

FUN FACES OF WISCONSIN AGRICULTURE TREES GIVE ME WHAT?



Activity Length:

A Brainstorm of tree products – 20 minutes

The air that we breathe and the soil we stand on - 20 minutes

Creating my own paper - 60 minutes and 15 minutes the next day

Christmas Tree Math Lesson – 30 minutes

Student Objectives:

1. Become familiar with the products that originate from trees
2. Understand the environmental benefits of trees in providing clean air and preventing soil erosion
3. Using used paper, create recycled paper to take home to remember the importance of trees both from the products you get from them and in recycling

Wisconsin Model Academic Standards:

English	A.4.4	C.4.1	C.4.2	D.4.1
Math	A.4.1	B.4.5	D.4.2	
Science	A.4.1	C.4.1	E.4.8	
Social Studies	E.4.14			

Introduction: Freddy Fir's Christmas Tree Fast Facts

Important Terms:

- Recycle: To reuse something for another purpose
- Erosion: Loss of soil – usually by water or wind
- Root System: Fibrous or tap, anchor plants or trees. Help absorb water and nutrients from the soil.
- Biodegradable: Broken down naturally with the help of bacteria
- Mulch: Ground cover that is used to reduce erosion, evaporation and to control weeds
- By-products: Products that are made from a source. There are over 5000 products made from trees.
- Soil: The top layer of the earth's surface. It is made of rock, mineral particles and organic matter.
- Humus: Organic material that is formed by the decomposition of plant and animal matter.
- Pulp: Fibrous materials made from wood or recovered waste paper for use in manufacturing paper.
- Slurry: A liquid mixture made up of fibers and fillers used in papermaking

Materials for this activity:

- Sponge
- Paper mold (made by tightly stapling window screen over an old picture frame)

- Plastic Basin or tub (big enough to immerse the frame)
- Paper, toilet paper, newspaper or paper related products (not glossy)
- Blender or food processor to be used to make the paper pulp
- White felt or flannel fabric the size of the paper mold

Lesson Outline:

A brainstorm of tree products

This activity will create a broadened realization of the uses for trees so the students can begin this project with an equal understanding

1. Create a simple drawing of a tree on the board with lots of branches coming from it.
2. Ask students to write in the branches the names of products that come from trees. Encourage students to give a specific product rather than “paper”. Some products include:

BATS	GUM
PADDLES	PLACEMATS
PLYWOOD	SHINGLES
SOLVENTS	TILES
TURPENTINE	WOODEN
TOOTHPASTE	BLOCKS
CANOE	CHARCOAL
CHEWING	COSMETICS
DEODORANTS	FLOOR
FURNITURE	GUITARS

3. When the tree is filled, discuss the ways that these products are processed and produced and how that has changed from in the past (i.e. lumberjacks transporting trees by river to logging mills). Refer to Department of Wood Science and Forest Products, Virginia Tech (<http://www.woodmagic.vt.edu/kids/Products/index.htm>) for processing information.
4. Complete the worksheet It Starts as a Tree

The air that we breathe and the soil we stand on

Students will discuss the importance to the environment provided by trees

1. Refer to the worksheet Christmas Trees and the Environment
2. What do trees do for us when they are living? How can trees serve as air filters? Trees provide shade and shelter for wildlife (i.e. birds, deer, rabbits, woodchucks, fox, mice, coyotes, turkeys, quail and grouse). Trees use carbon dioxide that humans exhale and water from the soil to produce its own food, and release clean air (oxygen) that humans need to survive.

Photosynthesis: Carbon dioxide absorbed from the air combines with water taken in by the plants’ roots from the soil to form food materials known as carbohydrates. Plants use the visible light rays from the sun as the energy source to accomplish this. An

important by-product of this reaction is the oxygen the plant releases into the atmosphere.

3. How can trees help the soil they are growing in? Trees provide a place for animals to live amongst the roots. Trees protect the soil and keep it from washing away in rain or floods by anchoring it with its roots. Each year, some needles will die and fall to the ground, decay and mix with the soil, making it more fertile.

Creating my own paper

This activity will give students a project to take home with them to show what they learned in the classroom.

1. Select the pieces of paper to be recycled. Mixing different paper types will create a unique end result. You can use newspaper, scrap paper or even dryer lint!
2. Rip the paper into small bits and fill the blender half full with paper and then fill with warm water. Blend slowly and increase speed as the pulp looks smooth and blended (for about 30 seconds). If large pieces remain, blend longer.
3. Fill basin half full with water, then add three blender loads of pulp to the basin. The more pulp you add, the thicker the paper will be. Stir the mixture in the basin. (If the paper is to be used for writing on, stir two teaspoons of liquid starch into the mixture to prevent the ink from bleeding through the paper)
4. Place the mold into the pulp mixture and level it out by wiggling it side-to side to even the pulp on top of the screen.
5. Slowly lift the mold up until it is above the water level and wait until most of the water has drained from the new sheet of paper. If it appears too thick, remove some pulp from the tub, if it is thin, add more and mix.
6. When the mold stops dripping, gently place one edge of the new paper on the edge of a fabric square. With the new paper directly on the fabric, gently ease the mold down. Use a sponge to press out as much water as possible and wring the sponge into the tub.
7. Hold the fabric square and slowly lift the edge of the mold, being careful to insure that the wet sheet of paper remains on the fabric. If it sticks to the mold, you may have pulled too fast or not removed enough water. It takes a little practice, but the paper can always be put back in the tub and tried again.
8. When multiple papers are finished, stack them one on top of the other and squeeze the excess water out one last time. Gently separate the sheets and place them individually to dry. When dry, remove from the fabric.

****Variations****

- Place dried flowers on the fabric before putting the paper onto it. The flowers will become a part of the finished paper.
- Use multi-colored paper for multi-colored results

Christmas Tree Math Lesson

1. Distribute Christmas Tree Math Worksheet as a classroom activity or homework assignment

Suggested Reading Materials:

- *Wisconsin Forests Forever - Teacher's Guide*. Available from the Wisconsin Department of Natural Resources
- *Paper by Kid*. By Arnold Grummer
- *300 Years of American Papermaking*. By Helena Wright
- *A Bibliography of Delightful Children's Books for General Us*. Wisconsin Christmas Tree Producers Association (www.christmastrees-wi.org) – click on Teachers.

Additional Worksheets:

Careers Guide related to Christmas Trees
Trees and the Environment Worksheet

Related activities:

- Use this lesson shortly after lesson on potato growth and create stamps to use on your recycled paper for students to create customized stationary. Then use the stationary to write a letter telling a pen pal what they learned about potatoes and trees.
- Alternative paper-making activities in *Wisconsin Forests Forever* (Pages 57-60)
- Edible Soil activity- download from (www.wisagclassroom.org) Click on Activities
- Refer to activities on Department of Wood Science and Forest Products, Virginia Tech (<http://www.woodmagic.vt.edu/kids/index.htm>)
- Real Trees 4 Kids- free on-line curriculum at (www.realtrees4kids.org)
- See (www.christmastrees-wi.org) for any new resources that become available
- Use terms from the Trees and the Environment Worksheet for a vocabulary test