

Parts to Play



OBJECTIVES

Provide opportunities and materials for children to:

- Compare human body parts with tree parts.
- Write about imaginary trees.
- Express feelings about tree parts and how they grow through music, movement, and art.
- Incorporate the knowledge they gain into their everyday world.
- Play outside in a natural setting.

ASSESSING THE EXPERIENCES

As you observe the children during the day, note the following:

- New vocabulary. In the children's conversations with you and one another, are they talking about tree parts?
- Questions. Are the children asking questions that show an understanding of trees and how their different parts help trees survive and grow?
- New ideas. Are the children able to see how people are similar to, yet very different from, trees?
- Integration of concepts. Are the children using trees and their parts in their art, play, and other creations, without prompting, in a way that demonstrates understanding?

WORD BANK

bark, branch, function, leaf, nutrients, root, seed, soil, trunk

STEM SKILLS

Communication, Creativity, Investigation, Nature-Based Design (making felt board tree), Organization (sorting tree parts), Problem Solving (designing newspaper tree)

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OVERVIEW

Children make a tree costume and explore the parts of a tree.

BACKGROUND FOR ADULTS

A tree is a plant that lives longer than one growing season and has a well-defined woody stem that branches above the ground. Trees are usually big and tall when mature.

Trees have body parts just as people do: a trunk and branches, leaves, bark, roots, and seeds. Just like human body parts, each part of a tree plays an important role in that tree's life and growth.

Trunk and Branches: A tree's trunk is similar to the trunk of a human body, in that it provides physical support and contains vital structures for life, while the tree's branches or limbs are similar to our limbs. The tree's trunk, branches, and twigs support the leaves as they do the important work of making food. These woody structures contain small tubes that transport water and nutrients to the leaves (xylem) and that carry sugar from the leaves to the rest of the tree (phloem).

Leaves: These are the food factories of a tree. Using energy from the sun, which they capture with a pigment (chlorophyll), the leaves convert carbon dioxide and water into oxygen and food (sugars) through the process of photosynthesis.



did you know?

Forest Fact

Like humans, trees need all the parts of their body to work together to stay healthy. Each part—the trunk, the leaves, and the roots—plays a role in helping the tree grow. If one part gets damaged, the whole tree could die.



INTRODUCING THE THEME

Compare the children's arms, skin, and feet to a tree's limbs, bark, and roots. Have children stand next to a tree or use a picture of one.

Invite children to compare their body parts with the tree's parts. Ask: "How many arms do you have? What can you do with your arms? How many 'arms' does a tree have? What do you think a tree's arms do? What do you think your skin does? A tree has skin too. We call it bark. What do your feet do? A tree has feet too, though a tree can't walk around like you. They are called roots." Tell the children how to be a tree: "Stand straight and tall. Plant your roots, and don't move them. Stretch your branches into the sky. What would you do if a gentle breeze blew? What would you do if a strong wind blew? What would you do on a hot summer day? What would you do on a cold day?"

Bark: The bark is like the tree's skin. It protects the tree from injuries caused by insects and other animals, other plants, diseases, and fire. Depending on the type of tree, bark may be thin, thick, spongy, rough, smooth, or covered with spines. Just under the bark is a growing layer (cambium) that makes the branches, roots, trunk, and twigs of the tree thicker each year.

Roots: The roots help anchor the tree and absorb water and nutrients from the soil. All trees have lateral roots that spread out from the tree, and some trees also have a taproot that grows straight into the ground. As a tree's taproot and lateral roots grow away from the tree, they branch into finer and finer roots called rootlets. The rootlets themselves are covered by even finer root hairs. These root hairs absorb approximately 95 percent of the water and nutrients needed by the tree.

Seeds: These are plant embryos with protective coverings. They contain all the materials necessary for plants to begin life, including a small initial food supply. Seeds come in many different forms and shapes. Every type of tree has a special type of seed designed for the tree's habitat and method of distribution. Some trees produce seeds called nuts.

Like people, each tree is unique and beautiful in its own way.



FEATURED EXPERIENCE: Tree Costumes



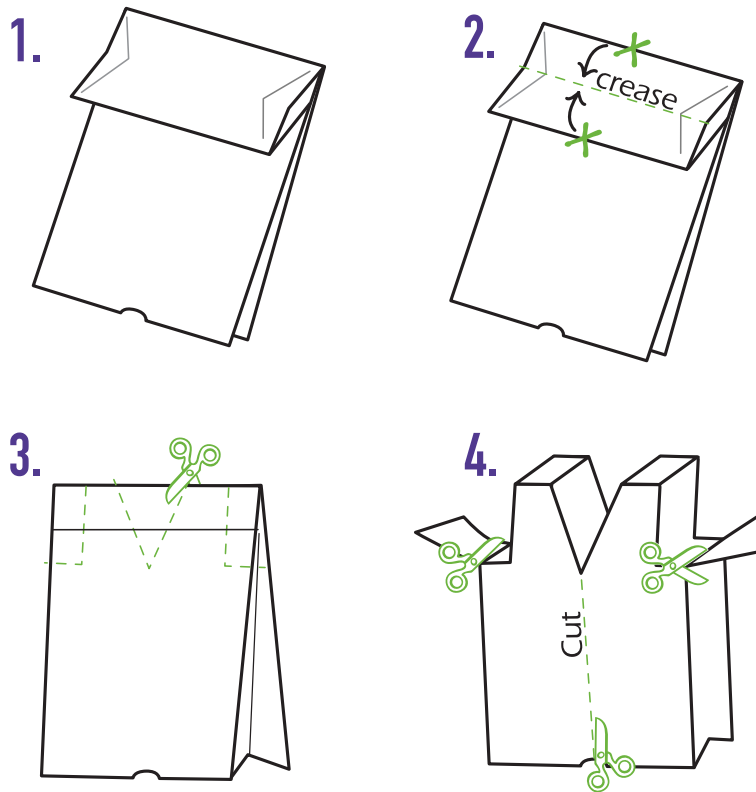
Materials: *Are Trees Alive?* by Debbie S. Miller, one precut paper grocery bag (see diagram below) for each child, paper for making leaf rubbings, crayons, scissors, hole punch, yarn or string

Ahead of time, use the pattern below to precut a paper bag tree vest for each child. Children with limited mobility might be more comfortable getting in and out of a bag cut like a sandwich board that simply fits over their heads. (As an alternative, use lunch-size paper bags to make tree puppets instead of vests.)

Read *Are Trees Alive?* by Debbie S. Miller. After the story, talk about how trees and people are alike. Draw a large picture of a tree on chart paper, or use a felt board. With help from the children, label the tree with these parts: trunk, branches, leaves, bark, roots, flowers, and seeds.

Show the children a tree vest, and explain how they will use the vest to make a costume.

The children can make four or five colorful leaf rubbings by placing leaves (vein side up) under white paper and then rubbing over the leaves with the sides of paperless crayons. Children should cut out their leaf rubbings and punch holes in them using a hole punch. With your help, they should thread pieces of string through all the leaves and tie the yarn so it fits around their heads, thus making crowns of leaves.





Go outside together to make bark rubbings on the tree vests. Children can work in pairs or with an adult. While one person holds the vest against the tree trunk, the child can rub over the paper with a crayon.

When everyone is finished, call the children together to complete the costumes by following these steps:

1. Put on tree vests. Tell children that their bodies represent tree trunks. The trunk supports the tree. The vest is like the bark that covers the tree's trunk. Ask, "How do you think the bark protects the tree from rain? Insects? Diseases? Fire?"
2. Place crowns of leaves on children's heads. Discuss with the children how the leaves in the tree's crown soak up sunshine and make food (sugar) for the tree. Ask: "Do you think it would nice to be a tree and to be able to make your own food? If you were a tree, would you miss eating a lot of different foods?"
3. Give each child 4-inch lengths of yarn or string to represent roots. Ask the children to tuck the roots into their socks or shoes so their roots dangle over their shoes. Discuss how roots absorb water and nutrients from the soil.
4. Have the children hold their arms up over their heads to represent branches. They can stand close together and pretend to be a forest of trees.



GROUP EXPERIENCES



Music and Movement

SING A TREE SONG

Sing the following song to the tune of The Wheels on the Bus, varying the lyrics according to the season. Invite the children to suggest and demonstrate the movements for each verse.

The Roots on the Trees

Tune: The Wheels on the Bus

The roots on the trees go
slurp, slurp, slurp
slurp, slurp, slurp
slurp, slurp, slurp.
The roots on the trees go
slurp, slurp, slurp
all around the world.

The trunks of the trees grow
strong and straight
strong and straight
strong and straight.
The trunks of the trees grow
strong and straight
all around the world.

The bark on the trees protects the trees ...
The branches on the trees reach for the sky ...
The leaves on the trees make food from the sun ...
The seeds on the trees go twirl and plunk ...
The wind blows the trees back and forth ...



SING AND DANCE WITH BILLY B

Play Track 11: Yippee, Hooray! by Billy B on PLT's *Trees & Me* Playlist (scan QR code at right). Invite children to learn the lyrics and dance to the music. See Appendix C: *Trees & Me* Playlist for song lyrics and for tips on using this and other music selections.



GROW FROM A SEED



In an outdoor setting, show the children a variety of tree seeds (e.g., acorns, buckeyes, winged maple seeds, other seeds that are common in your area). Explain that you will read a story about what happens when a tree seed sprouts. Encourage the children to move their bodies as you tell the story. Read the following story out loud to them:

Imagine what it is like to be a seed and to grow into a tree. You are tree seeds, ready to leave the tree. You are shaped like a wing so you can fly on the wind. As you drop from the tree, the wind catches you and carries you away.

Can you feel the wind twirling you around? It lifts you up into the sky, and then you float through the air. Slowly, you drop downward and land gently on the soil. Lie down on the soil, and curl up tightly into a ball. You lie there, resting.

One day, raindrops begin to fall. They ping gently as they hit the ground. The wind begins to whistle and blow. Can you feel the rain and the wind? The water washes a little soil on top of you. You lie in the soil, drinking in the water. Soak it up like a sponge. Ahhhh, that feels good. You start to swell, and get bigger and bigger.

You get so big that you split open! A small root peeks out of the crack and starts pushing down into the soil. Wiggle your toes as your root creeps downward, growing longer as it reaches deep into the soil.

The sun peeks out from behind the clouds. It gets bright and warm. Can you feel the sun warming you? You are beginning to sprout. Slowly raise your head as your shoot pushes upward, growing toward the sunlight. Get up on your knees as you grow taller. Stretch and stretch—reach for the light. You're growing fast—you need water! Pull with your toes as your roots suck up water. Does it tickle as it travels up your trunk?

You start to grow branches. Push with your arms as your branches grow out of your trunk. Raise your arms higher as your branches reach for the light. Wiggle your fingers as you grow leaves to make food. The food travels down through your branches into your trunk. Can you feel it going down, all the way to your roots?

Stand up now. You are growing taller and stronger. You grow more roots to drink up the soil's moisture. Reach your branches toward the sun. Breathe in the air with your leaves. Feel the wind pushing against your branches. It lifts your leaves, and they twirl in the breeze. Feel the breeze swaying your branches back and forth, back and forth. Ahhhhhh! You are all grown up into a big tree now.



Take It Outside!



Take children outside to look for and document (with drawings or photographs) as many different leaves, tree bark, tree leaves, or seeds as they can. You might staple their drawings together to make their own “field journal.”

Reading and Writing

GROW A TREE

Materials: Variety of tree seeds, heavyweight paper, glue, colored pencils, crayons, markers, or regular pencils

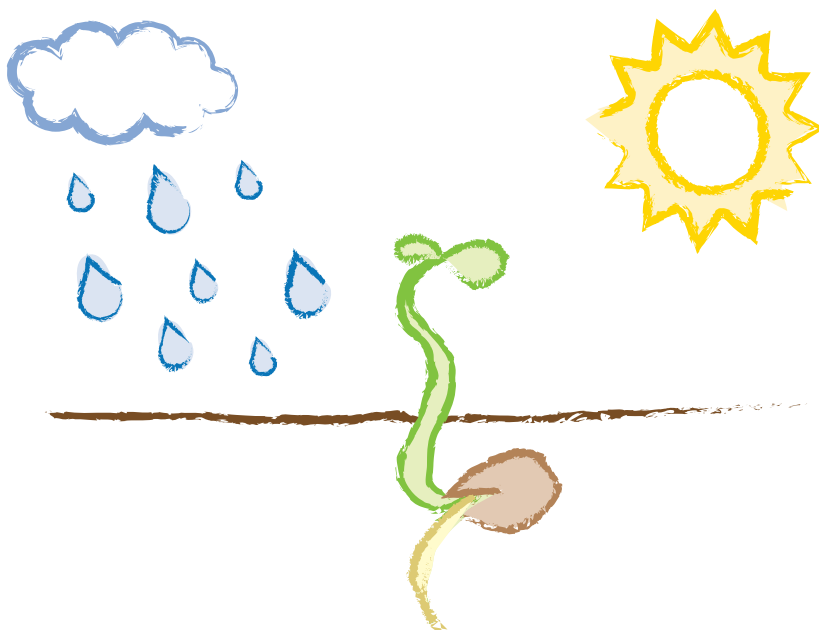


Invite the children to find tree seeds outdoors or to choose one each from your group's collection. Show them how to draw a horizontal line on their papers representing the surface of the ground and how to “plant” the seeds under the ground by gluing them to the paper, under the line. They can also color the paper brown under the

line to represent soil. Ask, “What kind of tree do you think will grow from your seed? What color will the trunk and branches be? What color will the leaves be? How will the branches look? What kind of roots will it have?”


After the children are finished with their drawings, ask them to write or dictate descriptions of their trees. Display the drawings on a bulletin board along with a collection of tree seeds.

See Appendix H: Bringing Nature Inside for more information about using natural objects in learning activities.



Exploring the Neighborhood

As you explore the neighborhood:

-  Look for and explore tree parts. Children may find a leaf, rub the bark, and so on.
- Look for exposed roots along streams and in parks.
- Imagine how far the roots reach out under the ground.
- Find a tree with a trunk that takes at least two children to reach around.
- Find a tree that is the same size as the children.
- Look for seeds around the trees. Are any sprouting? Have any been chewed on by animals? Look for trees with unusually shaped trunks, branches, and twigs.
- Compare the trunks and branches of evergreen trees and deciduous trees.
- Find a small tree and try to count its branches and leaves. Try to imagine how many leaves are on a big tree!



SAFETY! For safety information and other ideas for conducting learning outdoors, see Appendix G: Tips for Outdoor Learning.

Enjoying Snacks Together

BUILD A TREE

Recipe: 1 large pretzel stick, celery stick, or carrot (for the trunk); 4 small pretzel sticks, celery sticks, or julienne strips of carrot (for the branches); small pieces of broccoli, cucumbers, green pasta, lettuce, peppers, shredded carrots, or spinach (for the leaves); string cheese or cooked spaghetti (for the roots); raisins or sunflower seeds (for the seeds) soy or sunflower butter to stick the pieces together (optional)

Make a buffet table of tree parts. Put each part on a separate plate. Label the plates with the name of the tree part and a number indicating how many of each part each child should take.

Invite the children to put the right number of tree parts on their plates, to build a tree, and to eat it. As they eat, discuss the different parts of the tree. Ask, “How does the ____ help the tree? What is your favorite tree part? Why? Do you think these foods will help you grow big and tall? What does a tree need to grow big and tall?”



SAFETY! Be aware of any food allergies, dietary needs, or choking hazards for the children in your group.



FREE EXPLORATION



Art

BUILD A “HANDY” TREE MURAL

Materials: Large sheets of paper, finger paints in seasonal colors (such as brown, green, and red), paintbrushes, scissors

Have each child place one arm, palm side up, on the table. With a paintbrush, have the child paint the inside of his or her forearm, hand, and fingers brown. Help the children press their hands and arms onto paper. Invite them to add leaves, flowers, fruits, and seeds to their trees by dipping their fingertips into different colors of paint. They can add roots by painting their fingers brown and making prints underneath the bottoms of their trees. Invite adults (e.g., principal, janitor, parents) to make trees too!

When the painting is dry, cut out the tree and hang it with the others on a wall to create a forest mural. Point out to the children how the “trees” are different shapes and sizes, just like people.





Discovery Table

SORT TREE PARTS

Collect a variety of items from trees (e.g., fruits, leaves, seeds, twigs). Label boxes with words and pictures of each tree part. Encourage the children to sort the items into the boxes. Ask, “If you were a tree, what kind of seeds would you have? What is your favorite part of the tree?”

DESIGN A NEWSPAPER TREE

As an engineering challenge for older children, provide pieces of newspaper, scissors, and tape and invite children to use the materials to build a tree that stands at least three feet tall. Provide a yardstick as a gauge. If they are stumped about how to begin, you might show them how to roll and tape pieces of newspaper to create their structure.

Math and Manipulatives

BUILD A FELT BOARD TREE

Make felt board tree pieces for children to put together. Provide a variety of sizes and shapes for branches, fruits, leaves, roots, seeds, and trunks to build interesting trees. Make felt board labels for each part. After the children have experimented with the tree parts, invite them to write a recipe for a tree. Using the tree part labels, children can decide how many of each part they need to make a tree (e.g., 1 trunk, 5 branches, 7 roots).

Explore Careers

Invite children to explore a green job that involves tree parts—**FORESTER**. A forester is a professional who takes care of forests or urban forests. Encourage children to pretend to be foresters and look for trees in trouble in the play yard or neighborhood. They can look for scarred trunks, bugs, or rotting bark. If they find a problem, they can check the nearby trees to see if they are also in trouble. (If you find any trees with big problems, like rotting and dead limbs that could fall, check with your local urban forester or an arborist about what to do.)



FORESTER



EARLY LEARNING STANDARDS

SCIENCE

Practices

- Asking questions and defining problems
- Developing and using models
- Planning and carrying out investigations
- Analyzing and interpreting data

Concepts

- Stability and change
- Structure and function

ENGLISH LANGUAGE ARTS

Practices

- Speaking and listening: comprehension and collaboration

Concepts

- Speaking and listening: presentation of knowledge and ideas
- Writing: text types and purpose

MATH

Practices

- Reason abstractly and quantitatively

Concepts

- Counting and cardinality
- Measurement and data

READING IS FUN!



Bulla, Clyde Robert. *A Tree Is a Plant*. New York: HarperCollins, 2016. This Let's-Read-and-Find-Out book follows the growth of an apple tree from seed to maturity. It explains tree parts and functions in simple terms. Ages 4–7. ISBN: 0062382101.

3 Carle, Eric. *The Tiny Seed*. New York: Little Simon, 2005. In this classic story, follow a tiny seed on an adventure as it becomes a giant flower. Ages 2–5. ISBN: 068987149X.

Gibbons, Gail. *Tell Me, Tree: All About Trees for Kids*. Boston: Little, Brown Books for Young Readers, 2002. This large-format guide discusses the parts of a tree and their functions, the growth of trees, and the different types of trees. Ages 4–8. ISBN: 0316309036.

Holub, Joan. *Seed School: Growing Up Amazing*. Seagrass Press, 2018. While some of the seed friends in this story seem to sprout and grow up in just one season, one odd-looking seed with a cap takes many years to become the strong oak he was destined to be. Ages 4–7. ISBN: 1633223744.

3 Milbourne, Anna. *Peep Inside a Tree*. London: Usborne, 2018. This board book follows the growth of a tiny acorn into a beautiful old oak tree. Look under leaves and between branches to discover all kinds of creatures living there. Ages 1–3. ISBN: 147493384X

Miller, Debbie S. *Are Trees Alive?* New York: Walker, 2002. An introduction to trees that compares parts of a tree with parts of the human body. The story features people and trees from all over the world. Ages 4–8. ISBN: 0802788017.

Muldrow, Diane. *We Planted a Tree*. New York: Dragonfly Books, 2016. Simple text reveals the benefits of planting a single tree, both to those who see it grow and to the world as a whole. Ages 3–7. ISBN: 0553539035.

Parts to Play

Things to Do Together

We are exploring trees, tree parts, and tree growth. Here are some activities you and your child can do together:

- Talk about how trees are like people and how they are different. Think about what we can learn from trees.
- Together, draw a family tree that represents your immediate family.
- Take a walk as a family to a place with trees. Let your child tell you what all the different parts of a tree are and what they do.
- Find as many different kinds of bark, leaves, seeds, and twigs as you can.
- Explore a tree with your eyes closed.

→ **Family, Friends, and Forests:** Visit a nearby forest and look for different tree parts.



Invite children to think about what they can learn from trees and allow time for them to practice “listening” to trees and nature. Encourage them to tell a friend or family member about something they learned from trees or nature.

Help build your child’s vocabulary by using some of these new words in your conversations:

We are reading the following books. Check them out from your library, and invite your child to share them with you.

