredients:

Two newspapers, torn into 2-3 squares

Iron, Food Processor

White glue-2 tablespoons

Two to three cups of water

Sink filled with 4 inches if water

Old panty hose

Coat hanger

Students will follow these guidelines in making recycled paper. Undo the coat hanger and use the wire to make a flat square about 6 by 6 inches big. Stretch one leg of the pantyhose over it. Take your time, it might snag. Put tape on the ends of the wire to prevent as much snagging as possible. Make sure it is tight and flat. Tie knots in the hose. Use the other leg for another piece of paper. You will need one frame for every piece of paper that you make. Put a handful of the paper into the food processor. Close the food processor and turn it on high. Keep adding paper and water until you have a big blob. It may be necessary to add extra water. Let the processor run until all of the paper has disappeared. Let it set for 2 minutes. Put the glue in the sink water and add all of the paper pulp that you just made. Mix it well, using your hands. Mix up the sink water again and then scoop the frame to the bottom of the sink. Lift it real slow. Count to 20 while you are lifting. Let the water drain out for about a minute. Mix up the sink every time you make a new piece. Now hang the frame or put it in the sun to dry. Wait until it is completely dry with no dampness at all. You can then gently peel off the paper. The teacher or a parent helper will iron or assist the student in ironing the paper smooth. The iron must be set on the highest setting to steam out the paper. You can keep making paper until the pulp is all strained out of the sink. See how strong the paper is. Write on it, Trim it with scissors. It is very strong.

LESSON PLAN # 8 Think and share tree activity.

Instructional Activity: The class time alternates between direct instruction conducted by the teacher and project time using self/selected cooperative groups.

Student Activity: What if a tree could talk? Use your imagination and write a tall tale, science fiction story or a mystery about a tree.

[english_6_sol's.htm#language arts 7](#)

LESSON # 9 Student debate

Instructional Activity: The class time alternates between direct instruction conducted by the teacher and project time using self/selected cooperative

groups. Students will participate in a debate using various issues pertaining or relating to trees and their conservation.

Student Activity: Students will use prior knowledge gained from their research to participate in a debate on the preservation of trees and how we are using up one of our most important national resources before they are replaced.

[english_6_sol's.htm#language arts2](#)

STUDENT RESOURCES

ACTIVITY SHEET #1

- 1.. Look around the classroom and list as many items as you can that are made from renewable natural resources. Make a separate list of all the items made from nonrenewable resources?
2. What renewable resources could be used to replace the nonrenewable ones used in the items you listed in question 1? What nonrenewable resources could be used in place of the renewable ones?
3. What advantages and disadvantages might there be for using renewable natural resources in place of nonrenewable ones?
4. Under what circumstances, if any, would a renewable natural not be renewable?
5. Which resources, if any, would continue to be available no matter how much people used them?

ACTIVITY SHEET # 2

Categorize the following as renewable, nonrenewable, or perpetual resource.

a field of corn

oil in the Arctic tundra

coal in the Appalachian Mountains

sunshine everywhere

tides in the Bay of Bundy

trees in a forest

tuna in the ocean

gold mines in the western United States

hot springs in Alaska

sand on a beach

a breeze over the Texas plains

salmon in stream

water in a river

ACTIVITY SHEET # 3

These are the items to be placed around the room .

Newspaper

Toothpicks

Candy bar with almonds

Piece of lumber or plywood

Tissue paper

Sponge (synthetic)

Baseball

Wooden chopsticks or spoon

Book or magazine

Cardboard box

Pack of chewing gum

Bottle cork

Rubber glove

Plastic comb or brush

Piece of cellophane

Wooden chair or piece of furniture

**ASSESSMENT: The following will be suggestions for assessment:
Worksheets, lab activities, tests, quizzes, oral discussion and presentations.**

CONCLUSION: In closing, I feel that this unit will provide students with a wealth of information pertaining to one of our greatest renewable resources, TREES. I hope that it will also enable students to become more aware our of environment and the impact that we can have on it. Enjoy the unit.