

ALL ABOUT TREES



GRADE 3-4

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Classroom Procedure:

1. Ask students: What are the good (advantages) and bad (disadvantages) of trees?
2. Allow for responses and discussion. Ask students if there are trees in their yard or in the neighborhood. Ask students what they know about the trees they see each day. Ask students if they have ever climbed a tree, and if there were things in the tree at the top, but not at the bottom. (Other questions about trees may be asked.)
3. Allow for responses and discussion. Introduce All About Trees.
4. Distribute All About Trees content pages. Read and review the information with the students. Save the final question for the lesson closing. Use the additional resources to enhance understanding.
5. Distribute Activity page. Read and review the instructions. Pair students. Distribute the supplies. Circulate through the room answering students' questions and approving final drafts of the tree before students complete it and glue parts to the paper.
6. Once completed, students share the tree with the class and tell something special about their new tree.
7. Distribute Practice page. Check and review the students' responses.
8. Distribute the Homework page. The next day, check and review the students' responses.
9. In closing, ask students: If you could turn into a tree, what kind would it be and why?
10. Allow for responses and discussion.
11. Students create a poster encouraging people to recycle, protect trees, etc. Distribute a white piece of construction paper to each student.
12. When completed, display the posters in a prominent place.

Approximate Grade Level: 3-4

Objectives: The students will be able to identify and define the types and parts of trees, list characteristics of trees, and explain why trees are important for the environment.

State Educational Standards*

NGSS.3.LSS1-1
NGSS.3.LSS1.B
NGSS.K-ESS3-3
NGSS.K.ESS3.C

Class Sessions (45 minutes):

At least 2 class sessions.

Teaching Materials/Worksheets:

All About Trees content pages (3), Activity pages (1), Practice page, Homework page

Student Supplies:

Construction paper, glue, scissors, tape, markers, scratch paper, handouts

Prepare Ahead of Time:

Activity supplies, including a variety of colors for the construction paper. Copy handouts.

Options for Lesson: Students may work alone or in groups for the activity. Use other supplies for the activity like yarn, glitter, etc. If possible, students visit an area on or near school grounds, identify the local trees and their parts. Use additional resources for coloring pages. Students write stories with a tree as the focus. Students write tree poems. Celebrate Arbor Day or an entire week, dedicated to the environment and trees. Invite a tree expert to speak to the class. Students collect leaves from trees, matching them to a type of tree using images from the Internet.

*Lessons are aligned to meet the education objectives and goals of most states. For more information on your state objectives, contact your local Board of Education or Department of Education in your state.



Teacher Notes

The lesson introduces students to basic information about trees, including the types, parts, characteristics of, and their importance to the environment. Many students recognize there are different types of trees but may not understand the differences of tree types. Since trees can be found nearly everywhere, following the lesson, it is hoped the children will see trees in a new light and from a different perspective. With the information about trees, the students can recognize the importance of trees in the environment, here and throughout the world.

What Are Tall Plants?

Did you know that trees are plants? You can think of trees as very tall plants. In fact, there are trees in the world that are over 300 feet tall, which is about the height of a building with 30 floors, or about 10 - 15 houses stacked on top of each other. Though trees are plants, they do have some parts that make them different from other plants.

Scientifically, a **tree** is usually a tall plant that has a thick, wooden stem and many large branches. Because trees are plants, they need the same things to grow and survive. Trees need water, air, sunlight, and nutrients from the soil. There are some trees that grow in warm temperatures, and other trees that will grow in cooler temperatures. Trees are also **perennial**, meaning they live all year long and last for more than two years. Plants that live for just one year or less are called **annuals**.

And just like some plants, trees will die off if they do not receive what they need or if their environment is destroyed or changed. In some places, many plants will not grow during the winter months and will die off, but trees do not die off, they remain **dormant** or temporarily inactive. It is like they are resting during the winter months.

Trees also live for many years. There are trees in the world that have lived for over 4,000 years, and it is estimated they will live much longer. A 13-foot tree found in Sweden has a root system that is estimated to be about 9,550 years old. Other plants usually do not live the same number of years as a tree.

However, just like other plants, different kinds of trees can be found nearly everywhere too. Trees grow in hot places and cold places and in wet climates and dry climates. On the other hand, trees cannot grow on top of high mountains or below the ocean or a lake. Trees are useful for people, animals and the environment. There are many interesting facts about trees. Though there are about 100,000 known species of trees, some undiscovered in the rainforest, there are just two main types.



Types of Trees

The two main types of trees are deciduous and evergreen. Review the information about each type:

Deciduous	May be called broadleaf or hardwood trees. Examples include oak trees, beech trees, maple trees, elm trees, and birch trees.	• Leaves are usually large and broad. • During the fall a deciduous tree sheds its leaves. • New sets of leaves begin growing back in the spring. • Flower-producing trees sometimes in the form of fruits or nuts that people and other animals can eat.
Evergreen	May be called conifers , and the examples include cypresses, pines, cedars, firs, sequoias, and redwoods.	• Leaves are narrow and hard called scales or needles. • Remain green during the winter months. • Leaves do not change colors or fall off. • They include the tallest trees in the world called redwoods, which can be found in California.

Most likely, in the area where you live, you can find both deciduous and evergreen trees. The trees people cut down and use during Christmas are evergreens. The trees with leaves that change colors and fall to the ground, that you may have to rake, are deciduous trees.

The Growth of Trees

Of course, trees need water, sunlight, nutrients from the soil, and air to grow. And just like other plants, trees use a process called **photosynthesis** to turn the sunlight into a type of energy that trees use for food. Inside the leaves, there is a special chemical called **chlorophyll** that helps with the process. In addition, air enters the tree through tiny holes below each leaf.

The roots of a tree help with growth too. They may be several feet below ground and far away from the base of the tree. The roots soak up the water and nutrients that the tree needs. In addition, the soil on top of the roots helps keep the tree from tipping over as it grows taller.

Why Do Leaves Change Color?

During the fall, when leaves change color the process of photosynthesis ends, and most hardwood trees and some conifers stop making food. The chlorophyll disappears and the leaves turn red, orange, yellow, or brown.



The flowers and fruits from trees are also important for growth. They are source for seeds which are the transported by water, air, or animals to other places. The seeds then begin to grow into new trees and the process begins again once the tree matures.

As a tree grows and gets older, they get taller, wider, and deeper. They grow at the tips of their branches, deep in the ground at the roots, and wider in their trunks, crowns, and branches. The **bark** on the trunk and branches protects the tree from animals and diseases.

During the winter months, the tree stops growing and the tree trunk forms a ring. Each ring counts as one year of growth for a tree. If you count the rings of a tree trunk, you can discover its age. Of course, the rings of tree trunk can only be counted if the tree has fallen or has been cut down. Sometimes trees fall during strong storms with heavy winds, or maybe a tree has been cut down in your neighborhood. If so, explore the tree trunk to discover the age of the fallen tree.

Why Are Trees Important?

Many trees are beautiful, especially when the colors of the leaves of deciduous trees change during the fall months. In some parts of the country, entire forests turn from green to orange, red, or yellow. The stunning and spectacular views are important to many sightseers. They also are reminders of the necessity of trees for humans, animals, and their importance to the environment.

The Importance of Trees

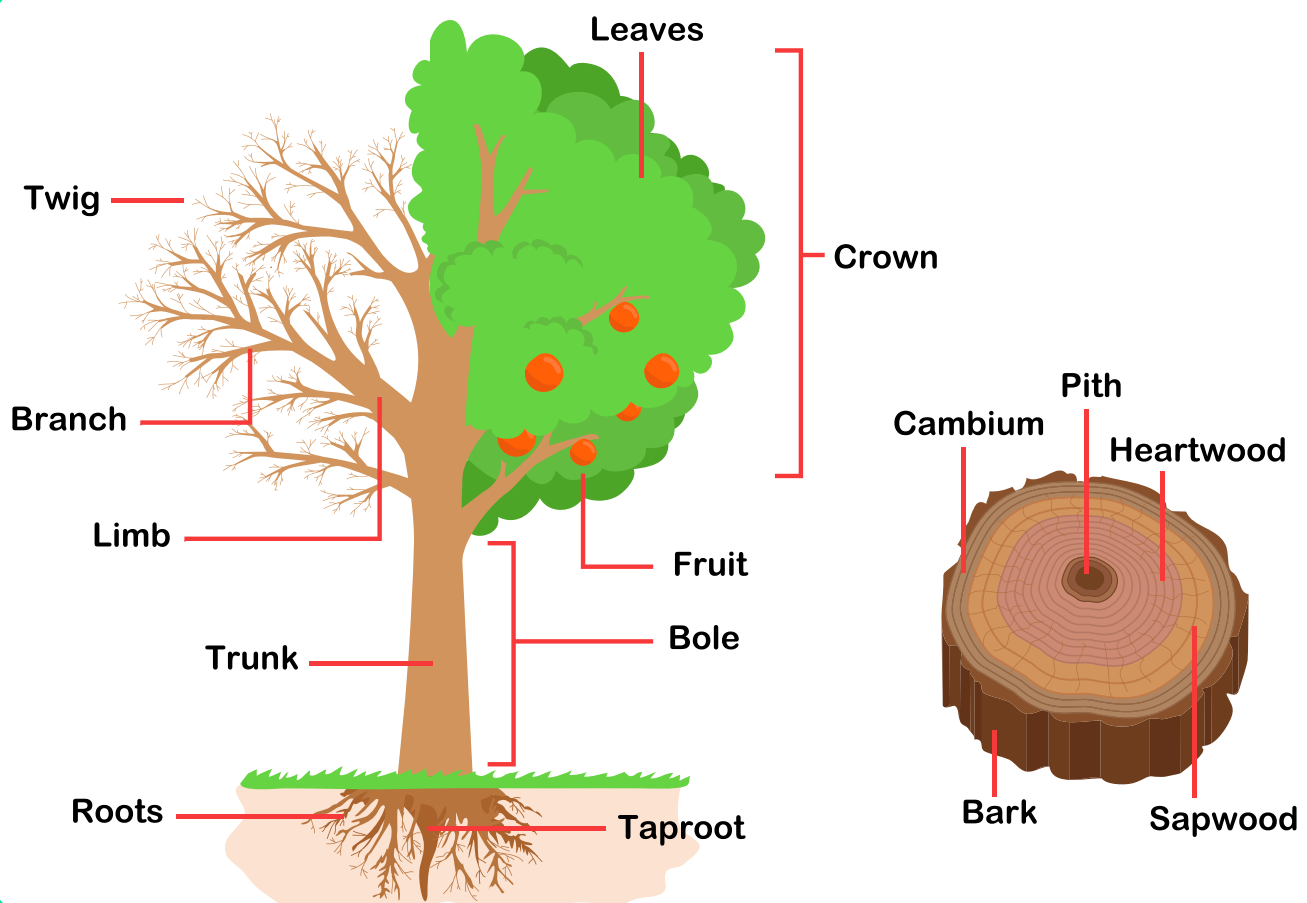
Humans	• Trees provide wood for buildings and other products, and pulp for making paper • Fallen trees may be used for firewood • Humans breathe in the oxygen that is released by trees • Trees provide food such as fruits, nuts, and sap
Animals	• Trees provide habitats (homes) for insects, birds, and many other animals • Trees provide food for animals too, such as fruits, nuts, and sap • Decomposed or dead trees support small organisms
Environment	• Trees help keep the air clean and healthy • Trees take in carbon dioxide and releases oxygen • In many areas, trees help beautify an area, and provide shade • Provide shelter from the wind, and help prevent flooding

People could not live without trees. Animals could not live without trees. In addition, trees are important for other plants too. It is important to take care of the trees in the world. Unfortunately, in some places large areas of trees are removed and not replaced.

Rainforests in some parts of the world are being destroyed to make way for cattle ranching, logging, farming, mining purposes, and in the search for new sources of oil. About 6,000 squares miles of rainforest is removed each year, which is a little less than the size of Hawaii or three times the size of Delaware.

Each time you walk past a tree, you may want to give it a hug, thanking it for all it does for you and the environment. In addition, use paper wisely, recycle cardboard boxes and other paper, borrow or share books, visit the forest, and stay on trails when walking through the woods.

Parts of tree



If you could turn into a tree, what kind would it be and why?





Build A Tree

1. Supplies: construction paper, glue, scissors, tape, markers, scratch paper
2. Work cooperatively with your partner.
3. Create a NEW species of tree. Design it first before gluing parts onto another sheet of paper.
4. It can be any design, but must include each part of a tree: roots, trunk, branches, twigs, leaves, and the crown.
5. Using the scratch paper, make a rough draft of your tree, including its colors. The teacher must approve your rough draft.
6. Cut apart each of the labels below to use for your final design. Glue them onto the page and use arrows if necessary to identify each part.
7. Be creative. The tree must be new and unique and not a copy of another tree.
8. Include background images or drawings.
9. Once you and your partner are completed with the NEW tree, you will need to name it. For example, trees have names such as elm, maple, redwood, etc. You must invent a new name for your tree.
10. Include the name of your tree on the final design page.
11. Once completed, you will share your NEW tree with the class. Also, tell something that is special about your tree.

CROWN	LEAVES	TWIG
BRANCH	TRUNK	ROOTS



Tell whether each fact is about a Deciduous (D) or Evergreen (E) tree.

- 1 ____ They will include the tallest trees in the world called redwoods.
- 2 ____ The leaves are usually large and broad.
- 3 ____ The leaves do not change color and most do not fall off.
- 4 ____ During the fall, its leaves change colors and fall to the ground.
- 5 ____ A new set of leaves begin to grow back during the spring season.
- 6 ____ Leaves are narrow and hard, often called scales or needles.
- 7 ____ May also be called conifers and include cypresses, pines, firs, and cedars.
- 8 ____ Includes flower-producing trees and in the form of nuts or fruits.
- 9 ____ Called broadleaf or hardwood, and include beech, maple, and elm trees.
- 10 ____ They will remain green throughout the year, even during the winter season.

Use the word bank to label the parts of the trees. Write the part on each line.

Branch

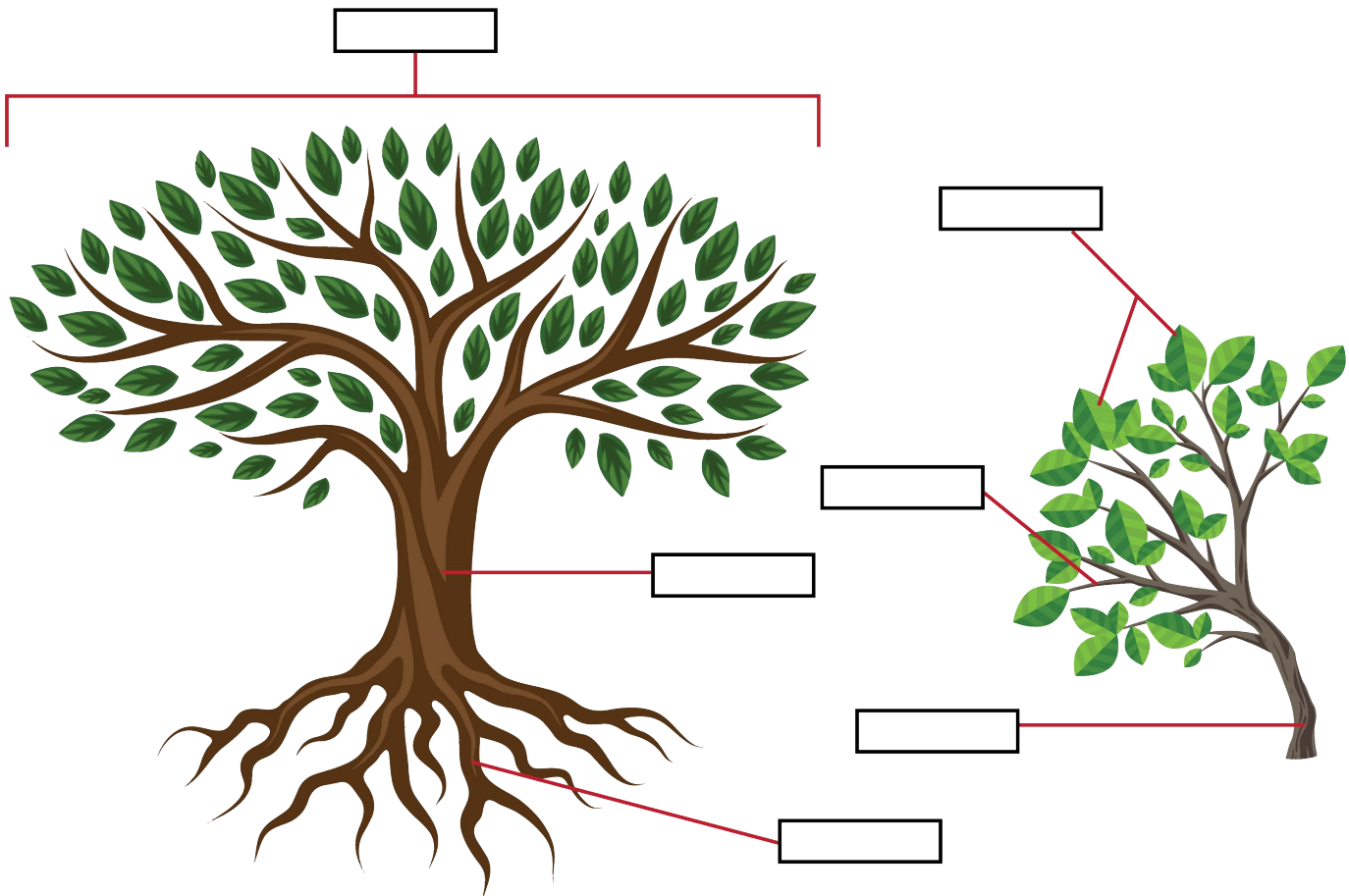
Crown

Leaves

Roots

Trunk

Twig





Homework

Name _____ Date _____

Match each tree's importance to Human (H), Animal (A), and/or Environment (E).

- | | | | |
|---------|--------------------------------------|----------|--------------------------------------|
| 1 _____ | Provides habitats or homes | 6 _____ | Takes in carbon dioxide |
| 2 _____ | Provides oxygen | 7 _____ | Provides food such as nuts and fruit |
| 3 _____ | Provides wood for buildings/products | 8 _____ | Prevents flooding |
| 4 _____ | Beautify an area, provides shade | 9 _____ | Support for small organisms |
| 5 _____ | Keeps air clean and healthy | 10 _____ | Used for firewood, making paper |

Circle the correct word for each sentence.

1. When a tree is temporarily inactive during the winter, it is said to be (dormant – perennial).
2. Trees people use during the Christmas season in many places are called (deciduous – evergreen).
3. A (broadleaf – conifer) or hardwood is another name for a deciduous tree.
4. When a plant lives for more than two years it is called a(n) (annual – perennial).
5. A (tree – flower) is usually a tall plant that has a thick, wooden stem and many large branches.
6. In California, some of the tallest trees called (redwoods – maples) can be found over 300 feet tall.
7. Leaves have a special chemical called (oxygen – chlorophyll) that helps with photosynthesis.
8. The (bark – crown) on the trunk and branches protects a tree from animals and diseases.
9. (Perennials – Photosynthesis) is a process turning sunlight into energy to make food for a tree.
10. Each ring on a trunk of a tree counts as one (month – year) in the age of a tree.

Answer each question

13. Why do leaves change color?
14. Name three kinds of deciduous trees:
15. Name three kinds of evergreen trees:
16. How old is the root system of a 13-foot tree in Sweden?
17. About how many known species of trees are there in the world?
18. Which types of forest are being destroyed for farming, mining, and logging?
19. Name three ways you can help save trees from being destroyed:



Tell whether each fact is about a Deciduous (D) or Evergreen (E) tree.

- 1 E They will include the tallest trees in the world called redwoods.
- 2 D The leaves are usually large and broad.
- 3 E The leaves do not change color and most do not fall off.
- 4 D During the fall, its leaves change colors and fall to the ground.
- 5 D A new set of leaves begin to grow back during the spring season.
- 6 E Leaves are narrow and hard, often called scales or needles.
- 7 E May also be called conifers and include cypresses, pines, firs, and cedars.
- 8 D Includes flower-producing trees and in the form of nuts or fruits.
- 9 D Called broadleaf or hardwood, and include beech, maple, and elm trees.
- 10 E They will remain green throughout the year, even during the winter season.

Use the word bank to label the parts of the trees. Write the part on each line.

Branch

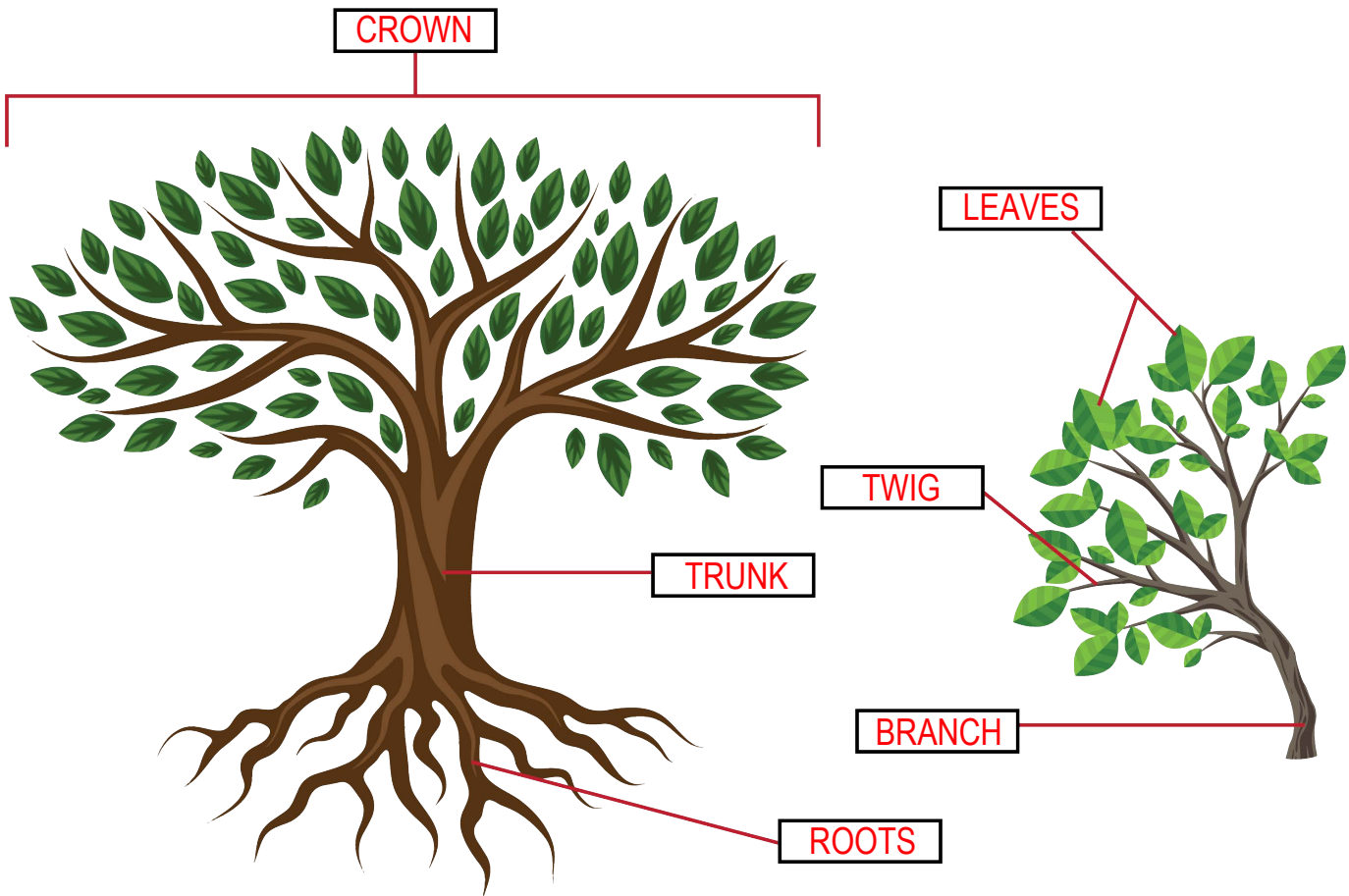
Crown

Leaves

Roots

Trunk

Twig





Match each tree's importance to Human (H), Animal (A), and/or Environment (E).

- | | |
|---|--|
| 1 <u> A </u> Provides habitats or homes | 6 <u> E </u> Takes in carbon dioxide |
| 2 <u> H, A, E </u> Provides oxygen | 7 <u> H, A </u> Provides food such as nuts and fruit |
| 3 <u> H </u> Provides wood for buildings/products | 8 <u> E </u> Prevents flooding |
| 4 <u> A, E </u> Beautify an area, provides shade | 9 <u> A </u> Support for small organisms |
| 5 <u> E </u> Keeps air clean and healthy | 10 <u> H </u> Used for firewood, making paper |

Circle the correct word for each sentence.

- When a tree is temporarily inactive during the winter, it is said to be (**dormant** – perennial).
- Trees people use during the Christmas season in many places are called (deciduous – **evergreen**).
- A (**broadleaf** – conifer) or hardwood is another name for a deciduous tree.
- When a plant lives for more than two years it is called a(n) (annual – **perennial**).
- A (**tree** – flower) is usually a tall plant that has a thick, wooden stem and many large branches.
- In California, some of the tallest trees called (**redwoods** – maples) can be found over 300 feet tall.
- Leaves have a special chemical called (oxygen – **chlorophyll**) that helps with photosynthesis.
- The (**bark** – crown) on the trunk and branches protects a tree from animals and diseases.
- (Perennials – **Photosynthesis**) is a process turning sunlight into energy to make food for a tree.
- Each ring on a trunk of a tree counts as one (month – **year**) in the age of a tree.

Answer each question

- Why do leaves change color? **The process of photosynthesis ends. The chlorophyll disappears and the leaves turn red, orange, yellow, or brown.**
- Name three kinds of deciduous trees: **oak, beech, maple, elm, birch**
- Name three kinds of evergreen trees: **cypresses, pines, cedars, firs, sequoias, redwoods**
- How old is the root system of a 13-foot tree in Sweden? **9,550 years**
- About how many known species of trees are there in the world? **100.000**
- Which types of forest are being destroyed for farming, mining, and logging? **rainforests**
- Name three ways you can help save trees from being destroyed: **(will vary)**

use paper wisely, recycle cardboard boxes and other paper, borrow or share books, visit the forest, and stay on trails