Mighty Oaks From Little Acorns

Objective

Students will read about the parts of a tree and make a dramatic presentation with props. Students will sequence the growth of a tree. Students will practice writing sentences about trees from dictation. Students will take leaf rubbings from a variety of leaves and compare and contrast their properties. Students will conduct germination experiments with acorns. Students will research to find what trees grow in Oklahoma. Students will write original stories.

Background

Tree roots grow underground. The root system is usually as big as the part of the tree that is above ground. The roots keep the tree from tipping over. It takes a lot of roots to hold up a 100-foot tree. The roots also collect water and nutrients from the soil and store them for times when there isn't as much available.

The tree's leaves and branches are the tree's crown. The crown shades the roots, collects energy from the sun (photosynthesis) and allows the tree to remove extra water to keep it cool (transpiration —similar to sweating in humans). Tree crowns come in many shapes and sizes.

Leaves are the tree's food factory. They convert energy into food (sugar). Leaves contain a special substance called chlorophyll. Chlorophyll gives leaves their green color. Leaves use the sun's energy to convert carbon dioxide from the atmosphere and water from the soil into sugar and oxygen. The oxygen is released back into the atmosphere and the sugar is used or stored in the tree's branches, trunk and roots.

Branches hold the leaves in place, move water and nutrients through the tree and store extra sugar.

The tree's trunk gives it shape and holds up the crown. The trunk moves water and nutrients from the soil and sugar from the leaves.

Buds are on the trees all winter. When spring comes, tree buds become the leaves on the twigs and branches. Some buds become flowers. Warm sunlight and plenty of water help the leaves and flowers open.

Flowers make fruit. Fruit makes seeds. Seeds drop to the ground. Water can carry the seeds away. Squirrels and other animals may bury the seeds. Wind will blow some seeds, while others will hitch rides by sticking to the fur of animals.

An oak tree is a kind of tree that grows in Oklahoma. The seeds on an oak tree are called acorns. The acorn on the white oak is oblong, and the pin oak's acorn is roundish. Each sits in its own cup. The cups have scales.

Oklahoma Academic Standards

PRE-KINDERGARTEN
Speaking and Listening: R.1,2,3,4; W.1,2. Print Concepts: 2,3,4,5. Reading and Writing Process: R; W. Critical Reading and Writing: R.3,4; W. Vocabulary: R.1,2,3; W.1,2
Measurement: 2.1,2,3. Data: 1.1,2

KINDERGARTEN
Speaking and Listening: R.1,2,3,4; W.1,2. Print Concepts: 2,3,4,5. Reading and Writing Process: R.1,3; W.1,2. Critical Reading and Writing: R.3,4; W. Vocabulary: R.1,2,3; W.1,2
Life Science: 1-1
Measurement: 2.1,3. Data.1.1,2,3

GRADE 1
Speaking and Listening: R.1,2,3,4; W.1,2. Print Concepts: 1,2. Fluency: 1,2. Reading and Writing Process: R.1,3; W.1,2. Critical Reading and Writing: R.1,2,4; W.1. Vocabulary: R.1,2,3; W.1,2
Life Science: 3.1
Measurement: 2.1,2,3,4,5. Data: 1.1,2,3
Visual Art Expression:—3.2

GRADE 2
Speaking and Listening: R.1,2,3,4; W.1,2. Print Concepts. Fluency: 1,2. Reading and Writing Process: R.1,3; W.1,2. Critical Reading and Writing: R.1,2,6; W.1. Vocabulary: R.1,3; W.1,2
Life Science: 2-1
Measurement: 2.1,2. 1.2,4
Visual Art Expression:—3.2

Materials

umbrella with paper leaves attached

small piece of wood with string attached to make a necklace

vest made from paper bag with holes cut for arms

ropes tied together to form "roots"

paper or plastic flowers attached to a headband

fruit shapes cut out of construction paper hung on loops of string

paper cut-outs of seeds attached to the fingers of gloves

acorns

quart milk cartons

peat moss-based planting medium

An acorn can be carried by water or it may be carried away by a squirrel or pack rat and planted someplace where it will grow. A small root grows from the seed down into the soil. Then the stem and leaves grow above the soil. A baby tree is called a "seedling." When the stem gets hard it is called "wood."

English Language Arts

1. Read and discuss background and vocabulary.
2. Provide copies of the "Parts of a Tree" reading page included with this lesson for students to read.
   —Ask for a volunteer to dress up like a tree. Students may act as different parts of the tree if there is more than one volunteer.
   —Ask for volunteers to read about the "Parts of a Tree" (included with this lesson). As the information about each part is read, the volunteers will come up and display their props.
   —Students will use the graphic organizer included with this lesson to connect, correct and collect as they read.
   —Read from a book or some other source that explains how trees grow.
   —Use a Venn diagram to compare the two explanations.
3. Assemble the following materials for students to dress as different parts of a tree:
   - Crown and Leaves—Umbrella with paper leaves attached
   - Trunk—Small piece of wood with a long string attached to wear as a necklace and vest made from paper grocery bag decorated with squiggly lines to resemble bark.
   - Roots—Rope tied together at different lengths with knots placed at student's feet.
   - Flower—paper or plastic flowers attached to a headband
   - Fruits—fruit shapes cut out of construction paper and hung on loops of string to hang over students outstretched arms
   - Seeds—gloves with paper cut outs of seeds attached to each finger

   —Divide students into groups to represent the parts of a tree.
   —Group members will use the materials described above to dress like the tree parts.
   —A representative from each group will read the part of the reading that applies to that group. The teacher will read all other parts.
   —Students will present the reading to another class or to parents.
4. Hand out Student Worksheet A.
   —Discuss the pictures and what they represent.
   —Students will cut out the pictures and place them in the proper order.
   —Students will write the appropriate numbers in the squares provided. —Students will staple the pictures together to make a book.
5. Hand out Worksheets B, C, and D.
   —Read the following dictation sentences. Students will write the sentences under the appropriate pictures on the worksheets.
   1. The acorn is the seed of an oak tree.
   2. A small root grows down into the soil.
   3. A baby tree is called a "seedling."

4. A hard stem is called "wood."
5. An oak tree can grow 100 feet tall.

—Students will cut out the pictures and staple them together to make books.

—Students will create and write their own sentences about oak trees.

6. Hand out Student Worksheet E.

—Students will each write a short story about acorns and oaks.

7. Read *The Giving Tree*, by Shel Silverstein.

—Students will Identify the author's purpose and describe who is telling the story.

—Students will brainstorm to list all that we get from trees. (food, shelter, clothing, etc.) Write the list on the board.

—Students will match items to the different parts of the tree.

Science/Math

1. In the fall, take students outdoors to gather acorns.

—Read and discuss background.

—Help students inspect the seeds, and discard any that are obviously damaged, moldy or wormy.

—To store for later use, place in heavy plastic bags and refrigerate.

—After a few days of storage, place acorns in a container of water. Discard those that float, and place back in storage.

—Open bags periodically during storage.

—About 30 days prior to sowing, place acorns in moist, well-drained sand and keep at a temperature of 32 to 41 degrees.

—After about 30 days, check acorns to see if germination has begun (seed coat has broken and shoot development is occurring.)

—If germination has started the acorns should be planted.

—Help students fill quart milk cartons with the potting medium, and place two or three acorns in each milk carton.

—Place milk cartons in a sunny, south-facing window.

—Students will turn the plants daily to keep them from bending toward the light.

—After a few weeks, students will remove one of the seedlings.

—One month after germination, students will fertilize their plants with a diluted liquid house plant fertilizer.

—If the acorns are germinated in December and January, they can grow indoors until March, when they should be moved to a sheltered location outdoors to harden off for about a week.

—Students will measure seedlings using standard and metric rulers or nonstandard measures. Students will measure the seedlings at the same time of day every day for two weeks.

—Students will graph their measurements by coloring in the appropriate area on a graph or using strips of colored paper.

—Send seedlings home with students for planting, or make arrangements to plant some of the seedlings on the school yard.

—Seedlings may remain in pots for a year but should be set out from

Vocabulary

acorn—the roundish one-seeded thin-shelled nut of an oak tree usually having a woody cap

branch—a natural division of a plant stem (as a bough growing from a trunk or twig from a bough)

bud—a small growth at the tip or on the side of a plant stem that later develops into a flower, leaf, or new shoot

flower—a shoot of a higher plant that is specialized for reproduction and bears modified leaves (as petals)

leaves—one of the green usually flat parts that grow from a stem or twig of a plant and that function mainly in making food by photosynthesis

oak—any of various trees or shrubs closely related to the beeches and chestnuts and producing acorns

seed—a fertilized ripened ovule of a flowering plant that contains an embryo and is capable of producing a new plant; also, a plant structure (as a spore or small dry fruit) capable of producing a new plant

seedling—a tree before it becomes a sapling

timber—growing trees or their wood

tree—a woody plant that lives for years and has a usually single tall main stem with few or no branches on its lower part

trunk—the main stem of a tree apart from branches or roots

twig—a small shoot or branch usually without its leaves

wood—a hard fibrous substance that is basically xylem and makes up the greater part of the stems, branches, and roots of trees or shrubs beneath the bark

Ag Career: Forester

A forester manages forests. This can include timber harvesting, ecological restoration and management of protected areas. Foresters manage forests for direct extraction of raw material, outdoor recreation, conservation, hunting and aesthetics. Emerging management practices include managing forestlands for biodiversity, carbon sequestration and air quality.

To be a forester, you need a four-year forestry degree. Many colleges and universities offer specific training in watershed management, urban forestry, forest engineering, wildlife and fuesl management, forest products, recreation and forest wildlife management. Foresters are often employed by private industry, federal and state land management agencies, or private consulting firms.

Just for Fun: Broccoli Trees

(per five students)
1/4 cup light sour cream
1/3 cup mayonnaise
1/2 teaspoon sugar
1 tablespoon lemon juice
1 tablespoon finely chopped fresh spinach, basil or other fresh or dried herb
4 carrots
3 cups broccoli florets
paper plates

1. Prepare a dip by combining the sour cream, mayo, lemon juice and spinach or herb in a medium size mixing bowl.
2. To make the trees, cut each carrot in half widthwise and then lengthwise into four pieces.
3. Assemble the trees on the plates by laying three carrot pieces side by side for a trunk and placing the broccoli florets to look like leaves. Spread dip under the trunks to serve as the forest floor.

spring to fall.

2. Using leaf rubbings from Visual Arts Activity 1 below, students will compare rubbings from different kinds of trees.
   —Students will list properties.
   —Students will group and classify the collected data.

Visual Art

1. Make bark and leaf rubbings.
   —Students will collect bark and leaves from several different kinds of trees and bring them to class.
   —Pass out white typing paper.
   —Students will place their specimens underneath the paper.
   —Tear the wrappers off some crayons and show students how to rub the crayons over the white paper to pick up the patterns from the bark and leaves.
2. Students will draw four different versions of the same tree, showing how it changes from season to season.

Extra Reading

Cush, Charles W., *From Acorns to Oak Trees*, Joy Love, 2007.

DeLaBedoyere, Camilla, *Acorn to Oak Tree (QED Life Cycles)*, QED, 2011.

Froeb, Lori, *The Acorn and the Oak Tree*, Reader's Digest, 2004.

Gibbs, Edward, *Acorn*, Brubaker, Ford & Friends, 2011.

Ingoglia, Gina, *The Tree Book for Kids and Their Grown Ups*, Brooklyn Botanic Garden, 2008.

Leavell, Chuck, and Nicholas Cravotta, *The Tree Farmer*, VSP, 2005.

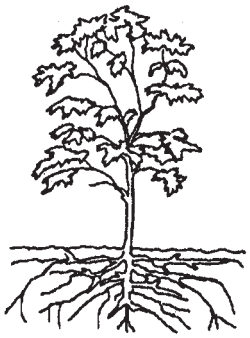
Muldrow, Diane, and Bob Staake, *We Planted a Tree*, Golden, 2010.

Silverstein, Shel, *The Giving Tree*, Harper and Row, 2014.

Tagliaferrim Linda, *The Life Cycle of an Oak Tree (Plant Life Cycles)*, Capstone, 2007.

Reading Page

Parts of a Tree



Tree roots grow underground. The root system is usually as big as the part of the tree that is above ground. The roots keep the tree from tipping over. It takes a lot of roots to hold up a 100-foot tree. The roots also collect water and nutrients from the soil and store them for times when there isn't as much available.

The tree's leaves and branches are the tree's crown. The crown shades the roots, collects energy from the sun (photosynthesis) and allows the tree to remove extra water to keep it cool (transpiration — similar to sweating in humans). Tree crowns come in many shapes and sizes.

Leaves are the tree's food factory. They convert energy into food (sugar). Leaves contain a special substance called chlorophyll. Chlorophyll gives leaves their green color. Leaves use the sun's energy to convert carbon dioxide from the atmosphere and water from the soil into sugar and oxygen. The oxygen is released back into the atmosphere and the sugar is used or stored in the tree's branches, trunk and roots.

Branches hold the leaves in place, move water and nutrients through the tree and store extra sugar.

The tree's trunk gives it shape and holds up the crown. The trunk moves water and nutrients from the soil and sugar from the leaves.

Buds are on the trees all winter. When spring comes, tree buds become the leaves on the twigs and branches. Some buds become flowers. Warm sunlight and plenty of water help the leaves and flowers open.

Flowers make seeds. Seeds drop to the ground. Water can carry the seeds away. Squirrels and other animals may bury the seeds. Wind will blow some seeds, while others will hitch rides by sticking to the fur of animals.

Oklahoma Ag in the Classroom is a program of the Oklahoma Cooperative Extension Service, the Oklahoma Department of Agriculture, Food and Forestry and the Oklahoma State Department of Education.

Name_____

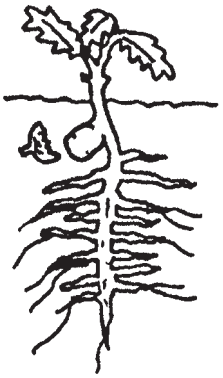
Mighty Oaks From Little Acorns

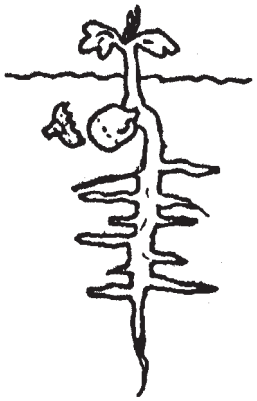
Connect	Correct	Collect

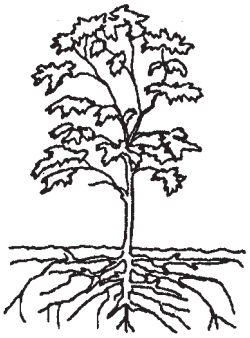
Oklahoma Ag in the Classroom is a program of the Oklahoma Cooperative Extension Service, the Oklahoma Department of Agriculture, Food and Forestry and the Oklahoma State Department of Education.

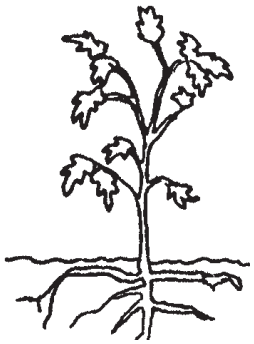
Name_____

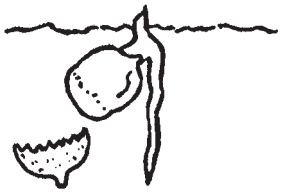
Mighty Oaks From Little Acorns A











Cut out these pictures and put them in the correct order. Number them from one to six.

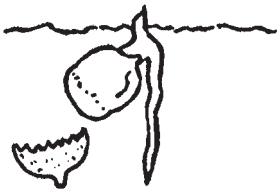
Oklahoma Ag in the Classroom is a program of the Oklahoma Cooperative Extension Service, the Oklahoma Department of Agriculture, Food and Forestry and the Oklahoma State Department of Education.

Name_____

Mighty Oaks From Little Acorns B

Write the sentences under the pictures as your teacher reads them to you.

1.



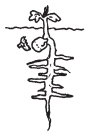
2.

Oklahoma Ag in the Classroom is a program of the Oklahoma Cooperative Extension Service, the Oklahoma Department of Agriculture, Food and Forestry and the Oklahoma State Department of Education.

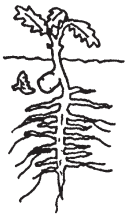
Name_____

Mighty Oaks From Little Acorns C

Write the sentences under the pictures as your teacher reads them to you.



3.



4.

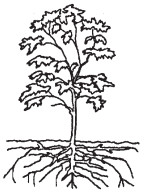
Oklahoma Ag in the Classroom is a program of the Oklahoma Cooperative Extension Service, the Oklahoma Department of Agriculture, Food and Forestry and the Oklahoma State Department of Education.

Name_____

Mighty Oaks From Little Acorns D

Write the sentences under the pictures as your teacher reads them to you.

5.



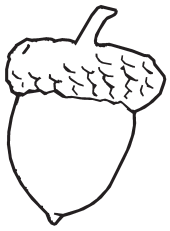
6.

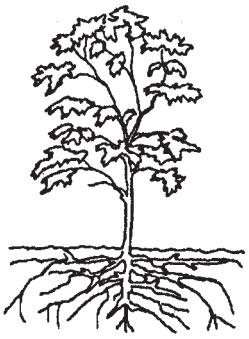
Oklahoma Ag in the Classroom is a program of the Oklahoma Cooperative Extension Service, the Oklahoma Department of Agriculture, Food and Forestry and the Oklahoma State Department of Education.

Name_____

Mighty Oaks From Little Acorns E

Write a story telling how the acorn became a tree.





Oklahoma Ag in the Classroom is a program of the Oklahoma Cooperative Extension Service, the Oklahoma Department of Agriculture, Food and Forestry and the Oklahoma State Department of Education.