

MAPLE SYRUP



BUCKLEY'S COUGH SYRUP

- Used to care for symptoms of colds, such as coughing and sore throat
- Contains natural materials such as pine needle oil and balsam resin
- Formula was invented in Toronto, Ontario by W.K. Buckley in 1919

TREE SAP



RESIN

- Thick and sticky liquid made by coniferous trees
- Used for varnish, adhesives, incense and medicines
- Resin of the Cedar of Lebanon was used for mummification in Ancient Egypt

SUGAR MAPLE



BALSAM FIR

- Grows in coniferous forests from Alberta to Newfoundland
- Bark is covered in “blisters” of resin
- Commonly used as Christmas Trees because of their pleasing shape and smell

BUCKLEY'S COUGH SYRUP



MAPLE SYRUP

- Delicious sauce for waffles and pancakes
- Maple sap must be boiled before eating to remove extra water
- Requires 40L of sap to make 1 L of syrup

RESIN



TREE SAP

- Collected from trees in early spring
- Trees are “tapped” by placing special metal tubes into the trunk
- Used by the tree in spring to move sugar that is stored in the roots up to growing buds

BALSAM FIR



SUGAR MAPLE

- Characteristic tree of the forests in southern Ontario and Quebec
- New leaves are grown in the spring using sugary sap from the roots
- Leaves turn bright red and yellow in the fall

CORKS



TOOTHPICKS

- Made from thin (<3mm) slices of wood (called veneer), then cut into toothpicks
- Small sticks were used for dental hygiene before toothbrushes
- Toothpicks were first manufactured in the 1890's

CORK CAMBIUM (BARK)



VENEER LOG

- Veneer is a thin slice (<3mm) of a log cut either around or across
- This process increases the economic value of each log

CORK OAK



WHITE BIRCH

- Found in every province of Canada, and in the northern United States
- Grows quickly after a forest disturbance (fire, windfall)
- Although not of high value for lumber, it is useful for furniture, fire wood, and veneer

TOOTHPICKS



CORKS

- Have been used as stoppers for bottles of wine and soda pop
- 300,000 tonnes of cork are produced in Europe each year, worth €1.5 Billion
- Corks allow oxygen into wine bottles, allowing the wine to 'age'

VENEER LOG



CORK CAMBIUM (BARK)

- The bark can grow up to 20 cm thick
- The outer layer of bark (cork cambium) is harvested without machinery
- Bark is harvested every 9 to 12 years, but does not kill the tree

WHITE BIRCH



CORK OAK

- Found in Mediterranean climates, it is native to North Africa and South Western Europe
- Cutting down a Cork Oak tree is illegal in Portugal, except with special permission

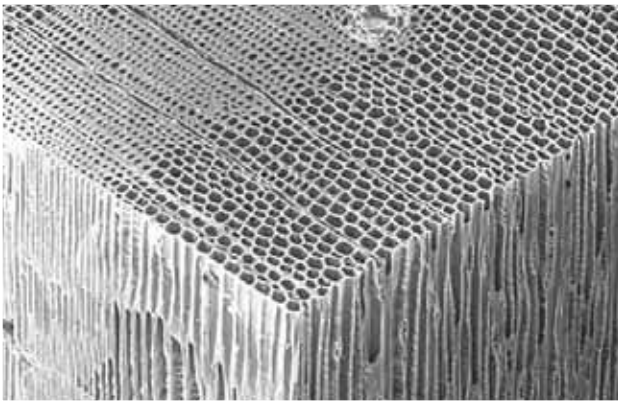
DE HAVILLAND MOSQUITO (AIRPLANE)



ARTIFICIAL VANILLA

- Used to flavor foods, such as ice cream, chocolates and baking
- Its flavor comes from Vanilin, a chemical naturally found in Vanilla Beans
- Can be manufactured from lignin by-products of wood pulp made through the sulfite process

TRUNK



PULP BY-PRODUCTS (SULFITE PROCESS)

- By-products are removed from chemicals after pulping of softwood trees
- Lignin containing by-products can be used for tanning leather and curing concrete
- By-products can be further processed into Vanillin

BALSA TREE



WHITE SPRUCE

- The most northern species of tree, growing at the arctic tree line
- Found on well-drained upland soils
- Important in Canada for use in wood pulp, but also used as Christmas Trees

ARTIFICIAL VANILLA



DE HAVILLAND MOSQUITO (AIRPLANE)

- Flown in World War II by the British Royal Air Force
- Used a mix of wood, including Birch for strength and Balsa for lightness
- Manufactured in Ontario, Britain, and Australia

PULP BY-PRODUCTS (SULFITE PROCESS)



TRUNK

- Is incredibly light because it is full of pockets
- Used in products that need to be light and strong, such as wind turbines, surfboard, and airplanes (model and full-sized)
- Must be dried carefully before use

WHITE SPRUCE



BALSA TREE

- Native to Brazil and Mexico, but has been planted in many other countries
- A fast-growing tree, up to 30 m in 15 years
- Strength is provided by pockets in the trunk, filled by water when the tree is alive

NEWSPRINT



CORRUGATED CARDBOARD

- Made from natural, unbleached wood fibers
- Requires strength, therefore is heavier than most papers
- Originally used to hold up tall hats, it is now used mostly for packaging and shipping

WOOD PULP (MECHANICAL)



WOOD PULP (KRAFT PROCESS)

- Uses hardwood trees such as aspen and birch and softwood trees, such as spruce, pine, and fir
- Chemicals used to dissolve lignin but does not affect cellulose
- Creates paper of superior strength because cellulose is less damaged

BLACK SPRUCE



ALPINE FIR

- Grows West of the Rocky Mountains in Yukon, BC, and Alberta
- Found in high altitudes, growing at or near the tree-line
- Used for lumber, pulp products, and Christmas trees

CORRUGATED CARDBOARD



NEWSPRINT

- Low-strength, low cost paper
- Used to produce millions of newspapers every day

WOOD PULP (KRAFT PROCESS)



WOOD PULP (MECHANICAL)

- Made from small softwood logs of wood chips ground into a pulp
- Mechanical pulping damaged the wood fibers
- Used for products that require less strength, such as newsprint and paperboard

ALPINE FIR



BLACK SPRUCE

- Grows in every province and territory of Canada
- Often found in bogs and wetlands
- Thin trunks make it poor wood for furniture or limber, but useful for wood pulp

TURPENTINE



CELLOPHANE

- Thin transparent sheet made from the cellulose in sulfate wood pulp
- Used for packaging and wrapping, mostly in foods
- Is 100% biodegradable
- Replaced since 1960's by oil products such as plastic wrap

PULP BY-PRODUCTS (KRAFT PROCESS)



WOOD PULP (SULFITE PROCESS)

- Uses softwood trees, such as spruce, pine, and fir
- Chemicals used to dissolve lignin, but also damages cellulose
- Produces medium strength paper
- Used to make fine paper, cellophane, and rayon

JACK PINE



SPRUCE-PINE-FIR

- Canadian softwood species with similar pulp characteristics
- Includes Spruce (Red, White, Black, Engelmann), Pine (Jack, Lodgepole), and Fir (Balsam, Alpine)
- Mixed together in the manufacture of wood pulp

CELLOPHANE



TURPENTINE

- Used as a solvent in paints, varnishes, and furniture wax
- A chemical base for many scents and flavors
- Made by distilling sulfate turpentine from by-products of the Kraft process

WOOD PULP (SULFITE PROCESS)



PULP BY-PRODUCTS (KRAFT PROCESS)

- Largest amount of by-products are produced from pines
- By-products include sulfate turpentine and tall oil soap
- Removed from wastes to prevent released into the environment

SPRUCE-PINE-FIR



JACK PINE

- Found in coniferous forests of North America, East of the Rocky Mountains
- Requires fire to open its cones and release its seeds

HOUSE



HOCKEY STICK

- Used in ice, road, and roller hockey
- Traditionally made of woods such as birch, ash, and maple
- Can also be from wood laminates or composites of fiberglass, carbon fiber, aluminum, and Kevlar

FINISHED LUMBER



TRUNK (STEM)

- The trunk provides strength and height to a tree
- Wood is dense, strong, and very straight grained
- Used in construction of baseball bats, hockey sticks, tool handles, as well as flooring and furniture

DOUGLAS FIR



WHITE ASH

- Grows in Eastern North America from Florida to Ontario
- Slow growing with few branches, produces a dense wood with straight grain
- Emerald Ash Borer is expected to kill 60–70% of North America's 7.5 billion ash trees

HOCKEY STICK



HOUSE

- Most houses in North America and Australia are built with “light frame construction”
- Utilizes finished lumber
- Fast and low-cost, but easy to customize design of house
- Requires additional strength from wall coverings and interior bracing

TRUNK (STEM)



FINISHED LUMBER

- Cut from trunks of trees in standard sizes
- Used in manufacturing of furniture, flooring, and buildings
- Made from larger softwood trees, including Red and White Pine and Douglas Fir

WHITE ASH



DOUGLAS FIR

- Grows in Pacific North West of Canada and the United States
- Second tallest trunk in the world, after Coast Redwood
- Planted as ornamental tree in parks and gardens
- Used for finished lumber, railroad ties, and plywood

ACOUSTIC GUITAR



DESK (FURNITURE)

- Made from particle board as it is light and inexpensive
- Often covered in decorative paper veneer with printed wood grain
- Can expand and contract with changes in temperature and moisture

WOOD BILLETS



PARTICLE BOARD

- Made from saw mill by-products of sawdust and wood chips
- Particles are mixed with glue, then pressed together
- Made of a mix of woods, including aspen, spruce, pine, and fir
- Can be made into furniture and flooring

RED SPRUCE



TREMBLING ASPEN

- Found in northern US to northern Canada
- Grows rapidly after a large open area is made by fire or logging
- Used for making wood pulp, plywood, particle board, and furniture

DESK (FURNITURE)



ACOUSTIC GUITAR

- Uses wooden sound board to amplify vibrations from strings
- Wood of body is chosen for strength and ability to transfer vibrations
- Often made of Red Spruce or Western Red Cedar
- Made from wood billets with tight, straight grains

PARTICLE BOARD



WOOD BILLETS

- Wedges of wood hand-split from short logs called bolts
- Trees selected very carefully for tight, straight grain

TREMBLING ASPEN



RED SPRUCE

- Grows in coniferous forests of North Eastern North America from Connecticut to New Brunswick
- Slow growth and long life span results in a tight-grained and stiff wood
- A common tone wood used in making musical instruments

HARDWOOD FLOORING



ROUGH LUMBER



AMERICAN BEECH



HARDWOOD FLOORING

- Requires dense, durable woods such as American Beech, Red and White Oak, and Sugar Maple
- Originally used for their strength, now used mostly for looks
- Manufactured from rough lumber
- Can be finished before or after installation

ROUGH LUMBER

- Made mostly from hardwoods
- Used in products that need further processing, such as furniture and flooring
- Come in a wide variety of widths, thicknesses, and lengths
- Cut from raw logs in sawmills

AMERICAN BEECH

- Grows in Eastern North America from New Brunswick to Florida
- Has distinctive smooth, grey bark that attracts graffiti
- Heavy, hard wood is used to make rough lumber before being made into flooring and furniture