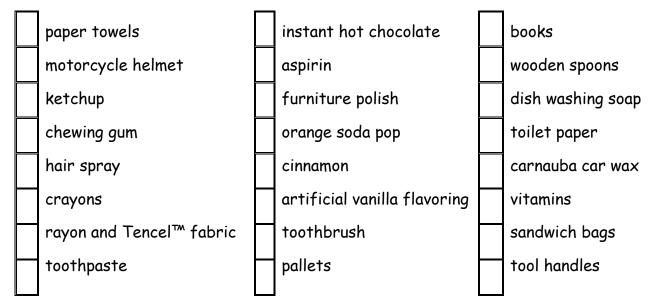


## Your name

This activity gets us acquainted with the importance and prevalence of wood and products from trees and the forest in our daily lives. Be sure to look at the accompanying files related to this activity before you begin.

#### Instructions

- 1. This is a listing Scavenger Hunt activity. Let's get some background first.
- 2. Why are trees and the wood from them so important to us in our daily lives?
- 3. How many pounds of wood on average do each one of us in the USA use every day?
- 4. How many trees are planted by the forest products industry to replace every one harvested?
- 5. True or False? We have more wood fiber available worldwide now than we did in the year 1900?
- 6. Wood is truly the masterpiece of nature that provides for our needs each and every day. There are over 5,000 items made with wood and forest products that we use in our daily lives. Wood is a remarkable material because it is renewable, recyclable, and biodegradable.
- 7. Let's start by identifying what the items in the list below <u>have in common</u>. Put a check by each one that has wood or comes from a tree.



- 8. Then every day for 1 week keep track on the following pages all the things you encounter that have wood or a forest product in them. Look at the accompanying files for some examples.
- 9. At the end of the week, review your lists to see who found the most items in their daily life during the week.

#### ITEM

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# Daily Wood InsideTREES Scavenger Hunt activity

#### Answers\*:

Why are trees and the wood from them so important to us in our daily lives?

Trees keep water and air clean, they provide habitat for wildlife and places for recreation, and they provide wood and other components that form the raw materials for thousands of products we use every day. Products made from wood and other forest materials are recyclable, reusable, and renewable. They help mitigate climate change and reduce consumption of nonrenewable materials like oil and other petroleum products.

How many pounds of wood on average do each one of us in the USA use every day?

Each person in the USA uses about 3 pounds of wood and wood products, 2 in the form of fiber products and 1 pound in wood products like furniture and plywood.

How many trees are planted by the forest products industry to replace every one harvested?

3

True or False? We have more wood fiber available worldwide now than we did in the year 1900? TRUE

What items in the list have wood or come from a tree?

SURPRISE, ALL the items on the list contain something that has wood or a byproduct from a process that uses wood or components of a tree as the raw material.

See the attached files for more information.

\*Source: American Forest and Paper Association; North Carolina Forestry Association; Kentucky Cooperative Extension Service

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# Goods From the Woods

Through research and advances in technology, we have learned to convert tree fibers and paper-pulping residues into a wealth of products, like the ones listed below. In fact, there are more than 5,000 wood and paper products that make our lives better each day -- everything from baby food and ice cream to rayon and paint, to toothpaste, cosmetics, medicine and house-hold cleaners.

But what makes all of these products special is that they come from a **renewable resource - trees**. Unlike fossil fuels, metals, and plastics, wood can be harvested, used, regrown, and harvested again and again in a neverending cycle. With proper management of our forests, we can enjoy thousands of products and still have plenty of trees for wildlife habitat, recreation, and aesthetic beauty today *and* in the future.

**Shipping Crates:** Wooden crates are made from sweetgum tupelo, yellow-poplar, and maple.

**Toothpaste:** Terpenes, which are derived from wood, are used to make licorice flavor as well as to sweeten the spearmint or peppermint flavor of many toothpastes and mouthwashes.

**Soft drinks:** Many citrus flavored soft drinks contain esters, which are derivatives of trees used to assure a uniform distribution of the citrus flavor throughout the drink.

**Facial tissue:** Papers - including facial tissue, toilet paper, paper towels, newspapers, and writing papers - are made from wood pulp.

Lotion: Many products, including lotions, contain Vitamins A & E, which come from wood extracts.

**Glue:** Glues and adhesives can be made from hard resins, which come from trees.

Dishwashing liquid, soap, and shampoo: Detergents as well as many soaps and shampoos, are made from crude fatty acids derived from wood. The lemon scent of some dishwashing liquids and furniture polishes comes from trees during pine turpentine processing.

**Chewing gum:** Chewing gum is made by using the rosin or storax of trees such as spruce. Chewing gum may also be artificially flavored with peppermint and spearmint, which come from a group of pine derivatives called terpenes.

**Medicine:** Aspirin tablets and other medicines in tablet form are held together with lignin, which is a natural part of wood. The essential elements of aspirin come from the bark of willow trees. Other medicines used in treating diseases such as high blood pressure and Parkinson's disease contain various wood derivatives.

**Spices:** Many spices used in cooking - such as nutmeg, bay leaves, and cinnamon - come from trees. Cinnamon comes from the bark of laurel trees.

**Crayons:** Carnauba wax, a resin produced by the leaves of the carnauba tree, is the waxy component of crayons. Carnauba wax is also used in car wax, and as a finish coating on furniture, produce such as apples and pears, and a wide variety of other products. The pharmaceutical industry uses it to coat pills. It is a major ingredient in lipstick and other cosmetics.

**Instant hot chocolate**: Instant hot chocolate contains the thickening and preserving agent cellulose or methylcellulose, the main building block of wood.

Hair spray: Hair spray, as well as adhesives, is made from tree resins, sticky liquid substances that usually harden when exposed to air.

**Sandwich bags:** Cellophanes are derived from the sugar components of wood during the pulping process and are used in making such products as wrap and tape.





**Department of Forestry Fact Sheet FORFS 15-02** 

## Products Made From Wood

Terry Conners Cooperative Extension Service Department of Forestry University of Kentucky tconners@uky.edu

Original list created from a number of other lists, with additions Corrections and Additions will be welcomed!

#### **Solid Wood Products**

Lumber and plywood to build new homes Doors Window frames and sills Flooring Handrails **Stairs I**-joists LVL (laminated veneer lumber) Parallel strand lumber Finger-jointed lumber Machine stress-rated lumber Coat racks iPhone cases Furniture Dining room tables and chairs Upholstered furniture frames **Rocking chairs Stools** 

Stair rails End tables Coffee tables Beds **Bookcases** Desks Kitchen cabinets **Picture frames** Nightstands **Bureaus Fireplace** mantels Sculptures and carvings Landscape timbers Highway guard rails **Snowshoes Toothpicks** Match sticks Chopsticks Shutters **Baseball bats** Canoe paddles and oars

Musical instruments: Guitars Pianos Organs and organ pedals Hammer dulcimers Mountain dulcimers Oboes **Bagpipes** Ukuleles **Banjos** Clarinets Flutes/Fifes Mandolins String bass Violins, violas Violin bows Cellos Bassoons Drums **Drum Sticks Tambourines** Wood blocks Wooden spoons Speaker cabinets Amplifier cabinets Metronomes **Xylophones** Harmonicas Stage flooring Backyard weathervanes Caskets Sandboxes and Backyard play sets Charcoal Tool handles Wooden tools **Biltmore sticks** Log scale sticks Toolboxes Mallets Marking/mortise gauge

**Toilet plungers** Medicine cabinets Parallel bars Vineyard stakes Toys such as wooden blocks **Rulers** Birdhouses Fencing, fence posts and rails Firewood Fishing boats Tall ships **Rowboats** Ladders Hockey sticks Dog houses **Pallets** Particleboard Medium density fiberboard (MDF) (used in kitchen cabinets and furniture panels, for example) Hardboard Garage doors Gazebos Hot tubs and spas Lath Trellises Kitchen utensils Pencils Ping Pong paddles Golf tees Animal bedding Railroad ties Seesaws Model airplanes Coffins **Brush handles** Cable reels Canes Cedar chests Cedar closet lining

Activated charcoal Church pews and altars Closet rods Barrels Crutches Docks Decks Kitchen cabinets Ferryboats Gazebos Grandfather clocks Truck and trailer flooring Mouldings and baseboards Paneling **Picnic tables** Pilings for building construction Popsicle sticks Porch swings Produce crates and boxes Propeller shaft bearings for ships **Rocking horses** Shingles House siding Putty-type of wood filler Tongue depressors Totem poles Sleds Salad bowls and serving ware **Telephone** poles Wheelbarrow handles Wooden nickels Pegboard Ship masts and yardarms Toilet seats Piano keys (wooden) Pinewood Derby cars Clothespins Pool tables Fireplace mantles Display cases

Duck decoys Beer clarifier Humidors Shoe soles and heels Easels Kite struts Christmas trees Windmills Scythes Corn cribs Baker's peels Barns Home greenhouses Frying pan and pot handles Cider presses Light switch covers Award plaques Dollhouses Wooden steering wheels Bar tops Clipboards Cooling towers Curtain rods Boomerangs Gavels Pulpits and podiums **Buttons** Stadium seating Cutting boards **Broom handles** Stirrups Saunas Surveyor stakes Yardsticks Game pieces Croquet sets Mousetraps Pipes Rolling pins Knife handles

Children's puzzles Work benches Toboggans Bookcases Park benches Gun racks and cabinets **Billboards** Snow fences Trellises Tobacco sticks Garden stakes and poles Parallel bars Log houses Bowling alley lanes Bowling pins Railroad crossing gates Rural bridges Tent poles Hurdles Lobster pots and floats Wooden matches Parts of snowboards, skis and skateboards Ventriloquist dummies Name tags Flagpoles (for smaller flags) Cribs Police batons Planters Dowels Scaffold planks **Concrete** forms Glu-lam beams (used to create long open spaces, as in churches) Excelsior Veneer **Bushel** baskets Pants hangers Kitchen counters

Woodcut artwork Merry-go-Round horses **Birdhouses Snowshoes** Woodworking clamps Spinning wheels **Baskets** Novelties such as Nutcrackers Checker sets Jewelry boxes Foundry patterns Crates Garage doors Theatre scenery Gunstocks **Beehives Butcher** blocks **Organ** pipes Crucifixes Drafting tables **Ballot** boxes Yo-yos Dice Silverware chests Venetian blinds Billiard cue sticks Fuel for meat smokers Spices and flavorings from woody plants: Allspice Annatto Bay leaves Cinnamon Cloves Filé (Sassafras leaves, used to thicken gumbos) Juniper berries (gin flavoring) Mace Nutmeg

Orange blossoms (flavored water) Chips for smoking meat Sassafras oil is used as a soap perfume Logs provide nutrients for shiitake mushrooms Cutting boards Model airplanes "Biscuits" for wood joining Doll houses Test tube racks Wine racks Handrails Stake-body truck sides Gerbil chew sticks (balsa wood)

#### **Products that Used to be Made From Wood**

(Some of these may still be made from wood for specialty products.)

Water pipes Bocce balls Commemorative medallions Tennis rackets Car dashboards Golf clubs Conestoga wagons Clocks and clock gears Waterwheels Printing press type Printing presses Deckle boxes (frames used to make paper by hand) Paper presses (to squeeze the water out of handmade paper) Woodworking planes **Cigar store Indians** Weaving shuttles and bobbins Wooden shoes Bows and arrows Cradles Wooden wheels for automobiles and wagons Pull toys **Sextants** 

Street paving blocks **Rocking horses** Fun house barrels Fishing lures Storage battery separators (hard rubber) Water tanks Wardrobes/armoires Model "T" coil boxes Automobile chassis Ironing boards Treenails Post and beam timber framing Cabinets for Analytical balances Shoe lasts Radio, television and phonograph/stereo cabinets Butter churns Harpsichords Railroad cars Aircraft propellers and airframes Minesweeper boats, PT boats Silos Fermentation vats Cigar boxes

Racing shells (one to eight-man rowed boats) Wringers for washing machines Telephones Wood creosote used to be used as a laxative, a disinfectant and a cough treatment (rarely used nowadays). Woodworking tools Planes Carpenter levels Carpenter rules Gear shift knobs Butter molds Slide rules Phonographs Bicycles Traveler's writing desks Cigar molds Artist's pallets Washboards Skis Water well structures Water pump enclosures Wheel chairs Candlesticks Warships Wardrobe trunks Maple syrup buckets Abacus Pulleys Gallows Milking stools **Insulator** pins Plates and bowls Artificial limbs Sled runners Iceboxes and refrigerators Gutters

Spruce gum was used for chewing gum Sassafras tea Canoes (birch bark canoes had a wooden frame, also woodcanvas canoes) Automobile tires (used rayon as reinforcing cord) Shoe pegs (used to fasten shoe soles to the leather uppers) Dragon's blood (from fruit of Asian tree) was used in the manufacture of varnishes and lacquers Dyestuffs (prior to invention of synthetic dyes) Canada balsam (tree resin) was used to make microscope slides Ouinine came from the bark of the Cinchona tree Willow bark provided the original source of aspirin-like compounds Cork used to be the gasket material lining bottle caps Rubber used to be used to waterproof raincoats Molded wooden figurines Typewriter keys (Celluloid) Red elm inner bark used to be steeped in water to obtain a remedy for sore throats Hickory was a part of the Wright brothers' airplanes Cylinder phonograph records used to be made from Carnauba wax because it is so hard

Tool handles were made from celluloid as recently as World War II.

Piano keys were once made from celluloid as an ivory substitute.

### <u>Things Made from Wood</u> <u>that Formerly Were Made</u> <u>from Something Else</u>

Paper (used to be made from cotton and linen rags)

#### <u>Non-Wood/Non-Paper</u> <u>Products</u>

Shade!

Nuts Cola nuts (Coca-Cola etc.) Almonds **Brazil nuts** Cashews Hazelnuts **Pistachios** Walnuts Pecans Hickory nuts Chestnuts Pine nuts Acorns (decorative uses) Fruits Apples Avocadoes Coffee Peaches Oranges Lemons

Limes Bananas Pears Tangerines Coconuts Dates Grapefruit Olives and olive oil Plums Figs Fruit juices Carob (a cocoa substitute) Cider Mistletoe (grows as a symbiant on trees) Eucalyptus leaves (floral component, also used for fragrance) Carnauba wax (from the leaves of the carnauba palm tree grown in Brazil). Used in: Shoe polish Lipsticks Automotive waxes Furniture polish Applied to produce to make it look appealing in supermarkets. Products from Wood Sap or Extractives: Citrus cleaners (oils) Lime scent for aftershave Sandalwood fragrance for soap and incense Maple syrup Rubber Rubber products Golf balls Tires

Marine and underwater cable insulation Adhesives Combs (hard rubber) Latex gloves and other barrier-type medical products Rubber belts Rubber hoses Gaskets Shoe soles Rubber boots Rubber balls Turpentine (most of it comes from wood pulping operations) Rosin Pine needle extract (an antiinflammatory) Rosewood oil (various medicinal uses) Taxol (anti-cancer drug) Frankincense Myrrh Tea tree oil (antibiotic and antifungal oil) Benzoin gum Gum Arabic Corks (the primary use for cork: ~17 billion sold each year, compared to 400 million for plastic stoppers (2001 statistics)) Other cork products Coasters Flooring Dartboards Wall and ceiling tiles Sanding blocks Corkboards

Expansion joint filler Insulation corkboard Fishing buoys and floats Cork washers Hot pads Musical instrument parts (e.g., stoppers for organ pipes) Laboratory rings for glassware Bathmats (made of granulated cork) "Peas" for whistles Cricket balls Corks for pop guns Foosball (table football) balls Hockey balls **Baseballs** (centers) Facings for some ping pong paddles Cork shoe soles Roofing

#### **Products that Used to be Made From Cork**

(Some of these may still be made as specialty products.)

Bottle cap gaskets for carbonated beverages Life jackets (until 1857 – now mostly polystyrene) Life preservers (polystyrene now) Fishing rod handles (now mostly Hypalon®) Sheet insulation (*e.g.*, for refrigerators) Rocket nosecones (a cork-ceramic composite)

#### **Paper and Fluff Products**

Computer and copy paper Books and book paper **Book** marks Envelopes Checkbooks Cook books **Recipe cards** Bulk mail Bills Toll booth tickets Instruction manuals Packaging cards for blister-packed products Calendars **Diplomas and Certificates Report cards** Lamp shades Book covers Posters Identification badges Newsletters Salt boxes Moving boxes Shipping boxes Sugar and flour bags Can labels (except for tomato cans for some unknown reason!) Bottle and jar labels Cereal boxes Shelf labels in grocery stores Adhesive-backed labels Receipts Menus Poster board

Baking cups Coupons US currency is not made from wood pulp – it's made from cotton and flax fibers Coffee filters Facial and bath tissue *Packaging* for facial and bath tissue (the boxes and wrappers) Napkins Sanitary and surgical absorbent products **Disposable diapers Kites** Movie tickets Classroom handouts and tests Catalogs Game boards Masking tape Crepe paper Birthday and Christmas wrapping paper Stickers Coloring books Flashlight battery labels Paper dolls **Baseball** cards Tracing paper **Election** ballots Milk cartons Egg cartons Postage stamps Paper towels Playing cards Building insulation, loose and in panel form Grocery bags Cat litter (from recycled paper, non-clay types)

Paper plates Paper cups File folders Post-It Notes® (Made in Kentucky!) CD labels DVD and VCR tape packaging Magazines Magazine card inserts Postcards Maps Fast food packaging Frozen food boxes Construction paper Kraft paper (wrapping paper) Multi-wall sacks for birdseed and pet foods Price tags Sandpaper Seed starter blocks Loudspeaker cones Origami paper Tea bags are usually not made from wood pulp – they are mostly made from abaca, also known as Manila hemp Tea bag *tags* and *wrappers* are made of wood-based paper Cigarette papers and vacuum cleaner bags are made from hemp or flax fiber! Bible paper Wallpaper Tubes for bathroom tissue, paper towels, wrapping paper Artificial snow (paper snow) Wax paper Confetti Admixture with sprayed-on grass seed

Food additive (non-digestible cellulose dietary fiber). Used in diet drink products, food texture enhancer. (In the late 1970s, a "diet bread" listed cellulose fiber from wood as one of its ingredients.) Butcher paper Musical instrument cases ("cardboard" type, as for guitars) Phone books Photographs Newspapers **Tickets Business** cards Roofing felt Ice cream containers Pizza boxes Disposable tablecloths Retail software boxes Corrugated cartons Ceiling tiles Absorbent socks for oil spills Absorbent liners for supermarket meat trays Stationery and notebook paper NCR (no carbon required) paper Tax forms Marriage licenses, birth and death certificates and other civil documents Racing forms Programs for sporting events Fiber filler for plastics: Tool handles Football helmets **Buttons** Eyeglass frames Ball point pens

Electronics cases (televisions, calculators, computers) Loudspeakers Automobile parts (e.g., door panels) Packaging Trays Thermoformed products like gun cases Marine/Trailer flooring Wood-plastic composite lumber: Garden benches **Picnic** tables Planters Fencing Decking Signs Parking stops for parking lots Spare tire covers Melamine paper-faced board

#### <u>Things that Formerly Were</u> <u>Made from Wood-based</u> <u>Paper</u>

Oil cans Candy bar wrappers Grocery bags (some still are made from paper!) Library catalog cards (supplanted by electronic computer files) Drinking straws Shotgun cartridges Carbon paper (mostly obsolete product) Bumper stickers (now made out of vinyl except for the peel-off paper on the backside) Computer punch cards (now also entirely electronic!)

#### **Products Made from Wood-Derived Chemicals**

(Processed products, not oils or latex, etc. Some cellulose products may derive from other cellulose sources such as cotton linters, depending on economics and manufacturer.)

Textiles (Rayon, Tencel<sup>TM</sup>)

Cellulose acetate (wrapping and photographic film) Cellulose nitrate (former composition of movie film,

except that it was very flammable and unstable with age)

Celluloid (rarely produced nowadays, except for guitar picks and pick guards, fountain pens, accordion cases and ping-pong balls. Formerly used for costume jewelry, clocks, etc.)

Cellulose acetate and cellulose nitrate are both used in adhesives and lacquers.

CMC (carboxymethyl cellulose) is used as a food thickener and texturizer for products such as ketchup and ice cream (depending on manufacturer);

also used to stabilize oil well drilling muds. Cellulose-based pill fillers Cellophane (wrapping material, also used for Easter basket grass!) Toothpaste additives (e.g., cellulose gum) "Plastic" twine Hardhats and sports helmets Cigarette filters (cellulose acetate fibers) Cellulose industrial filters Sausage casings Cellulose sponges Artificial vanilla flavoring (byproduct of Kraft process for pulping wood) Cleaning compounds Chewing gum is a combination of natural rubber (especially chicle, from the Sapodilla trees from Central and South America) with some synthetic latexes to extend the natural latex supply. Other wood chemicals such as rosin esters and terpenes are also common ingredients. Additive to unfired ceramics to give them strength **Fungicides** Hair spray Cosmetics – including thickeners such as methyl cellulose and methyl hydroxy ethyl cellulose Methanol (used in colognes, solvents) Torula yeast (a food supplement) is grown on wood sugars and

wood mineral nutrients leftover from pulping operations. This is used in baby foods, imitation bacon, cereals, baked goods, etc. Tannin (used in natural tanning process, less common than formerly) Carnauba wax is commonly used as a pill coating. Liquid Smoke<sup>®</sup> Linoleum (oxidized linseed oil mixed with pine resin and wood flour) Acetic acid (produced by distillation of wood) Biofuels from wood distillation Liquid nail polish Shaving cream (tea tree oil, camphor, etc., varies by manufacturer) Suntan lotion (e.g., almond oil (emollient); clove bud oil (scent); cocoa butter (emollient)) Ink (incorporate tall oil rosins from hard pines) Tall oil fatty acids and derivatives are used as: **PVC** stabilizers Synthetic lubricants Polyamides Corrosion inhibitors Soaps Detergents **Emulsifiers** Rubber processing additives Asphalt additives Concrete additives Epoxy additives

Plasticizers Metalworking chemicals Oil field chemicals Rosin-based adhesive products

Also see the list of products from Extractives, above

To grow a pound of wood, a tree uses 1.47 pounds of carbon dioxide and gives off 1.07 pounds of oxygen.

The following information is from the website of the Temperate Forest Foundation {http://www.forestinfo.org/Discover/facts.htm#Recycling}:

- In 1995, some 1.6 billion seedlings were planted in the U.S. more than 5 new trees a year for every American. Millions of additional trees were naturally reforested.
- Private owners account for 59% of the nation's 490 million acres of commercial forestland; government owns 27%; and the forest industry owns 14%.
- Each person in the United States consumes approximately 675 pounds of paper a year.
- On the average, everyone uses the equivalent of a tree, 18 inches in diameter 100 foot tall, every year. That's 80 cubic feet!

The United States is a wood-rich country; people in the United States (on average) use about three times as much wood each day as people in the rest of the world. One of the most common uses for wood around the world is for fuel!

And finally, a surprise for (almost) all Kentuckians:

3M Corporation's popular product, Post-It Notes, are manufactured exclusively in Cynthiana (Harrison County), Kentucky!