

Lesson Title: Plant Uses (Part One)

Grade levels: Applicable to all grade levels K-5

Applicable SOL:

Science:

- 1.8 (identifying natural resources)
- 2.8 (benefits of plants, availability of plants)
- 3.11 (sources of renewable energy)
- 4.9 (Virginia natural resources)

English:

- K.2 (describing vocabulary) K.12 (writing)
- 1.2 (vocabulary in content)
- 2.2 (vocabulary)
- 3.2 (vocabulary in content), 3.9 (writing for a purpose)
- 4.8 (writing for a purpose)
- 5.7 (writing for a purpose)

Materials:

- available appropriately leveled books on plant uses (Forestry Dept. can provide some pamphlets and information)
- computer to “google” student disagreements on plant uses
- paper or journals for student writings

Background Knowledge for Teachers:

A wide variety and number of products we use every day are in some way derived from trees. However, many tree products are not obvious. Products are derived from all parts of the tree. Wood (lumber) is the most obvious in houses, furniture, doors, picture frames, floors, fences, boats, paddles, crates, thread spools, cabinets, broom handles, toothpicks, and baseball bats. Cellulose is the major component of wood and is the source of paper and paper products, including books, cereal boxes, magazines, newspapers, food labels, toilet paper, coffee filters, stationery, grocery bags, egg cartons, and paper towels. Besides being used to make paper, cellulose is an ingredient in many other products. Paper mills use cellulose from three sources: recycled paper, wood chips, and sawdust left over from making lumber and raw logs. Cellulose can be mixed with certain chemicals and squeezed into fibers that are used to make carpets, wigs, fabrics such as rayon for clothes, and furniture.

Cellulose is also used as a key ingredient in cellophane, sausage casings, explosives, toothpaste, shatterproof glass, sponges, shampoo thickeners, imitation leather, photo film, and many other products. Cellulose may also be used to produce molded plastics for eyeglass frames, telephones, portable CD players, buttons, hairbrush handles, steering wheels, pipes, toys, counter tops, and packaging such as bubble covers on consumer products. It would be hard to find a part of the tree that people do not use in some way. The bark of many trees is used for many different products, such as soil conditioners, fuel, mulch, and waxes for cosmetics, shoe polish, and cars.

Some trees produce saps, called gums and resins, which are used to make paint thinner, chewing gum, medicines, soaps, floor polish, crayons, perfume, printing inks, insecticides, disinfectants, and fireworks. The sap from the rubber tree was extracted for hundreds of years to make products such as rubber-soled shoes, gloves, and containers.

Maple trees produce a sap that people turn into maple syrup. Trees provide fruits and nuts, such as apples, coconuts, pecans, lemons, and olives, and spices, such as allspice, and nutmeg. Tree leaves, trunks, roots, and other parts also provide ingredients for paints, road-building materials, medicines, tea, adhesives, inks, tar, charcoal, and hundreds of other products.

One cord of wood (i.e., a pile of wood 4' by 4' by 8') can make:

- 7,500,000 toothpicks,
- 1,000 pounds of paper,
- 942 one-pound books,
- 4,384,000 postage stamps,
- 61,370 business-size envelopes,

- 460,000 personal checks,
- 30 rocking chairs; or
- 12 dining room tables big enough for eight people.

(Background knowledge from Grade 2 Enhanced Scope and Sequence—VDOE 2012)

Procedure:

Building Supporting Knowledge: (10 minutes)

1. Ask students if we need plants. Have them brainstorm reasons and list on the board.
2. Allow time to discuss their thoughts, adding to list as needed.

Main Lesson: (45 minutes)

1. Put students in groups of 2 or 3. Tell them they will be going on a scavenger hunt. They are to list anything they find which they believe is a plant product. The scavenger hunt should begin in the classroom, but go throughout the building, interior and exterior.
2. After returning to the room, allow groups to meet with other groups to discuss their findings. As they discuss, circulate and offer support.
3. Come back together as a whole group. Discuss and offer support as needed. Provide resource materials to check on any items about which students disagree.

Follow-up:

Have students write about plant products and uses. Depending on level of students this activity could be a mixture of pictures and words, or complete paragraphs.

Assessment Opportunities:

1. Students can be informally assessed during group work and during whole group discussions.
2. Students' writings provide assessment opportunities.