



## Special Note to Users of this Guide:

This Instructor's Guide, along with the *Forest Friends* website is designed to help you explore with your students the importance of forests in our world. We hope you find these tools useful as you and your students set out to discover the wonders of the state's most valuable ... properly managed ... and ... infinitely renewable resources. Hopefully you, and your students will enjoy the learning and implementation challenges of this website.

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# INTRODUCTION

## **Use in the Classroom**

The Forest Friends website is primarily designed for use in K - 4<sup>th</sup> grade classrooms, but can be used with a wide variety of audiences. It is primarily intended for single-user or small group settings.

Using the Forest Friends website, this Instructor's Guide, and a little imagination, the educator can lead students into subjects beyond forestry and this website. Students may explore the need for forest products in society, better understand the role of forests in providing habitat, and learn about trees commonly found in the state.

The Forest Friends Instructor's Guide is designed to assist the educator in using the website to facilitate student learning about forests. Each of our three content areas includes information on grade level of content, subjects the material covers, concepts in the unit, and skills the students will be employing during the learning process. Correlations to state standards are also provided for each section. In every section, a brief introduction to each topic is provided along with an activity to reinforce the content.

# ENVIRONMENT

## Levels

Grades K-4

## Subjects

Science, Math

## Concepts

The forests provide habitat for thousands of different creatures.

Each inhabitant does its part in continuing the forest cycle.

## Skills

Observing, Relationships, Patterns, Organizing Information and Analyzing, Identifying Relationships

Trees offer many benefits to the environment. They cool the temperature of the air by almost 10 degrees and give animals a place to live. Their roots hold together the forest floor and help to keep our drinking water clean. Trees also produce the oxygen we need to breath.

It is the job of foresters to manage and protect our forests. They understand the special role that trees play in preserving our way of life.

## Components

In this section, students learn about things trees do for our environment. They have the opportunity to play "ConcenTREEtion" which tests their memory skills. After they complete each game they will see a video about an animal that is commonly found in the forest. There are 9 video clips which are chosen at random.

## Sample Activity

Imagine, if you can, living in a place without trees. What if all the trees disappeared? To help us think about trees and their place in the environment, let's look at

some of the things we normally find in the forest and see how plants and animals might benefit from each other.

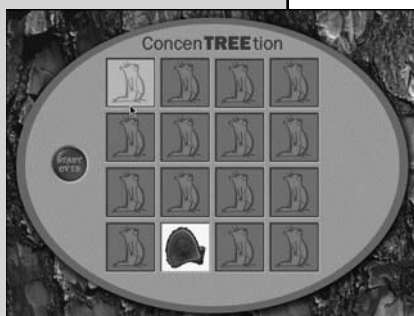
Some forest creatures may need a single limb on a tree or a decaying

log to sustain their lives, or they may need several hundred acres of forests to meet their needs. Thus, even animals living in the same forest may place very different demands on that forest. The good news is that forests can meet the needs of many different animals at the same time.

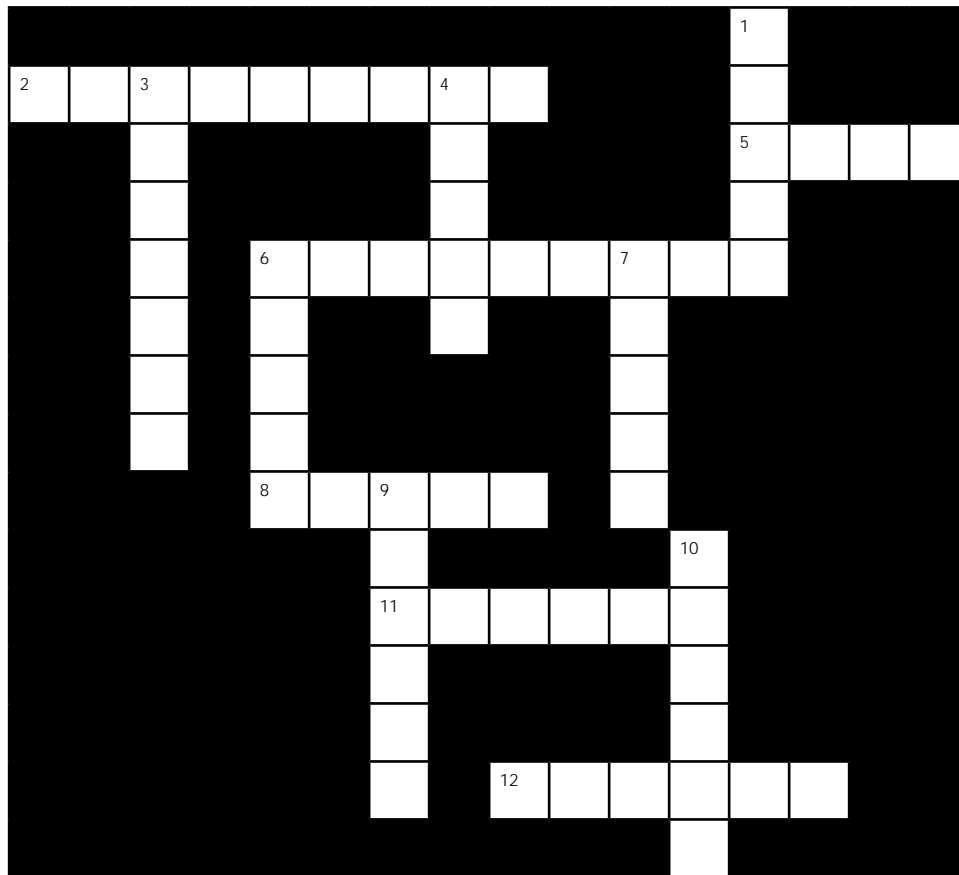
To better understand this interaction, let's examine how some animals and plants interact. Collect signs of plant and animal life that you can find around trees, things like twigs, partially eaten plants, leaves, nuts, fruit, litter, etc. Discuss with your student how these things demonstrate an interaction between plants and animals. Ask them if there are any signs of man's interaction in this environment.

*For older students:* Individually, or in groups, have the students examine a tree(s). Start by looking at the whole tree from a distance. Ask them to note all kinds of living creatures depending on the tree -- including other plants. Have them take a closer look at the tree and area around it for signs of plant and animal interaction.

Have the students organize the information into a table or booklet and discuss the results with the class. Ask about how the tree is affected by the plants and animals that live around it. Do any of the organisms appear to harm the tree? How do the plants and animals benefit from their relationship?



# ENVIRONMENT CROSSWORD PUZZLE



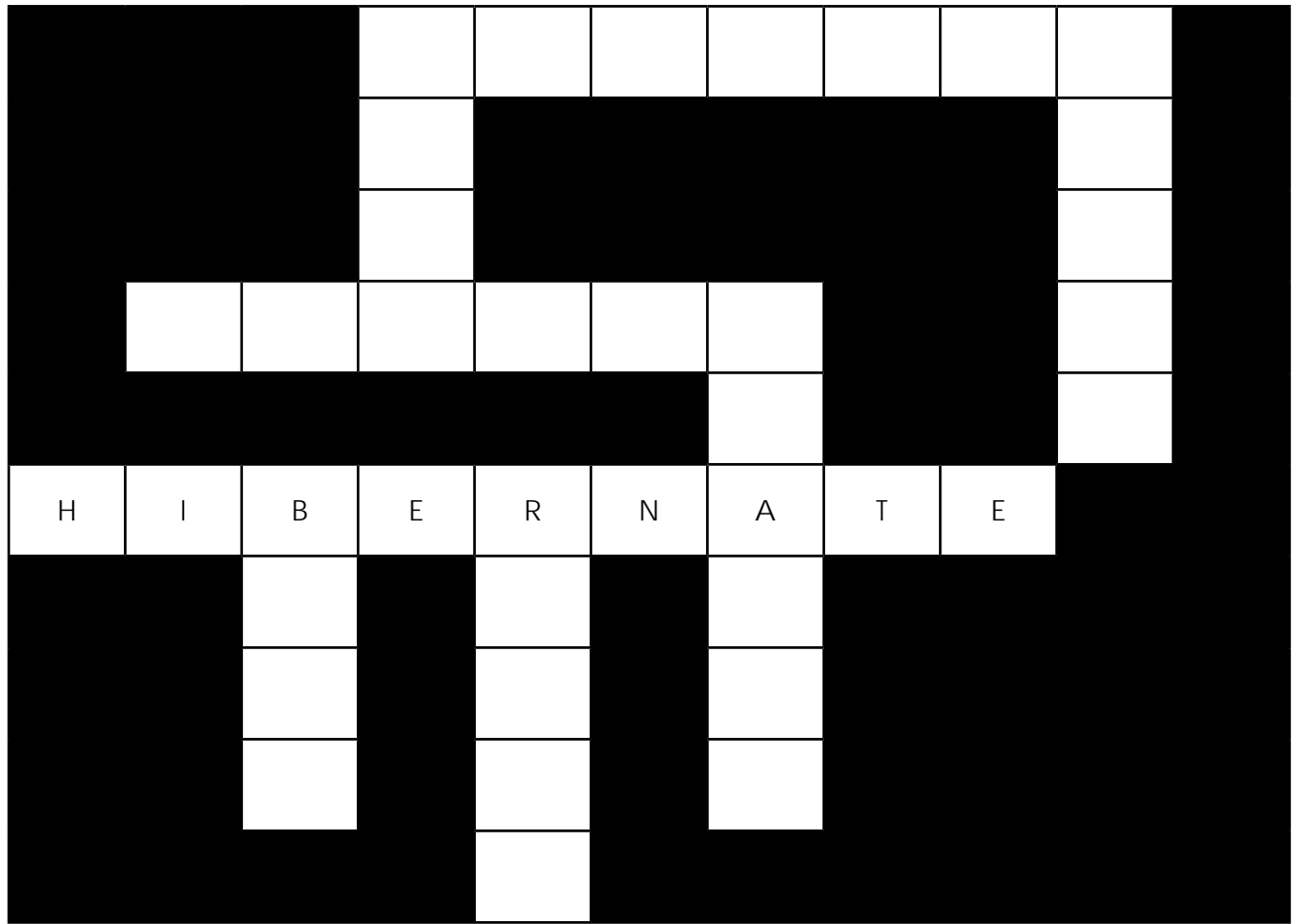
## Across

2. Bears do this in the winter.
5. These flying animals hunt for rats, mice and insects at night. They depend on the forest for nesting and cover during the day.
6. It is the job of \_\_\_\_\_ to take care of our forests.
8. The \_\_\_\_\_ from trees cools the forest by 10 degrees.
11. Trees produce \_\_\_\_\_ that we need to breathe.
12. Homes for animals, clean air and water and a place to have fun are benefits of a well managed \_\_\_\_\_.

## Down

1. Tree \_\_\_\_\_ hold the forest floor together and provide water and nutrients to the tree.
3. These animals prefer to live deep in the forest and like to climb rocks to seek out prey.
4. We use all of the parts of these living things to make the products we need every day.
6. These amphibians live in forests where they eat insects.
7. This type of animal lives in trees and while they enjoy a rat or snake for dinner every now and then, they prefer fish, swooping down and catching them in rivers and lakes.
9. Turkeys and other animals eat these hard seeds from trees and scatter them around the forest.
10. \_\_\_\_\_ climb trees, live in the hollow parts of trees and lay eggs in rotten logs. They feed on lizards, frogs, mice, squirrels and other forest animals.

# ENVIRONMENT CROSSWORD PUZZLE



Use the words below to fill in the squares and create a crossword puzzle.

**Bear**

— **Hibernate** —

**Eagles**

**Shade**

**Forests**

**Snakes**

**Frog**

**Roots**

# ENVIRONMENT

## STUDENT ASSESSMENT

Name: \_\_\_\_\_

1. Trees produce \_\_\_\_\_ that we need to \_\_\_\_\_.  
a) water, drink                      b) oxygen, breath                      c) leaves, eat
2. Shade from trees can \_\_\_\_\_ the air.  
a) cool                                      b) warm                                      c) move
3. A tree's roots help it by taking in \_\_\_\_\_.  
a) sunlight                                      b) soil                                      c) water
4. Animals need the trees in the forest for \_\_\_\_\_.  
a) food                                      b) a place to live                                      c) both a and b

### Match the animal to the correct statement below.

- |               |  |
|---------------|--|
| ___ 5. Eagle  | a) These animals like to hibernate, or sleep, most of the winter   |
| ___ 6. Bear   | b) Living deep in the forest these animals like to climb rocks and watch for their prey, then jump down on them. |
| ___ 7. Snake  | c) These amphibians like to eat insects.   |
| ___ 8. Bobcat | d) With white heads and good eyesight, these animals like to fly down from the tops of trees and catch fish.     |
| ___ 9. Frogs  | e) These are excellent climbers that often live in hollow sections of trees and lay eggs in logs and stumps.     |

### Challenge:

10. On the back of this sheet, tell two ways a forest is like a zoo.

# PRODUCTS

## Levels

Grades K-4

## Subjects

Science, Social Studies

## Concepts

Trees provide a large number of products that people use every day.

Trees are a renewable resource.

## Skills

Classifying and categorizing, Comparing and Contrasting, Evaluating, Identifying Attributes

Many things we use every day are made from trees. We use trees to make houses, furniture, pencils and paper, but there are other products that you might not know are made from trees. Things like toothpaste, even crayons all come from trees. No part of harvested trees is wasted. We use the solid wood, bark, sap, and pulp. Even the sugars in a tree are used to make more than 5,000 different products. In fact, many paper and wood products are recycled and reused to further insure that trees are not wasted.

## Components

In this activity, students play a game called *Wild About Wood*. In the game, 9 products are randomly displayed on the screen and students are asked to name the products that are made of wood. All of the products in the game are made of wood or wood derivatives. When the student chooses a product, the announcer tells them they are correct and then describes what part of the tree that product comes from. Students have 30 seconds to complete this activity.

## Sample Activity

Start this activity by showing students some every day products, both made from wood, and not made from wood. Have them distinguish between those made from wood and those not made from wood. Use things like

a paper cup and a glass, a pencil and a pen, a cardboard milk carton and a plastic milk jug, etc. You may do this before or after they view this section of the website.

Ask students to list products they remember from the game. Though only 9 are viewed each time, there are 17 products included. Review the products you showed them earlier. Ask which of the products surprised them the most.

*For older students:* As students name products, create a list on the chalkboard with the heading "Product." Once you complete the list, put a second column on the board entitled "Tree Part." Also list the words: cellulose, resin, wood fibers, pulp, and sugar. Ask students what part of the tree (using the above words) is used to make each of the products listed, and fill that information in on your chart.

The table below lists the products and what part of the tree they come from.

| Product           | Tree Part   |
|-------------------|-------------|
| Tea Bag           | Pulp/Paper  |
| Milk Carton       | Pulp/Paper  |
| Hospital Gown     | Wood Fibers |
| Tape              | Wood Sugar  |
| Mouthwash         | Resin       |
| Desk              | Wood        |
| Carpet            | Wood Fibers |
| Toilet Paper      | Wood Pulp   |
| Ice Cream         | Cellulose   |
| Pancake Mix/Syrup | Wood/Sap    |
| Violin            | Wood/Resin  |
| Tire              | Wood Pulp   |
| Film              | Wood Pulp   |
| Crayon            | Resin       |
| Toothpaste        | Cellulose   |
| Orange Drink      | Resin       |
| Diapers           | Cellulose   |





# TREE PRODUCTS WORD SEARCH

F L U Q K S D H D P E N C I L S  
D I B U Z C B L O A U M O G Y K  
H R L A M R T D O P G V H S F V  
K G U M E A E D D E L C I R Y M  
S S W L Y Y L I L R A X J E Y H  
V Y E E S O V K C P R M L P R B  
O I O L I N T E S E G Z T A P E  
T O O T H P A S T E C Y I I O O  
A D E L E K I B W O D R R D L H  
V E L N I D N H E A A J E O Y O  
Q S D V B N Y F T C K S R A X U  
T K O T L P A Q T E F E E F M S  
O R A N G E D R I N K S G J V E  
J V K B I T R R K A A L T S Y E

See if you can find the following words in the word search puzzle above:

**Crayon**  
**Desk**  
**Diapers**  
**Film**  
**House**  
**Ice Cream**

**Orange Drink**  
**Paper**  
**Pencils**  
**Tape**  
**Toothpaste**  
**Violin**

# TREE PRODUCTS WORD SEARCH

H O U S E X Z C B K  
S R L O V A O H E V  
A W H K A G B A T G  
P A P E R L C I N B  
E J E S X W Y R D A  
E L N A M U Z D S G  
R Q C I F T D E S K  
U A I G D M L I B G  
J R L Z C R A Y O N

See if you can find the following words in the word search puzzle above:

**Bag**  
**Chair**  
**Crayon**  
**Desk**  
**House**  
**Paper**  
**Pencil**

# PRODUCTS STUDENT ASSESSMENT

Name: \_\_\_\_\_

1. Every \_\_\_\_\_ of the \_\_\_\_\_ is used to make products we need every day.
2. Many paper and wood products are \_\_\_\_\_ and reused so trees are not \_\_\_\_\_.
3. Name two things you have or use in your classroom that come from trees:
4. Name two things you have or use in your home that come from trees:
5. Name two things you would find at the grocery store that come from trees:

## Match the product to the part of the tree used to make it

- |                        |                |
|------------------------|----------------|
| _____ 6. Film          | a. Tree Fibers |
| _____ 7. Violin        | b. Tree Pulp   |
| _____ 8. Diapers       | c. Cellulose   |
| _____ 9. Hospital Gown | d. Wood        |

## Challenge

10. What three products that come from trees would you miss the most if we could no longer use trees? Why would you miss these?

# BALANCE

## Levels

Grades PreK- 4

## Subjects

Science, Reading

## Concepts

If properly managed, renewable resources can supply man's needs indefinitely.

Forest management is vital to insuring existence of forests and man.

## Skills

Observing, Identifying Patterns and Relationships, Organizing Information

We have learned some of the benefits that forests provide to man and animals. Now, lets talk about why we call trees a *Renewable Resource*. A renewable resource is one that we can use over and over again. In forestry, it means we can plant seedlings, watch them grow and then harvest the trees to make the products we use every day. We can even recycle some of those products like newspaper so they can be used again to make new paper.

It is important that we take care of our trees. This is called *forest management*. Foresters grow trees in one part of the forest while trees are harvested and replanted in another part of the forest.

One of the tools foresters use to keep a forest healthy is fire. Controlled fires help clear out the understory that competes with trees for water, nutrients and sunlight. This underbrush, if left to grow could fuel big, uncontrolled forest fires. Controlled fires also open up space for animals to live.

Wise management of our forests will insure that we will always have plenty of trees and the tree products we use every day.

## Components

The students play a game that resembles "Mr. Potato Head" by creating faces on the tree, leaf, or fruit being described in the accompanying narrative. Trees commonly found in the state are included. The description of each tree as well as a sketch of the tree can be printed and used for reading and writing activities.

## Sample Activity

Have students print the narrative sections about each tree and put them in a notebook. Then, take the students to a nearby park or forest where many of these trees can be found and collect leaves--the teacher may want to do this for the students. Have the students put the leaves in the notebook.



# TREE ID WORD SCRAMBLE

1.   ○   ○   —   —   —   ○

2.   —   —   —   ○   —   —   —   ○

3.   —   —   —   —   —   —   —   —   —   ○

4.   —   —   —   ○   —   —   —   —   —

5.   —   —   —   ○   —   —   —   —

6.   —   —   ○   ○

7.   —   —   —   ○   —   —   —

8.   —   —   —   ○   —

9.   —   —   —   —   —

10. —   —   —   —   —   ○

11. —   —   —   —   —   ○   —   —   —

12. ○   —   —   —   ○   —   —

- NOLIGAMA
- EDR PEMAL
- LOWYEL ALPPOR
- CIRANAME HYLOL
- DABL YSERPSC
- NEPCA
- SSSSSAAAFR
- COKIHYR
- VEIL KAO
- COMYRESA
- FOLLANGE NIPE
- TWESE MUG

Unscramble the words above to identify twelve types of trees. Then use the letters in the circles to answer the question below.


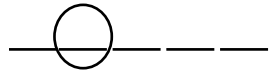
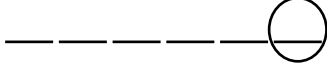




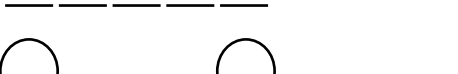
**What provides fun, food and things we need to live every day?**

— — — — —    — — — — —    — — — — —

**Hint: These are some types of common trees:**

- |              |               |             |                |
|--------------|---------------|-------------|----------------|
| Live oak     | Yellow-poplar | Sugar maple | Hickory        |
| Sweet gum    | Pecan         | Magnolia    | White oak      |
| Black walnut | Bald cypress  | Elm         | American holly |
| Red maple    | Longleaf pine | Sycamore    | Sassafras      |

# TREE ID WORD SCRAMBLE

- |    |   |            |
|----|---|------------|
| 1. |  | SSSSSAAAFR |
| 2. |  | HYLOL      |
| 3. |  | RALPPO     |
| 4. |  | PEMAL      |
| 5. |  | KAO        |
| 6. |  | NIPE       |
| 7. |  | NEPCA      |
| 8. |  | WEETS MUG  |

Unscramble the words above to identify eight types trees. Then use the letters in the circles to answer the question below.

**What provides fun, food and things we need to live every day?**

\_\_\_\_\_

Hint: These are some types of common trees:

- |           |       |         |       |            |
|-----------|-------|---------|-------|------------|
| Oak       | Elm   | Poplar  | Maple | Sassafrass |
| Sweet gum | Pecan | Hickory | Holly | Pine       |

# BALANCE STUDENT ASSESSMENT

Name: \_\_\_\_\_

1. A natural resource, like a forest, that can be used over and over again is called a \_\_\_\_\_ resource.
2. \_\_\_\_\_ take care of our forests by using forest management.
3. Controlled fires help clear out the \_\_\_\_\_ that compete with the trees for food and water
4. Foresters use \_\_\_\_\_ to keep a forest healthy.
5. If we \_\_\_\_\_ our forests wisely, we will never run out of trees and the benefits they provide.

**Hint--You will find the answers to questions 1-5 in the list below.**

renewable  
fire  
forests

foresters  
tree  
manage

wildlife  
understory  
habitat

**Match the tree with the phrase that describes it.**

- |                         |  |
|-------------------------|--|
| _____ 6. Bald cypress   | a) These trees lose their star-shaped leaves in the winter and their fruit, which looks like little balls, falls off of the tree in the winter |
| _____ 7. Red maple      | b) Spanish moss often grows from these trees with small narrow leaves. Their wood was once prized for use in the hulls of ships.               |
| _____ 8. Sweet gum      | c) This tree, found in swamps, has "knees."  |
| _____ 9. Live oak       | d) This is a common evergreen tree   |
| _____ 10. Loblolly pine | e) Wood from this tree is used to make furniture and bowling pins. Its leaves turn bright red in the fall.                                     |

# GLOSSARY

**Canopy** - the top layer of leaves and branches of the tallest trees in the forest.

**Coniferous** - an evergreen tree that has cones. The leaves of this tree are usually like needles.

**Conservation** - good use, protection, and improvement of our natural resources to make sure that we will always have these resources to use

**Deciduous** - a plant that sheds its leaves each year, usually in the fall.

**Forester** - a person with a college degree in the science of forestry who works to protect our forests.

**Forest Management** - the use of science to manage our forests so they will meet the needs of the people, animals and plants who depend on them.

**Harvest** - removal of trees in an ordered method that minimizes the damage to the environment.

**Nonrenewable Resources** - things like oil, gas, coal and gold which cannot be replaced once they are taken from the earth.

**Recreation** - the use of forestland for human fun and relaxation.

**Reforestation** - insuring that forests will be replaced after a harvest, either by replanting or other natural means.

**Renewable Resources** - raw materials or a form of energy that can be replaced either naturally or through man's efforts in your lifetime (e.g., trees).

**Seedling** - a young tree grown from the seed.

**Succession** - the replacement of one plant community by another, through natural processes over time.

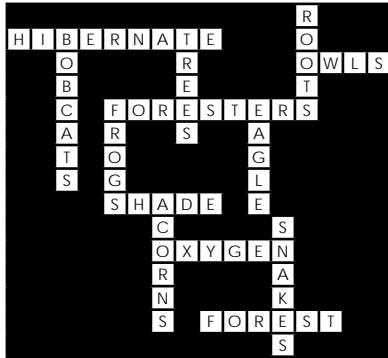
**Sustainability** - use and growth of natural resources to meet present and future needs.

**Understory** - layer formed by the leaves and branches of the smaller trees under the forest canopy.

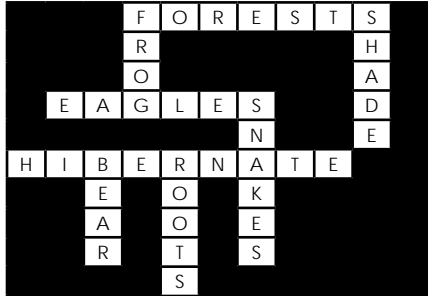


# ANSWERS TO ASSESSMENTS

## Environment Crossword (Older Students)



## Environment Crossword (Younger Students)

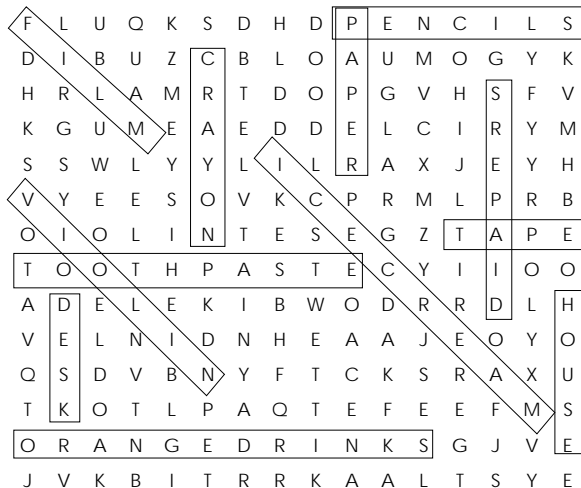


## Environment Student Assessment

- |      |      |      |
|------|------|------|
| 1. b | 4. c | 7. e |
| 2. a | 5. d | 8. b |
| 3. c | 6. a | 9. c |

10. The forest provides a place for many animals to live, like a zoo. We can visit a zoo or a forest to learn about plants and animals.

## Products Word Search (Older Students)



## Products Word Search (Younger Student Version)



## Products Student Assessment

- |                      |                        |
|----------------------|------------------------|
| 1. part, tree        | 6. b                   |
| 2. recycled, wasted  | 7. d                   |
| 3. answers will vary | 8. c                   |
| 4. answers will vary | 9. a                   |
| 5. answers will vary | 10. Answers will vary. |

## Balance Word Scramble (Older Students)

- |                   |                   |
|-------------------|-------------------|
| 1. Magnolia       | 7. Sassafrass     |
| 2. Red Maple      | 8. Hickory        |
| 3. Yellow Poplar  | 9. Live oak       |
| 4. American Holly | 10. Sycamore      |
| 5. Bald Cypress   | 11. Longleaf pine |
| 6. Pecan          | 12. Sweet gum     |

"AN AMERICAN FOREST"

## Balance Word Scramble (Younger Students)

- |               |              |
|---------------|--------------|
| 1. Sassafrass | 5. Oak       |
| 2. Holly      | 6. Pine      |
| 3. Poplar     | 7. Pecan     |
| 4. Maple      | 8. Sweet gum |

"A FOREST"

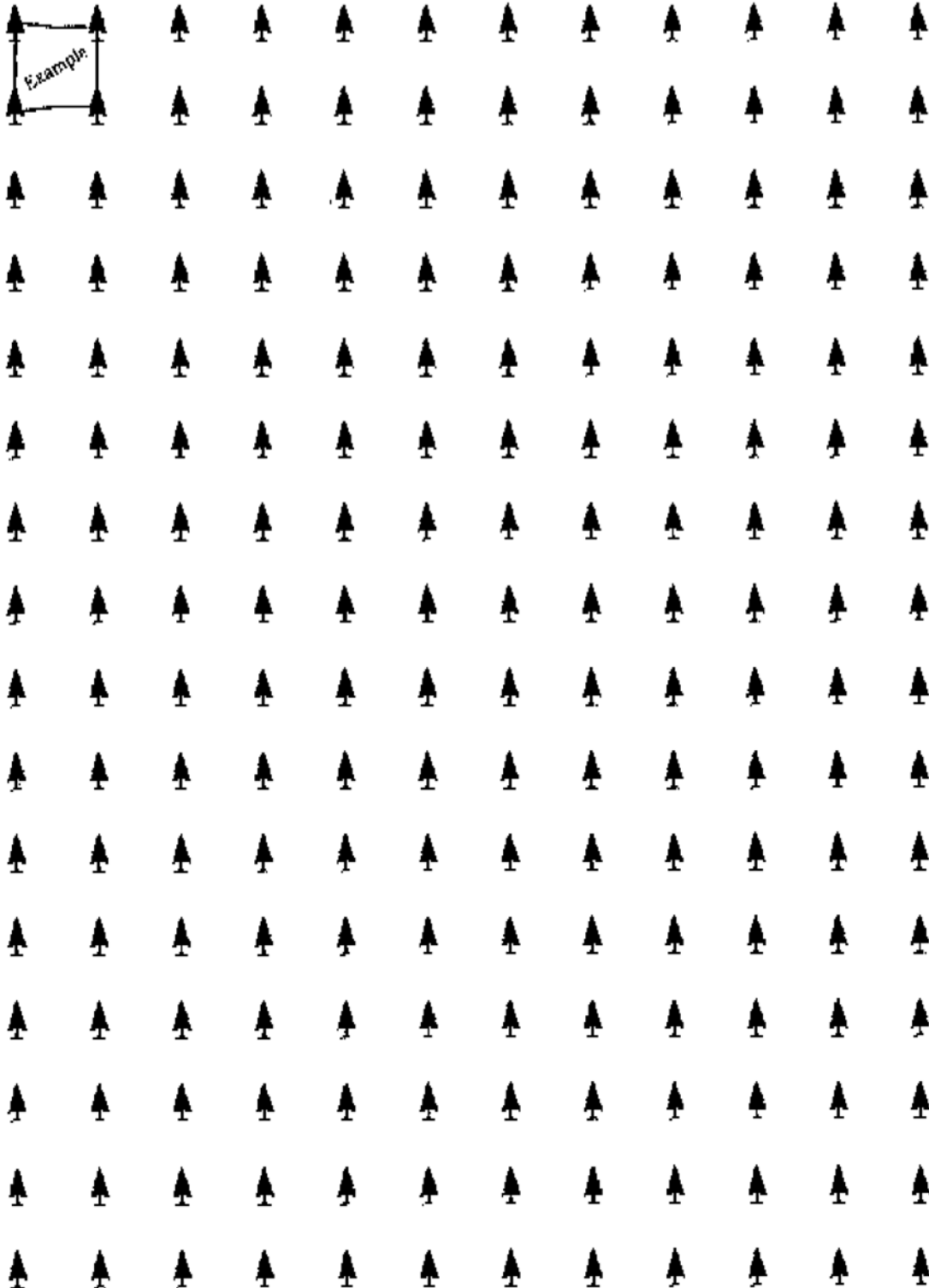
## Balance Student Assessment

- |               |       |
|---------------|-------|
| 1. renewable  | 6. c  |
| 2. foresters  | 7. e  |
| 3. understory | 8. a  |
| 4. fire       | 9. b  |
| 5. manage     | 10. d |

# TREE SQUARES

## How to play:

Each player takes a turn connecting two trees, either horizontally or vertically. The player drawing the last line forming a square puts his or her initials inside the square. When all trees are connected, the player with the most squares wins.



# TREE COOKIE ACTIVITY DIRECTIONS

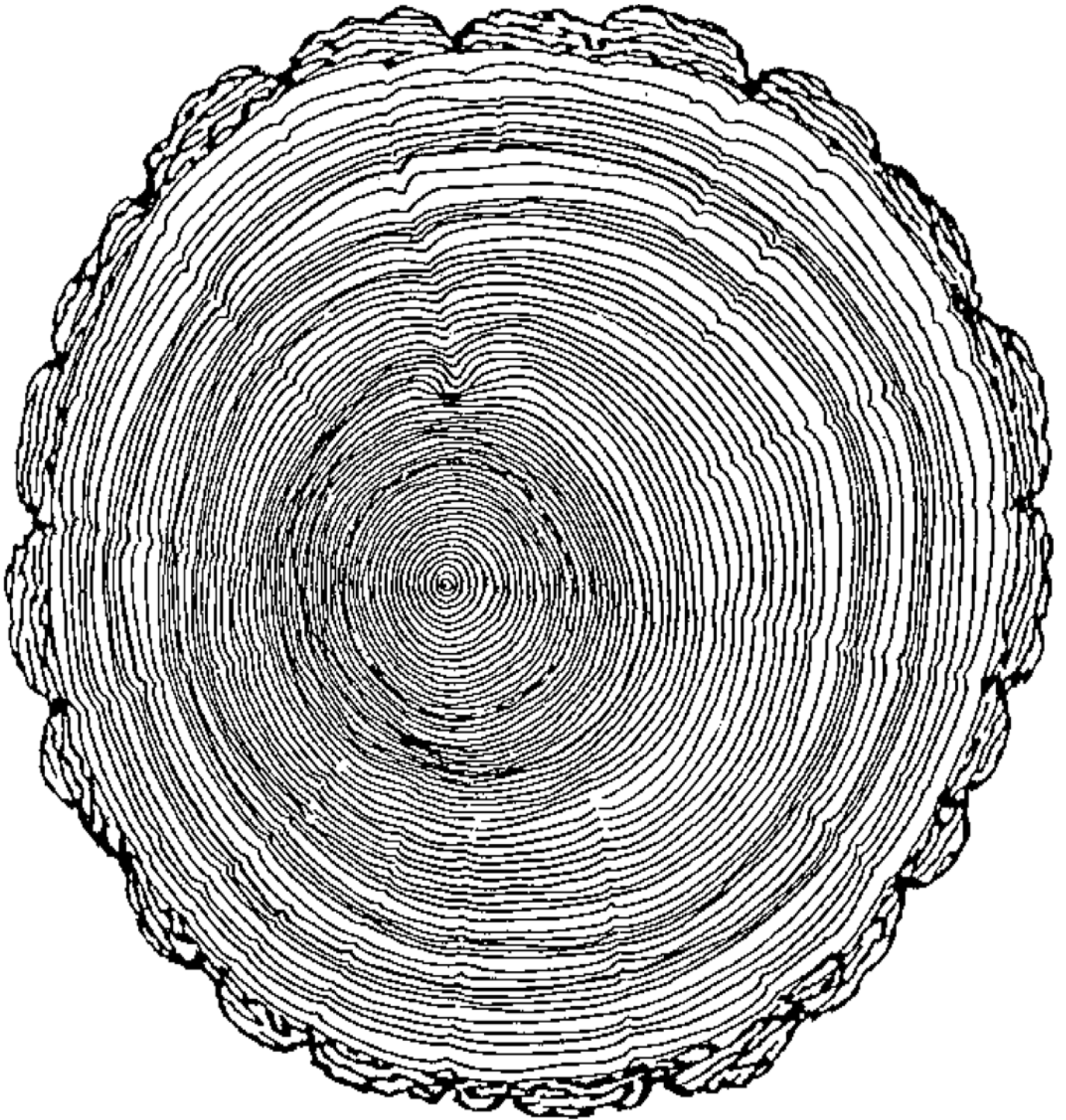
**Directions:**

Use the "tree cookie" on the next page to answer the questions below.

**HINT: each ring in the tree represents one year in the tree's life.**

1. How old is the tree?
  
  
  
  
  
  
  
  
  
2. If this tree was harvested in 2008, what year was it born?
  
  
  
  
  
  
  
  
  
3. If the tree was harvested in the year 2008, mark the location on the tree that represents the following:
  - a. The year you were born
  - b. The year you started kindergarten
  - c. Today

# TREE COOKIE ACTIVITY



# EVALUATION

## Forest Friends Website and Instructor's Guide

Please complete the questions below to help us determine the effectiveness of this program.

Name \_\_\_\_\_

School/Organization \_\_\_\_\_

Mailing Address \_\_\_\_\_

\_\_\_\_\_

At what grade level(s) have you used the website? \_\_\_\_\_

In which subject areas? \_\_\_\_\_

Thank you for providing your reactions to this program. The following information will help us plan future teaching tools and implement programs more effectively. Please comment when appropriate on the space provided.

**1. The website is an effective teaching tool.**

Strongly agree    1    2    3    4    5    Strongly disagree

**2. I do not have the technology necessary to incorporate into my class room.**

Strongly agree    1    2    3    4    5    Strongly disagree

**3. The Instructor's Guide is an effective tool.**

Strongly agree    1    2    3    4    5    Strongly disagree

**4. The resource materials will be helpful when I teach about the environment.**

Strongly agree    1    2    3    4    5    Strongly disagree

**5. I plan to use the website with future classes.**

Strongly agree    1    2    3    4    5    Strongly disagree

**6. I plan to use the *Instructor's Guide* to prepare for future classes on forestry issues.**

Strongly agree    1    2    3    4    5    Strongly disagree

**Comments:**

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Please mail this evaluation to the contact address on the website home page. Your feedback is appreciated.