

# **WOOD MAGIC FOREST FAIR**

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Dear Educator,

SC Forestry Commission has developed a virtual field trip experience as an alternative to attending the in-person **Wood Magic Forest Fair** program. Students will still be able to watch a sawmill cut a log into 2x4s, explore how paper is made, examine a web of life, and learn about the benefits of fire in an ecosystem... All in your classroom! Enclosed is an educational packet full of materials and resources to lead lessons around the sustainable management of forest resources and the role of forests and forest products in our daily lives.

## INTRODUCTORY ACTIVITIES

- **Animated Shorts – “Forest Fast Breaks”:** These are located on the SC Forestry Commission’s education webpage under the “Resources” heading at <http://www.state.sc.us/forest/edu.htm>. There are numerous other Forest Fast Break videos on YouTube, but we suggest showing the following shorts at a minimum:
  - [Ecosystems](#)
  - [Forest Fire](#)
  - [Reforestation](#)
  - [Sustainability](#)
  - [Wood Products](#)
- In this educator packet, you will find a summary of the major points covered in these videos and a vocabulary list. There is a list of suggested activities that you may want to consider doing after viewing the Forest Fast Breaks. There is also a short activity titled “**GIFTS of a Forest**” that teaches students about the various products that come from our forests.

## MAIN EXPERIENCE

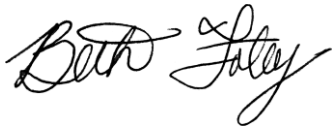
- **Wood Magic Forest Fair learning station videos:** As the main experience, students will view a recording of each Wood Magic Forest Fair learning station. These video links are imbedded into each learning station teacher outline. Each learning station has an accompanying student page that students can complete digitally.

## ENRICHMENT

- **A Tree’s Dream lesson plans:** The original “A Tree’s Dream” video that was a component of the “Introduction” learning station recording, will be replaced by an updated version of the video that was produced in 2020 in future in-person WMFF events. To extend the learning experience of the updated video, four different lesson plans geared towards grades 3-5, were written to complement the video’s theme. Each lesson plan has a 6-8 grade level variation if you are working with older students. These lesson plans, as well as other additional resources can be found at <http://www.langdale-company.com/a-trees-dream>.

Should you have any questions concerning this virtual Wood Magic Forest Fair educator packet, please give me a call at (803) 896-8855 or e-mail [bfoley@scfc.gov](mailto:bfoley@scfc.gov). Thank you for your commitment to educating our youth about the importance of conserving Earth's natural resources!

Sincerely,

A handwritten signature in black ink that reads "Beth Foley". The signature is written in a cursive, flowing style.

Beth Foley  
WMFF Assistant Coordinator



# Animated Shorts - “Forest Fast Breaks” - Major Topics:

- I. **Ecosystems:** (Standards related to topic: 5.L.4A.1 5.L.4A.2 & 5.L.4B.1)
  - a. Ecosystems consist of the interaction between the living (**biotic**) and nonliving (**abiotic**) components in a limited area.
  - b. Ecosystems are made of three cycles (**Energy, Nutrient, and Water**) that make up a system that maintains a healthy environment for its biotic components.
  - c. Forest ecosystems are dynamic (**changing**) and are affected by the weather, fire, floods, and humans.
  - d. We need to balance the needs of society (for wood products for example) with the needs of the environment to maintain its health.
  - e. Ecosystems can vary in size from a rotten log to the entire planet.
- II. **Forest Fire:** (Standards related to topic: 5.E.3B.3 & 5.E.3B.4)
  - a. Before human intervention, natural-set fires would burn a forest every 5-30 years. These low-intensity fires were good to control underbrush, pests, and reduce competition for the surviving trees.
  - b. Over 100 years ago in many places in America, we started putting out all forest fires to protect communities. This absence of fire caused underbrush and small trees to build up to unnatural levels increasing the fuel load (**amount of flammable material**). When forest fires did start, the increased fuel load increased the intensity and danger. This damaged trees, water, wildlife habitat, and communities affected by the fire.
  - c. The removal of trees (**thinning**), the chopping and mulching of underbrush, and small controlled fires in forests can reduce fuel load and wildfire risk. Controlled (**prescribed**) burns imitate the environmental benefits of natural-set fires.
- III. **Reforestation** (Standards related to topic: 5.E.3B.3 & 5.E.3B.4)
  - a. To supply the wood and paper products we use every day, we need to harvest and replant trees. In America, about 1.5 billion trees are grown and shipped for replanting each year...almost 5 trees for each person.
  - b. Reforestation can happen naturally or through planting.
  - c. Trees are a **renewable resource** and reforestation makes the process of growing and harvesting trees sustainable.
  - d. Sustainable forest management provides jobs, wood products, clean air and water, and wildlife habitat.
- IV. **Sustainability** (Standards related to topic: 5.L.4B.4)
  - a. Clean water, fish and wildlife habitat, recreation, jobs, and forest products are a few **values of forests**.
  - b. A sustainably managed forest meets our **environmental, social, and economic** needs for today and for the future.
  - c. Scientific research and responsible forest management work together to maintain optimal forest sustainability.
- V. **Wood Products** (Standards related to topic: 5.E.3B.4)
  - a. Trees use **carbon dioxide, water, and sunlight** to grow and make wood.
  - b. Wood is used to make lumber, plywood, cardboard, paper, guitars, clocks, and many other solid wood products.
  - c. Other products that contain wood derivatives include toothpaste, ice cream, artificial bones, and many other products (see [http://www.idahoforests.org/wood\\_you.htm](http://www.idahoforests.org/wood_you.htm))

## “Forest Fast Breaks” Vocabulary Terms:

1. **Abiotic** – a nonliving factor or element in an environment; e.g., light, water, heat, rock, and gases
2. **Biotic** – an environmental factor related to or produced by living organisms
3. **Ecosystem** – the interacting system of a biological community and its nonliving environment; also, the place where these interactions occur
4. **Forest management** – the practical application of scientific, economic, and social principles to the administration of a forest
5. **Fuel load** - the total amount of combustible material in a defined space; quantified in heat units or in its equivalent weight in wood
6. **Prescribed burn** – the planned application of fire to a forest, stand, prairie, or slash pile with the intent to confine the burning to a predetermined area; also known as a controlled burn
7. **Renewable resource** – a naturally occurring raw material or form of energy which has the capacity to replenish itself through ecological cycles and sound management practices
8. **Sustainable** – using natural and human resources in a way that does not compromise the needs of future generations
9. **Thinning** – to reduce the number of trees in a stand of trees
10. **Wildfire** – any fire other than a controlled or prescribed burn occurring on wild land

The “Wood Magic Forest Fair” activities, the video and activities for “Forest Fast Breaks” are designed to meet the following 5<sup>th</sup> Grade S.C. Curriculum Performance Indicators:

### 2014 SCIENCE:

Scientific and Engineering Practices: 5.S.1A.1, 5.S.1A.2, 5.S.1A.4, 5.S.1A.6, 5.S.1A.7, 5.S.1A.8

Interdependent Relationships in Ecosystems: 5.L.4A.1, 5L.4A.2, 5.L.4B.1, 5.L.4B.2, 5.L.4B.3, 5.L.4B.4

### SCCCR ENGLISH/LANGUAGE ARTS:

5.I.1, 5.I.3, 5.I.4, 5.I.5; 5.RL.1, 5.RL.2, 5.RL.3, 5.RL.4, 5.RL.10; 5.RI.1, 5.RI.2, 5.RI.3, 5.RI.4, 5.RI.9;

5.W.2, 5.W.3, 5.W.4, 5.W.5, 5.W.6; 5.C.3

## **"HOW MUCH DID YOU LEARN ABOUT OUR FORESTS?"**

### **SUGGESTED ACTIVITIES AFTER VIEWING: "FOREST FAST BREAKS"**

**1. Have the students look around their classroom and list all the things they observe that come from trees.** Have the students first make individual lists without looking at all the things in the classroom that come from trees. Next, divide them into small groups to compare their list and make a group list. Finally, make a classroom list of all the items.

**NOTE:** A lot of things like their desk, pencils and papers are easy. But don't forget items like soap, crayons, ink, glue, and dyes. See [http://www.idahoforests.org/wood\\_you.htm](http://www.idahoforests.org/wood_you.htm) for a list of items that come from trees. Students may also choose a wood product, do research on how that product is made, create a presentation on their findings, and then present their wood product to the class.

**2. Write a persuasive essay that defends the position "It is important that we have forests for the future."** Have students read their paragraphs to the class and compare their reasons and relevant evidence.

**NOTE:** Use your discretion for this, but accept any answer that mentions the benefits that trees give to us and the environment or any mention that trees are renewable and can be grown over and over.

**3. Nature is a great teacher!** Try these activity ideas from Project Learning Tree to connect your students and students' families to the outdoors and nature. Go to <https://www.plt.org/activities-for-families/>, then choose an activity that would fit into your setting or a lesson at school. These inquiry-based activities cover all the subject areas.

**4. Have the students write a narrative on "What would a day without trees be like?"**

**5. Make a bulletin board (physical or digital) or have students make drawings about forests, forest products, or life in a forest.** Students can bring in magazine pictures or actual items to add to the bulletin board.

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### **Answers to student activity "GIFTS of a Tree" on the following page:**

All of the items on the activity "Gifts of a Tree" come from trees or have parts that come from trees except LEATHER BELT, SILVERWARE, and GLASS JAR



## GIFTS of a Tree



Circle the items below that come from trees or may contain parts that come from trees.

Greeting cards

Tables

Drinking cups

Egg cartons

Beds

Baseball bats

Milkshakes

Poultry feed

Diapers

Musical instruments

Hair spray

Toothpaste

Mouthwash

Silverware

Envelopes

Boxes

Fences

Glass jar

Cosmetics

Paint

Turpentine

Photographic film

Vinegar

Cellophane tape

Eyeglass frames

Oxygen

Houses

Clothes

Shelves

Medicine

Paper

Furniture

Food

Leather belt

Chewing gum

Magazines

# WOOD MAGIC FOREST FAIR

## Main Experience

The accompanying student pages for the learning station videos are saved all together in a separate document titled, "WMFF Student Pages\_ALL". Each student page is a fillable pdf which can be completed digitally.

### INTRODUCTION

**Station video:** <https://www.youtube.com/watch?v=9vsNNCC0d14>

**Overview:** The students will watch the video, "A Tree's Dream", participate in a magic demonstration of a seed turning into a seedling, and discuss the concepts of renewable vs nonrenewable, recyclable, and biodegradable.

**Objectives:** Students will learn the meaning of the vocabulary terms: natural resource, renewable, non-renewable, recyclable, and biodegradable; be able to explain the difference between renewable and nonrenewable resources; and explain why using trees is environmentally friendly.

#### **Standards:**

5.E.3B.3 Construct scientific arguments to support claims that human activities (such as conservation efforts or pollution) affect the land and oceans of Earth.

5.E.3B.4 Define problems and solutions caused by natural processes or human activities.

**Instructions:** Throughout the video, the instructors will reference a tree named Fred. Historically, a video of "Fred the tree" was played during the introduction. This video was remade in 2020 and the new main character's name is "Tim the tree." Whenever Fred is referenced by the instructors, please tell students that it should be Tim. At minute 3:55 in the "Introduction" video, pause it as the instructors start to play the "Fred" video and instead play the new "A Tree's Dream" video. Then switch back to the Introduction video to watch the rest of the learning station.

New "A Tree's Dream" video: <https://www.youtube.com/watch?v=777wq0VIEFg&t=2s>

#### **Student Page – Answer Key:**

1. What is Tim the tree's big dream? **To be a house**
2. For every tree that we cut down, how many trees do we plant back in its place? **Five**
3. What is a natural resource that you can harvest, replant, and grow again? **Renewable nature resource**

# MAKIN' PAPER


**Station video:** <https://www.youtube.com/watch?v=WGHHiKH9-Ag>

**Overview:** Students will discuss the need for recycling, including the components of municipal solid waste. They will learn how paper is made; both from virgin fiber and from recycled paper and will recycle tissue paper into new paper.

**Objective:** Students will be able to explain why recycling is important and will be able to describe the basic steps in the paper-making process.

**Standard:** 5.E.3B.3 Construct arguments to support claims that human activity affects the land.

**Instructions:** Try making paper with your students in your classroom! This is a material heavy activity but the supplies can be found at an arts and crafts store (mesh screens, small wooden rollers) and from repurposed materials (baby food jars, small yogurt cups, old newspaper). Below is the instruction booklet that each student is given at Wood Magic. Their homemade paper is placed inside of this folded booklet and the edges are stapled to keep it inside and to carry home.

<h2>Making Paper From Paper</h2> <p><i>What Factories Do.</i></p> <ul style="list-style-type: none"><li>-Use lots of water (95% water, only 5% paper)</li><li>-Shred paper</li><li>-Mix water and paper to form pulp</li><li>-Pour pulp onto screens</li><li>-Use presses to remove water</li><li>-Dry paper on larger rollers</li></ul> <p>The <u>major</u> reason to recycle paper is to save landfill space, which is a non-renewable resource. Trees are a renewable resource. We are running out of landfill space, but we will always have plenty of trees if we manage them properly.</p> <p><b>DID YOU KNOW???</b></p> <p>Each person in the U.S. uses about 750 pounds of paper each year.</p> <p>So...RECYCLE!!!</p> 	<h2>Name _____</h2> <p><i>What you can do.</i></p> <ul style="list-style-type: none"><li>- Fill a baby food jar 3/4 full of water</li><li>-Tear 3 squares of tissue into shreds</li><li>- Stir paper in water with your finger</li><li>- Put screen and bottomless cup on a yogurt cup; dump pulp into top cup</li><li>- Fold screen over paper circle</li><li>- Place inside folded newspaper</li><li>- Roll over the newspaper with the wooden rod</li><li>- Place damp paper inside this instruction sheet</li><li>- Let it dry over night</li><li>- Use your paper for something!</li></ul>
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### Student Page – Answer Key:

1. What are three main ways that paper can be made? **Wood scraps (chips and pieces left over when a board is cut); Cutting trees that are too small or twisty to make boards; Grinding paper that has been recycled**
2. What does NIMBY stand for? **Not In My Back Yard**
3. What is the main reason that we recycle paper? **To save landfill space**



## GOOD FIRE / BAD FIRE

**Station video:** [https://www.youtube.com/watch?v=gUbpjfxs\\_wY](https://www.youtube.com/watch?v=gUbpjfxs_wY)

**Overview:** Students will contrast fires that are helpful for man and nature and those that are harmful. They will then explore the benefits that properly conducted controlled burns provide by examining, comparing and contrasting an unburned area with a prescribed burned area.

**Objective:** Students will be able to describe several benefits of prescribed burning and the hazards of wildfires. They will construct scientific arguments to support claims that human activity affects the land and define how human activity can sometimes cause problems and sometimes be beneficial.

### **Standards:**

5.E.3B.3 Construct scientific arguments to support claims that human activity affects the land.

5.L.4A.1 Analyze and interpret data to summarize the abiotic factors of different terrestrial ecosystems.

5.E.3B.4 Define problems caused by human activities and test to reduce the impact on land.

5.L.4B.2 Develop and use models of food chains and food webs to describe the flow of energy in an ecosystem.

5.L.4B.4 Construct scientific arguments to explain how limiting factors, or a newly introduced organism can affect an ecosystem.

### **Student Page – Answer Key:**

1. How can a prescribed fire help healthy trees get more nutrients, water, and sunlight that they need to survive? **A prescribed fire can kill smaller unhealthy trees in the forest, giving the healthy trees more space to grow and collect the abiotic resources needed to survive.**
2. What are the three main elements or ingredients needed for a fire? **Heat, oxygen, and fuel**
3. How can a prescribed fire help prevent a large wildfire? **A prescribed fire can help burn some of the fuel on the forest floor so if a wildfire came through the area, it wouldn't get as big or burn as hot and kill the trees.**

## GIFTS OF THE FOREST

**Station video:** <https://www.youtube.com/watch?v=JiOiJ80NqEM>

**Overview:** Students will explore what benefits forests provide for man and the environment; first in terms of wood products, then with regard to wildlife habitat, soil and water quality protection, air and noise filtering, recreation, social benefits, and economic benefits (such as jobs).

**Objective:** Students will be able to describe several environmental, social, and economic benefits of our forests.

### **Standards:**

5.E.3B.3 Construct scientific arguments to support claims that human activities (such as conservation efforts or pollution) affect the land and oceans of Earth.

5.L.4A.2 Obtain and communicate information to describe and compare the biotic factors (including individual organisms, populations, and communities) of different terrestrial and aquatic ecosystems.

5.L.4B.1 Analyze and interpret data to explain how organisms obtain their energy and classify an organisms as producers, consumers (including herbivore, carnivore, and omnivore), or decomposers (such as fungi and bacteria).

5.L.4B.2 Develop and use models of food chains and food webs to describe the flow of energy in an ecosystem.

5.L.4B.3 Construct explanations for how organisms interact with each other in an ecosystem (including predators and prey, and parasites and hosts).

**Instructions:** Try leading the web of life with your students! Check out this free activity from Project Learning Tree. <https://www.plt.org/learn-forests/web-of-life/>

### **Student Page – Answer Key:**

1. How do trees help protect soil and clean water? **Tree's roots help anchor soil and keep it from eroding when it rains, therefore keeping sediment out of our waterways. Leaf litter on the forest floor and a tree's branches also helps intercept rain and protect the topsoil.**
2. What types of recreation can be done in the forest? **Examples given: Camping, hiking, bird watching, canoeing, and fishing**
3. How do trees filter the air that we breathe? **Tree's leaves filter dirty dusty air and give us clean air. They also take in the carbon dioxide we breathe out and give us oxygen we need to survive.**

# SAWMILL

**Station video:** <https://www.youtube.com/watch?v=P6AYjxdMY9Q>

**Overview:** Students watch as a log is cut into boards on a sawmill and learn how finished lumber is made. They also learn how sawdust and bark are used for fuel and for the manufacture of other products. They are introduced to particleboard, plywood, and oriented strand board (OSB).

**Objective:** Students will be able to describe the process by which a log becomes a board and will be able to name several other solid products in addition to lumber. Construct scientific arguments to support claims that human activity affects the land and define problems caused by human activity that impacts landforms.

## **Standards:**

5.E.3B.3 Construct scientific arguments to support claims that human activities affect the land and oceans of Earth.

5.E.3B.4 Define problems caused by natural processes or human activities and test possible solutions to reduce the impact on landforms and the ocean shore zone.

## **Student Page – Answer Key:**

1. What is the name of the person who operates the sawmill? **Sawyer**
2. Does any part of a tree get wasted at the sawmill? How is the bark used? **No, even the bark can be used as mulch or be burned for energy**
3. What type of wood product can be made from sawdust? **Particle board**

## MAGIC SHOW

**Station video:** <https://www.youtube.com/watch?v=UJOUqoHgZi8>

**Overview:** Through magic and storytelling, students recognize that there are differing opinions concerning environmental issues and that things aren't always what they appear to be. They learn that education is a key component of understanding environmental issues and bringing differing groups together. Using a dream sequence, instructors show that leaving logging debris is not aesthetically pleasing, but is environmentally and economically sound. As a finale, students are introduced to a variety of everyday items that are made from wood products. Through this demonstration the students come to realize the importance wood products have on the quality of their everyday lives and that using wood is an environmentally friendly thing to do.

**Objective:** Students will be able to explain the difference between renewable and non-renewable, will know the meaning of biodegradable and recognize that trees are both renewable, recyclable, and biodegradable. Students will be able to describe how they use forest products in their everyday lives and that these products improve the quality of their lives. Students learn that using wood is an environmentally friendly choice.

### **Standard:**

5.E.3 The student will demonstrate an understanding of how natural processes and human activity affect the features of Earth's landforms and oceans.

### **Student Page – Answer Key:**

1. Which clearcut picture was more environmentally responsible, the “messy” one or the “clean” one? Why? **The messy one because the branches and leaf litter helped protect the soil and kept it from eroding away.**
2. How many pounds of paper does the average American person use per day? **Three times the world average – 15 pounds a day**
3. List five different products that come from trees. **All products listed in video: Paper towels, furniture, wooden bowl, wooden cutting board, wood chips for smoking meat, plastic wrap, cardboard egg carton, Pine-Sol, citrus soda, hair spray, lipstick, mascara, aspirin, artificial vanilla extract, bar soap, dish soap, sunscreen, diapers, and toilet paper**



Forestry and education partners from across the Southeast collaborated to create the new environmental education program, "A Tree's Dream." These free materials teach youth about ways we are conserving Earth's natural resources and protecting the environment through the "A Tree's Dream" video and accompanying lessons. Follow the dream of Tim the tree as he fulfills his dream of becoming part of a family's home at: <http://www.langdale-company.com/a-trees-dream>

Lessons are correlated to the Next Generation Science Standards for grades 3-5 and 6-8.

**GRADES 3-5 LESSON PLANS:**

[Engineering Design Using Wood Products](#)

[Environmental Services](#)

[Tree Growth and Products](#)

[Stewardship and Sustainability](#)

**GRADE 6-8 LESSON PLANS:**

[Engineering Design Using Wood Products](#)

[Environmental Services](#)

[Tree Growth and Products](#)

[Stewardship and Sustainability](#)