



WHAT'S THE USE?

TIME: 1 Hour

OBJECTIVE: To introduce the concept of trees as a renewable and reusable resource.

MATERIALS: Items made from tree products

BACKGROUND:

Trees are a renewable and a reusable resource, meaning that we can replant trees and recycle tree products. This is fortunate for all of us who enjoy wood products and forested areas.

From trees, we get shade, energy for heat, chemicals for cosmetics, fibers for textile manufacturing, and wood for home building. Wood floors add beauty to a home, and warmth is added by a crackling wood fire in the fireplace or stove. Art is created from trees by wood-carvers. Red maples add brilliance to fall and the flowering dogwood reminds us of rebirth in the spring. Tree products such as bark, mulch, pinestraw and timbers help us create decorative landscapes.

Recycling paper that is made from raw materials provided by trees is an example of how trees become a reusable resource. Thirty percent of everything we throw away is paper, and fifteen percent of this is newspaper. Each ton of recycled newspaper saves seventeen trees. One issue of the Sunday *New York Times* uses 65,000 trees.

Recycling paper has other benefits, as well. Forty percent less energy is required to make paper from recycled products rather than from raw materials. Paper that is recycled does not take landfill space that is becoming increasingly scarce and, in turn, saves forested areas that could become a future landfill.

At the present, however, only about thirty percent of paper produced is being recycled.

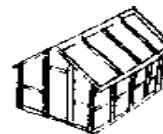
BEFORE THE ACTIVITY:

THE USE:

varnishes	boxes
soaps	farm tools
dyes	flooring
drugs	furniture
crayons	plastic
sugar and syrup	cellophane
charcoal	photo film
pine oil	glue
chewing gum	rubber
perfume	cider
flavorings	many others

Framing lumber

Southern Yellow Pine
Douglas Fir, Spruce, Fir



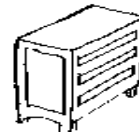
Bowling Pin

Maple, Beech



Furniture

Oak, Poplar, Ash, White Pine



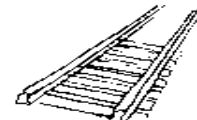
Barrels

White Oak



Railroad Ties

Low quality hardwoods:
Oak, Hickory, Gum



Baseball Bats

Ash



Musical Instruments

Spruce-Veneers
Ash-Necks
Tropical Hardwoods



Books/Paper products

Hardwoods/ Maples,
Gums, Oak, Poplar,
Southern yellow pine,
Spruce



Tool Handles-

Ash, Hickory, some
mixed hardwoods



BRANCHING OUT The NC Forest Stewardship Activity Guide

Select products made from tree materials. Products could be charcoal, tar, paper, pencils, pieces of furniture, toys, cardboard, artwork, fuel, home-decorating items, or boats. Include items that can be recycled and items that are made of recycled materials.

LEAD-IN:

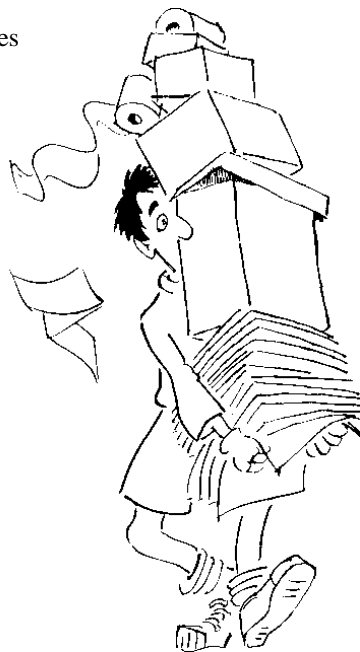
Trees provide many benefits for people and wildlife. People use both the tree and tree by-product. Wildlife receive shelter and food from trees, both while the tree is alive and dead.

Even though trees are a renewable resource, we must be conservation-minded. New tree growth takes resources and time. One of the best ways to be good forest stewards and to be conservation-minded is to recycle. Recycling makes trees not only renewable resources but reusable resources.

Recycling paper may be the most effective long-term conservation of forest resources. It can also improve our home environment in many different ways including using newspaper mulch in the garden. Recycling can extend the life of our landfills so that existing forest and farmlands can be maintained instead of being converted into new landfills.

ACTIVITY:

1. Choose a panel of three to five students.
2. Have each panelist select a tree product item. Instruct panelists to conceal the items from the rest of the class.
3. Allow panelists to study their products.
4. Have each panelist give a three-word description of individual items.
5. Give the class 2-3 minutes to question each panelist, and then allow several minutes for the students to guess the item and the tree producing it, if possible.
6. Panelists should be allowed only yes and no answers.



BRANCHING OUT:

1. A group of people who made their living in the North Carolina forests in the 1700s were called “piney woods people”; they made tar for ships. Students could research these people.
2. Learn about paper recycling in your area. If possible, tour a recycling plant.
 - a. How many tons of paper are recycled in your county each month?
 - b. How many pounds per county resident is this?
 - c. Weigh the paper your class uses each day or week.
 - d. How much is this per student?
 - e. How much paper would you calculate your school uses each year?
 - f. How much paper does your family use each day or week?
3. Explore the carbon cycle. On a global scale, how do trees play an important role in collecting and transforming carbon?
4. Use “Amazing Tree Facts” handout (page 3-4) to calculate how many acres of trees are necessary to provide the fossil fuel needs for the class as a whole or for individual students.
5. Begin recycling in the classroom. Something as simple as using both sides of a sheet of paper is a beginning.
6. Explore the papermaking process or the chemical refining process for making rayon from wood.

A Week's Worth of Paper

How much paper and/or forest products do you use? How about family? per day? per week? per month? per year?



AMAZING TREE FACTS

A mature tree removes 48 pounds of carbon dioxide (CO₂) per year from the air (roughly 10 tons per acre).

The amount of carbon stored annually by an acre of trees is approximately equal to the amount released by burning 1,000 gallons of gasoline.

A tree that provides shade and wind protection to buildings can indirectly cause, via energy conservation, reductions in carbon dioxide emissions equal to 15 times the amount of carbon dioxide the tree will absorb.

(from Journal of Arboriculture V. 16(6) 1990 p. 144)

One acre of trees annually consumes the amount of carbon dioxide equivalent to that produced by driving an average car for 26,000 miles. That same acre of trees also produces enough oxygen for 18 people to breathe for a year.

A deciduous tree, like the American beech, that is 80-100 years old has about 1,600 square yards of leaf surface area to which dust particles can adhere.

A healthy tree stores about 13 lbs. of carbon each year, and a healthy acre of trees can store 2.6 tons of carbon a year.

It takes the wood from a 100-foot tree to keep the average American supplied for a year with newspaper, books, magazines, tissues, paper towels, housing materials, furniture, desks, fences, boxes and other assorted wood products. On the average that use amounts to

- 613 lbs. of paper products
- 200 square feet of 1" thick lumber
- 87 square feet of plywood
- 59 square feet of insulation board, particle board and hardboard

Vital statistics for that 100-foot tree:

- 18" in diameter at the base
- 100 feet tall with a 60-70 foot crown spread
- weighs about 4,100 lbs. at harvest
- grew 200,000 leaves @120 lbs. per year or 3,600 lbs. over its lifetime
- 1,300 lbs. of roots (an additional 2,000 lbs. were grown and discarded)
- 100 lbs. of nutrients retained in the wood (twice that amount were returned to the soil)
- took up over 5,000,000 gallons of water from the soil and transpired it into the air; 350 gallons of water (2,900 lbs.) were retained
- 6,000 lbs. of oxygen given off

TREE QUIZ

1. Ships were first made with wooden planks about 3000 B.C. by (a) Phoenicians; (b) Greeks; (c) Egyptians?
2. Elm logs were used by the Romans as piles (which were found to be still intact during a refurbishing project in the 1960s) in the construction of the original London Bridge. The Venetians also built their city on elm logs because (a) elm trees were plentiful; (b) elm wood does not rot in water; (c) the logs were lighter to transport.
3. The process of making paper from wood was invented in 105 A.D. in what country?
4. "Softwood" and "hardwood" refer to the degree of hardness of the wood; true or false?
5. Which man-made fabric is produced from wood pulp: (a) nylon, (b) acetate, (c) rayon, or (d) orlon?
6. Can you name the lightest wood?
7. Cork grows on trees; true or false?
8. Bamboo is a tree; true or false?
9. Which wood was used in Stradivarius violins? (a) spruce; (b) birch; (c) pine.
10. What is the origin of the saying "touch wood" or "knock on wood"?
11. What country is the leading producer of lumber in the world: (a) Russia, (b) United States, (c) Canada?
12. Every year nearly 40,000 square miles of forest are cut down worldwide. How much of that is replanted with new trees? (a) One-third; (b) one-half; (c) three-quarters.

1. (answer: c) Egyptians) 2. (answer: b) elm wood does not rot in water) 3. (answer: In China by Ts'ai Lun, the Emperor Ho-ti's minister of public works, out of the inner bark of the mulberry tree.) 4. (answer: false. The terms refer to the type of tree. Softwood comes from cone-bearing trees such as pine and spruce. Hardwood comes from deciduous trees, which lose their leaves in the fall.) 5. (answer: c) rayon) 6. (answer: balsam) 7. (answer: true. The bark of the cork oak is stripped about every 8 to 10 years to harvest cork. As early as 400 B.C., Romans wore cork sandals and used cork to float fishing nets.) 8. (answer: false. Bamboo is a grass.) 9. (answer: a) spruce, because of its great sound quality.) 10. (answer: In ancient times, certain trees were worshipped. For example, in Greek mythology the oak was sacred to Zeus, while in Scandinavian lore the ash was sacred to the Norse god Thor. It was believed that the way to avoid punishment from the gods for boasting or to gain good fortune was to touch one of the sacred trees. In time, this evolved to the belief that any piece of wood would do the trick.) 11. (answer: b) United States; Russia is second and Canada is third. However, Russia is home to the world's largest softwood supply.) 12. (answer: c) One-third of the world's forest are replaced by planting trees. The remainder is left to regenerate naturally.)

Courtesy of the New York Times.