

Goods from the Woods

OUTLINE

A. Introduction

1. My name is....
2. What we're going to talk about.

B. Tree/Plant Parts

1. Outside Tree Parts (Might use a **real tree** (can even be a small sapling cut from the side of the road) or a **poster of a tree**)
 - Bark – function = protection
 - Crown
 - Leaves – function (make food)
 - Twigs
 - Stem
 - Roots
2. Inside Tree parts (with **Tree Cookie**)
 - Bark
 - Phloem (inner bark) – function = carry food from the leaves to rest of tree
 - Cambium – function = makes new wood, a layer each year
 - Sapwood – function = transport water and nutrients to leaves (like straws)
 - Heartwood – function = protect the tree from the inside
3. *Pass out magnify glasses and **wood blocks** to look at “sapwood straws”*

C. Ok, let's talk about some things that come from trees.

1. Wood stuff: **lumber, flooring**, build houses, furniture, **firewood**, etc.
2. Paper stuff: **computer paper, newspaper, packaging, toilet paper!**
 - How is paper made?
 - * Trees are **chipped** → Chips are pulped
 - * Cellulose extracted to make paper
 - a. *Pass out toilet paper to see cellulose on torn edges*
3. Other stuff from trees
 - **Toothpaste?** (Cellulose as a thickener)
 - **tape** (cellulose) Some people call this “cellophane tape”
 - **cleaning solution** (2 things)
 - * oils from pine to make it smell nice
 - * wood alcohol left over from paper making
 - **Maple Syrup?** Real maple syrup come from sugar maple sap
 - How about this **paper cup**? YES
 - How about this **plastic cup...** (Mixed answers)

D. RENEWABLE VS. NON-RENEWABLE

1. Different kinds of natural resources.
 - Trees are a Natural Resource we use to make paper
 - What do we use to make plastic? (petroleum... a fossil fuel)
 - * Are these things renewable or non-renewable? (explain the difference)
2. Is it better to use things that from renewable or non-renewable resources?
3. What do trees do for us while they are “renewing” (growing)?
 - * Clean air, providing oxygen, clean water, shade, wildlife homes & food, place to hike & camp, hunting, beauty and more.
4. Forests and trees are a great resource and renewable resource.

Goods from the Woods

NARRATIVE

A. Introduction

1. *Welcome to the Forest Resources Station, My name is _____*
2. *Before we get started, I have a couple of questions I want to ask you.*
 - *How many of you think cutting down trees is bad? (show of hands)*
 - *Ok, how many of you think you used something that came from a cut down tree before you even got to school this morning? (show of hands)*
 - * *I bet everyone did... Did any of you use toothpaste (hold up the tube) when you brushed your teeth this morning? "YES" Good, guess what? That has an ingredient in it that comes from trees. I bet everyone walked on a wood floor underneath carpet maybe, when you got out of bed.*
 - *We use things that come from trees everyday, all day long and we'll look at some of those things a little bit later, but first...*

B. Tree/Plant Parts

1. *let's look at parts of a tree. Trees are my favorite plant because they are the biggest and longest lived plant in the world.*
2. *(Walk over to the Tulip Poplar, students stay seated) Ask them for the parts and function*
 - *What's this on the outside of the tree? "BARK" Yes, bark and the job of bark is to protect the tree from fire, insects and bumps*
 - *Now, follow with your eyes the trunk all the way up to the top.*
 - *Do you see up there where the branches start coming out... what's that area of the tree called? (after they guess canopy, etc.) I'll give you a hint, I like to think about trees as the "king of the forest" because they are the tallest and longest lived thing out here, and what does a king have on top of his head? "CROWN!"*
3. *(Walk back to the "planted sapling") Ok, more tree and plant parts...*
 - *What's this green stuff called? "LEAVES!" Yes, and what do leaves do for a tree or any other plant? What is their job? (they'll guess things like make oxygen – no, that's something trees and plants do for us. Etc. I don't let the guessing go but for a few seconds) Ok, I'll give you a hint, Photosynthesis, what's that? It's how plants get food. The energy from sunlight is absorbed by green leaves like a blade of grass, a flower plant or a tree and the process of photosynthesis converts the sun energy into plant energy/food. What do plants eat? pizza? chicken? pop-corn? "NO" What then? (They'll guess things like water, nutrients, air)... nope these are all things that a tree needs to make food (photosynthesis) but not it's source of energy. I'll give you a hint, who here likes sugar? Well, that's what a plant eats! Photosynthesis makes a type of carbohydrate which is a type of sugar. That's all they "eat" and they don't have to go to the grocery store to get it! Ok, so the job of the leaves is to make food and they do it by photosynthesis.*
 - *And the leaves are attached to?..... TWIGS!*
 - *And the Twigs are attached to? BRANCHES!*
 - *And the Branches are attached to?..... TRUNK or Stem*

- *And that's all the parts of the tree right? NO!*
 - *What did I forget? ROOTS! Yes, and what is the job of the roots?*
 - * *2 things: Roots take up from the soil, water and nutrients (photosynthesis needs that stuff) and*
 - * *Roots keep the tree standing up!*
4. (Walk over to the Tree Cookie) *Ok, lets take a look inside of a tree*
- *What's this on the outside called? BARK and what's it's job? PROTECTION*
 - *The next layer in is called the Inner Bark or Phloem... It's job is to take the food... which is made where? LEAVES yes, up high right? But the food needs to get down to the rest of the tree and the Phloem carries it. "food flows down the phloem"*
 - *The next layer is paper thin and you can't see it from where you are at but even though it's the smallest, it's the only living part of this whole part of the tree. Bark, phloem and all this other wood is not living. This paper thin layer is called the Cambium. Let's say it together CAMBIUM. This thin living layer makes new wood, a new layer each year and that's why you can count the rings to see how old a tree is or was.*
 - *Great, let's review these parts: BARK, PHLOEM, CAMBIUM*
 - *Let's talk about this dark part here in the middle, and it's called the "heartwood". Just like you have a heart in the middle of you, a tree has heart wood. It's job is to protect the tree from the inside and to collect leftover waxes and chemicals the tree makes, kinda like a trash dump.*
 - *Ok, the next layer is this light colored part and is called the sapwood. The sapwood's job is to carry the stuff gathered up by the roots, which is what? WATER & NUTRIENTS. Right, the roots carry the water and nutrients up to the leaves for photosynthesis to use. The sapwood acts like a bunch of straws (hold those up to see)*
5. *And it looks like a bunch of straws too! Would you like to see the straws in sapwood?*
- *Ask for 2 girl volunteers and 2 boy volunteers, to pass out the magnify glasses and blocks of wood*
 - *Have them look for the holes in the 2 ends and to show you (they all stay seated) where the "straws" are.*
 - *Mention that those straws pass all the way through that block of wood. If they don't believe it, they can get a piece of red oak like this and blow bubbles through it (If you tell them this trick, make sure to tell them not to put the wood up to their mouth before telling them.)*
 - *After everyone has found the sapwood straws. Ok, set the wood and magnify glass down beside you. What part of the tree are those straws in? SAPWOOD*
6. *Ok, let's review the inside parts of the tree*
- *BARK, PHLOEM, CAMBIUM, SAPWOOD, HEARTWOOD*
- C. *Ok, let's talk about things that come from trees.*
1. *You know all kinds of **wood** things come from trees right? YES*
- *Things like wooden salad forks/spoon and baseball bats.*

- *And lots of different types of lumber for building houses like 2x4's and plywood (Might have time to explain that 2x4's are what's used to hold the roof above your head in your house and that these can come from pine trees like the ones they will see in the afternoon or already saw that morning (loblolly pine stand)*
 - *Oriented strand board is made with small pieces of wood that might otherwise be wasted to make large sheets good for floors and roofs.*
 - *Holding up the finished white oak flooring... Who can tell me what this is? Right, hardwood flooring like you might have in a hall way or kitchen. This wood came from a White Oak tree*
 - * *Pointing to the White Oak tree... Like that one over there. What would we have to do to that tree to make hardwood flooring like this or maybe a nice desk? explain the process of cutting, hauling, sawing to boards, milling, finally put a shiny finish on it.*
 - *Holding up a piece of firewood. How about this, what's this used for? FIREWOOD. Some of you probably have a fireplace or even wood-burner but hardly anyone in the United States depends on wood for heat. Most of the wood in the world is used just like this, for cooking and heating. if you were a child in another country, you would probably have gathered a load of wood this morning before coming to school*
2. Holding up a piece of **paper**... *What else do we get from trees? PAPER!*
- *Yes, all kinds of paper stuff like paper towels, computer paper, newspaper, packaging paper... you probably have some paper packing in your lunches today with a juice box, or food container or a paper bag to carry it all in and a big cardboard box that has/had all your lunches in. Packaging is the biggest use of paper in the United States*
 - *Holding up a roll of toilet paper... Here's something that comes from trees that I hope you use every day (LAUGHING)*
 - * *How do we get something soft like toilet paper out of something hard like wood? After jut 1 or 2 guesses,*
 - * *Have you ever heard of "beating something to a pulp"? That comes from the paper making process*
 - a. *chipping wood into small pieces like wood chips*
 - b. *putting those in a big vat/container with some water, chemicals*
 - c. *That is stirred & cooked & beaten until the cellulose separates from everything else.*
 - d. *The cellulose is what's used to make paper, in fact, that's what paper is! Cellulose. (say it together, CELLULOSE)*
 - *Would you like to see some cellulose? YES! Ok, I'll give you some (Hand a piece of toilet paper to every kids, I just start tearing off pieces and tell them to tear off a piece and pass it down their row)*
 - * *When you get a piece of this paper, look at the torn edge. Do you see the little fuzz or hair like stuff? Those are cellulose fibers.*
 - * *Cellulose like this is not only used to make tissue paper, but also cardboard, paper bags, and all the paper stuff.*

- * *Ok, now I want you to put that piece of paper in your pocket because that is your forest products souvenir. When you get home today, I want you to show it to someone at home and ask them if they know what it is... What do you think they'll say? Yep, probably will say "toilet paper" and you can tell them this is actually "CELLULOSE" (say it together) CELLULOSE*
3. *OK, I've got some other things up there besides paper and wood. You tell me if these come from trees or not...*
 - ***Toothpaste?** Yes, I mentioned earlier that there was something in toothpaste that comes from trees... It's cellulose! Cellulose is in lots of things like many breakfast cereals as filler and to help hold stuff together.*
 - ***How about tape?** Have you ever seen a tape tree with rolls of tape ready for picking? NO! Me neither. Some people call this "cellophane tape", you may also have heard saran wrap being called "cellophane wrap", guess what's in both of those? Cellulose! that's where they get their name.*
 - ***How about cleaning solution?** This actually has 2 things in it that come from forest trees. One is called wood alcohol which is left over after making paper and is used in lots of cleaners & perfumes and the other ingredient in this cleaner (turn the bottle around so they can see the Pin-Sol label) comes from pine trees to give it a fresh smell.*
 - ***How about Maple Syrup?** YES! that's right, what kind of tree does it come from? (guesses from oak to finally maple) yes, any one know what kind of maple? From black maple? silver maple, red maple, stripped maple, Norway maple... sugar maple? YES! Real maple syrup comes from the sugar maple tree. Most of the pancake syrup you probably use like log-cabin or Aunt Jemima is just made from sugar and molasses.*
 - ***How about this paper cup?** YES*
 - ***How about this plastic cup...** (Mixed answers)*

D. RENEWABLE VS. NON-RENEWABLE

1. *Ok, lets talk about different kinds of natural resources. Paper comes from trees, and trees are what type of natural resource? Renewable or Non-renewable?*
 - *They are renewable... they are "natural" because they come from nature, they are a "resource" because we use them for many things, they are "renewable" because after we cut them down, more can grow.*
 - * *What do you think would happen to this place if we cut down all these trees to make some of the things you use everyday? WE WOULDN'T BE ABLE TO BREATHE; IT'D BE A DESERT, ETC. ETC. Actually, what we'd have the day after the timber harvest was done is a new forest!.... It'd be (show an inch tall with your fingers) this tall. And in a few years, it'd be taller than you and by the time you are a parent, they would be very tall and ready to provide us more forest products again... that's what a renewable resource is. When we can go back to the same place and get more of the same resource.*
 - *So, are forests and trees a renewable resource? YES*

- *Ok, now, we have this plastic & Styrofoam cup, what are these made from? (variety of guesses)*
 - * *Most of the time plastic and Styrofoam are made from a fossil fuel we call petroleum, that's like oil and gas that comes from deep inside the earth. Is petroleum a natural resource? Yes, it is, it comes from nature and we use it, that makes it a natural resource.*
 - * *Is it a renewable natural resource? No, like all fossil fuels, it's a Non-renewable resource. That means that once we use it all up from an area, we can't go back to that place and get more. Nature won't make more that quick, not even by the time your children are old, or for your children's children, or for your children's, children's, children. It's won't be there ever again. It's non-renewable.*
- *Now, here's the question to see if you've learned anything in the past few minutes...*
 - * *If you are at a picnic on a hot summer day and need a drink of tea and you have the choice of paper cups or plastic cups, which one would you chose to make the environmentally friendly choice?*
 - * *Show of hands, How many would choose paper? (hands go up) Even though you have to cut down trees to make paper cups? (most hands go down)*
 - * *How many would choose plastic? (hands go up)*
 - * *Ok, which of these come from a renewable resource? PAPER. Yes, and that's the better one to choose, because we can grow more trees. Once we run out of petroleum, it's all gone, fossil fuels can't be replenished or grown.*
- *And here's an extra neat thing about trees as a natural resource... While a forest is growing, before we use it for making products we use everyday, what is it doing for us*
 - * *Cleaning the air, providing oxygen, cleaning the water, shade, wildlife homes and food, place to hike & camp, hunting, beauty and much more.*
 - * *So, remember, it might not feel good to see trees cut down, but new forests will grow if we let them and forest products are something we use everyday, and that's ok since they come from a renewable resource.*

Thanks for coming to Oakley farm and this station, enjoy the rest of your day.

Key points:

- 1) Lots of stuff we use everyday comes from trees and forests.**
- 2) Forest are renewable.**
- 3) It's ok to harvest products from a forest**