

Create a Tree

Content Area

Science: Plant Parts

Objective

The student will be able to:

- Identify parts of a tree

Materials

- Toilet paper rolls with 3 holes punched equidistance approximately 1 inch from the bottom of the roll (1 per child)
- Tie twist or brown pipe cleaners pieces 2 inches long (3 per child)
- 4 x 4 pieces of green tissue paper
- Brown paper bags or construction paper
- Tape

Background Knowledge

A forest is land covered by trees. Forests can grow by themselves, or they can be planted and managed by people. All forests change over time, whether they are managed or not. A forest may be very young, with tiny trees; very old, with tall and some dead or dying trees; or at any growing stage in between.

Forests are renewable resources. They provide many products people use every day. They also provide benefits simply by growing. Forests can improve water and air quality; provide habitat for animals and other plants; and offer places for recreation and enjoyment of scenery. Even forests that are cut for products continue to provide these benefits, as long as they are replanted or allowed to grow back.

For more information on the many products made from trees, check out the attached "Trees to Products" Fact Sheet from the Department of Forestry.

Procedure

1. Place the materials listed above "Materials" in the middle of the table or desk group. Identify each as a part of a tree.
2. Have the group follow your direction in this order and say aloud:
 - a. "This is the trunk. It is like my body. It holds the tree strong and tall" Someone holds up the toilet paper roll.
 - b. "These are the roots; they are like my feet. They gather water and nutrients from the soil and help hold the tree in place." The pipe cleaners (or bread ties) are then threaded through the tree holes in the bottom of the roll, and twisted to close.
 - c. "This is the bark; it is like my skin." The square of brown construction paper (or brown bag paper) is then wrapped around the tree and fastened with tape. Younger pre-school children may need help.
 - d. "These are the leaves; they gather sunlight and air to make food for the tree." Assist children to either push the green tissue paper into the top (palm tree look) or mold it into a half circle and put it gently into the top (lollypop look).
 - e. Then they review and repeat all the names of the components of the tree which they have just put together.



For more resources to connect children to agriculture visit AgInTheClass.org.

Extension

1. Pre-make a sample toilet paper tree and larger trees from taller rolls from things like paper towel holders and rolls from other assorted products. We can then measure the trees and talk about the different characteristics and appearances of trees with which they are familiar. If there is an opportunity, let the students do bark rubbings on assorted trees with the brown paper squares. We then have a chance to construct and observe different bark patterns.
2. Challenge the group to make things to go with their trees from recycled materials. They usually make towns from recycled milk cartons, boxes, etc. This reinforces recycling and encourages creativity.

Credit

Lesson adapted from Pennsylvania AITC.



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From Trees to Products

We all know that trees provide many useful products: lumber for building construction, furniture, paneling, cabinetry, and flooring, as well as paper of all sorts. But tree products go far beyond wood and paper. You might be surprised at just how many tree products you use every day, and where they are found. In fact, wood products are so prevalent that each American is uses an estimated 100-foot tree's worth each year.

Solid Wood Products

When trees are cut into lumber at a sawmill, pieces of wood, bark and sawdust are left over. This material does not go to waste! Modern industries use all parts of the tree to produce a variety of products.

Softwood lumber, such as pine, is usually used for building structures, while hardwood lumber is more often used for flooring, cabinetry, or furniture. Trees can also be cut into posts and poles, for use as pilings, utility poles, and railroad ties. Smaller pieces of wood can be made into items like pallets, musical instruments, toys, pencils, sports equipment, and decorative objects.

Sawmill leftovers or pieces of small trees are combined with adhesives and other chemicals to form other solid wood products. Plywood is made from thin sheets of wood that are glued together. Engineered or composite woods are made by gluing and pressing chips, flakes, or sawdust into a durable solid. This wood can be made into beams, sheets, or interior furniture parts. Oriented strand board (OSB) and medium density fiberboard (MDF) are common composite woods.

Wood can also be used for fuel, and not just as firewood. Wood waste from mills or logging sites (biomass) can be burned directly for heat and electricity. It can also be manufactured into fuel pellets or charcoal.

Wood Pulp Products

Wood is made of cellulose fibers and a glue-like material called lignin. Pulping, the process of separating cellulose and lignin using heat and chemicals, gives rise to many useful products.

The cellulose fibers in pulp are used to make papers of all kinds: newspaper, magazines, books, copy paper, packaging, tissue, and paper towels. Cardboard, linerboard, and brown Kraft paper are sturdier pulp products. A type of pulp called fluff is the highly absorbent material used inside diapers.

Variants of cellulose thicken and give proper consistency to makeup, toothpaste, shampoo, medicines, and paint. Cellulose products can also be used in foods, to prevent caking or improve texture.

Rayon and acetate fabrics for clothing are produced from cellulose fiber, as is cellophane wrapping and photographic film.

Hard plastics, such as those found in football helmets, combs, eyeglass frames, and dinnerware, are manufactured from wood fiber, sometimes in combination with other materials.

Tall oil, a byproduct of the pulping process, is used in detergents, perfumes, cosmetics, and paints.

Torula yeast, another pulping byproduct, is high in protein and is added to baby and pet foods, cereals, and other foods.

Products from Other Tree Parts

Tree bark, sap, fruits, seeds, and leaves also provide products and substances that are used straight from the tree or manufactured into products.

Apples, pears, peaches, pecans, walnuts, almonds are some foods you can pick directly from trees. Other foods from trees require some processing; these include chocolate, cider, and some spices.

Medicines, such as the cancer drug taxol and aspirin, have been extracted from the bark of specific species.

Maple syrup is not the only product made from sap. Various gums and resins form the basis of products such as chewing gum, flavorings, waxes, varnishes, and some cosmetics.

Industrial products like rubber, adhesives, solvents, dyes and inks can also be produced from trees.

References:

Oregon Forest Resources Institute – www.oregonforests.org

Georgia Forestry Commission – www.gfc.state.ga.us

Idaho Forest Products Commission – www.idahoforests.org

Georgia Pacific, “Educational in Nature - From the Forest” publication – www.gp.com