

Let's Go!

PROJECT LEARNING TREE

The West Virginia Forestry Association is a non-profit organization funded by its membership. Members include individuals and businesses involved in forest management, timber production and wood product manufacturing.

Ten activities from the Project Learning Tree program have been edited to focus on West Virginia. The activity sheets are available online to print in color or b/w as appropriate. This color version is provided for your use and resource. West Virginia Forestry Association website: <http://www.wvfa.org/index.html>

Project Learning Tree activity sheets

- **Get In Touch with Trees – Activity 2**
- **Invasive Species – Activity 12**
- **We All Need Trees – Activity 13**
- **Adopt a Tree – Activity 21**
- **Trees as Habitats – Activity 22**
- **Looking at Leaves – Activity 64**
- **Bursting Buds – Activity 65**
- **Tree Cookies – Activity 76**
- **Signs of Fall – Activity 78**
- **Tree Lifecycle – Activity 79**

Enjoy the great outdoors. Visit a state park or forest whenever possible.

Connecting Kids to Nature

Try this activity in a forest—a natural place to learn!

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Activity 2: Get in Touch with Trees

By way of neighborhood trees and a mystery box, children will explore their sense of touch and discover different shapes and textures in nature.

Doing the Activity

Before venturing outdoors with children, take a walk yourself and find an area where a few different tree species grow. Collect one or more objects from the ground underneath the trees. Place the objects in a “mystery box” so they can be felt but not seen. Take the children to your collection spot, have them feel the items in the mystery box, and challenge them to search the collection area to find the matching objects. Ask:

- What is important about your sense of touch? How do you use it?
- What would life be like without your sense of touch?
- Can you identify objects by only feeling them?

You can also bring along a blindfold and have children examine trees using only their hands. Can similarities and differences be found?

To learn more about the unique characteristics of a few American trees, check out *Trees, Leaves, and Bark* by Diane Burns, 1998, ISBN: 1559716282.

Complete this word search puzzle to discover ten words that describe texture. Look below for the answers.

Z	Y	S	U	T	F	O	S
M	P	C	T	S	A	M	P
A	D	P	S	I	O	L	O
F	H	R	H	O	C	R	N
U	H	A	T	M	O	K	G
Z	B	H	B	U	M	P	Y
Z	H	S	G	Y	B	T	U
Y	O	H	A	R	D	G	R



Adapted from Activity 2: Get in Touch with Trees from *Project Learning Tree's PreK-8 Environmental Education Activity Guide*.

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WEST VIRGINIA TREE FACT

The Slippery Elm, found throughout West Virginia, gets its name because of the innerbark's slick, slippery coating. Its leaves, however, are as hairy and rough as sandpaper.



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Answers: bumpy, fuzzy, rough, moist, hard, sticky, smooth, soft, spongy, sharp, sticky

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Activity 12: Invasive Species

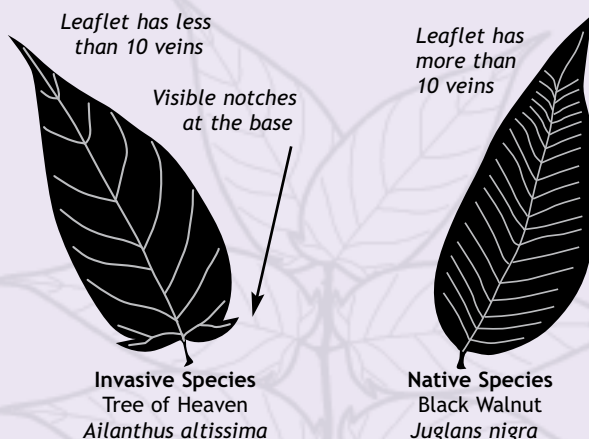
Moving plant and animal species to new environments can be beneficial, but can often cause environmental and economic harm.

Doing the Activity

The next time you are outdoors, introduce the term **invasive species** to children and discuss its meaning by asking:

- How would this area look different if a family of elephants lived here?
- What impact would the elephants have on the plants and animals nearby?
- Where do elephants live in the wild? Why don’t elephants live here?

Of course, elephants have not invaded woodlands of the United States, but invasive species are impacting local forest ecosystems. For example, Tree of Heaven (or *Ailanthus*) is an invasive plant originally from central China, now found in 30 U.S. states. It is often mistaken for the native Black Walnut and left to grow and reproduce. Tree of Heaven grows rapidly, is difficult to remove, and displaces native plants. Both species have **compound leaves**, but can you identify the differences between the leaflets?



Fill in the vowels to identify common characteristics of invasive species.

1. Have a short l_f_cycl_ and produce many __ffspr_ng
2. Gr_w very quickly
3. Are not affected by natural pr_d_t_rs in their new h_b_t_ts
4. Spr__d quickly and easily to new __c_syst_ms
5. Often t_l_r_t_ a wide range of different __nv_r_nm_nts

Adapted from Activity 12: Invasive Species from Project Learning Tree's *PreK-8 Environmental Education Activity Guide*.

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WEST VIRGINIA TREE FACT

Tree of Heaven can be seen throughout West Virginia. Watch out for the unpleasant odor of its crushed leaves — some say the smell resembles rotten peanut butter!



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Activity 13: We All Need Trees

Children are often surprised to learn how many different products we get from trees. Use this activity to help children learn just how much we depend on trees in our daily lives.

Doing the Activity

Take a walk with children, and bring along a daypack filled with a few tree products, for example, fruit (e.g., apple, orange, banana), a pencil and a journal or a book, sunblock, and chewing gum. Pick up a downed tree branch and ask where it came from (a tree). Eat the fruit, and ask children where it came from (a store? a tree?). Ask children to think of other items that come from trees. Discuss some unusual tree products, using the samples from your daypack. Ask critical questions, including:

- Have you used anything that comes from trees today?
- How are tree products alike and how are they different?
- What do you like most about trees?

In addition to giving us wood, paper, food, and other products, trees are invaluable assets to our communities. Take a neighborhood walk, and look for newly planted trees and shrubs. How are they protected? Find a place without trees, and compare it with a place with many. Which place do you like best? Why?

For a children’s story about the gifts of trees and our responsibility to care for them, check out *The Tree Farmer* by Chuck Leavell and Nicholas Cravotta, 2005, ISBN: 1893622169.

Complete this word search puzzle to discover ten tree products.
Look below for the answers.

A U R A T I U G I
T P E T O S B E L
T O P A C H O N I
E T A L O C O H C
P E P U E H K D N
P O S T C A R D E
U E W E N I W I P
T E E R S R O T H
C I N N A M O N C

WEST VIRGINIA TREE FACT

The basswood tree, found on moist, fertile sites throughout West Virginia, is sometimes called the “bee tree” because of its fragrant, yellow flowers that attract honey bees. In addition to the delicious honey the tree’s flowers produce, its wood is also used to make piano keys and furniture.

Adapted from Activity 13: We All Need Trees from *Project Learning Tree’s PreK-8 Environmental Education Activity Guide*.

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Activity 21: Adopt a Tree

In this activity, children “adopt” a tree, deepening their awareness of individual trees over time and encouraging a greater understanding and appreciation of their local environment.

Doing the Activity

The next time you are on a walk in a familiar area, invite children to choose a particular tree to observe. Suggest they become better acquainted with it by using their senses of sight, touch, hearing, and smell to describe the tree. Encourage critical thinking by asking:

- Is this tree alive? How do you know?
- How is this tree similar to and/or different from other trees around it?
- How does this tree help the environment around it?

Complete the Adopt a Tree Journal Entry below. Revisit this tree on a regular basis throughout the year and in a variety of weather conditions. Have children guess reasons for the changes they see and then predict changes for the future.

Adopt a Tree Journal Entry

Date: _____ Time: _____

Location: _____

Describe the tree _____

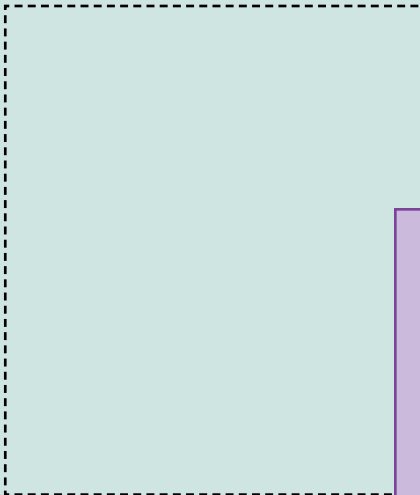
What color is the bark? _____

Why did you choose this tree? _____

What type of tree is it? _____

In the box, draw a picture of your tree or use a crayon or pencil to complete a leaf or bark rubbing.

My Adopted Tree



Adapted from Activity 21: Adopt a Tree from *Project Learning Tree's PreK-8 Environmental Education Activity Guide*.

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WEST VIRGINIA TREE FACT

As cooler temperatures arrive, hardwood trees drop their leaves—some 4,000 pounds per acre. Fallen leaves decay and provide nutrients for continued tree growth as well as homes for millions of tiny creatures.

HOW MANY SEASONAL SIGNS CAN YOU FIND?

Fall

- Leaf color change
- Intensity and range of leaf color
- Bird migration
- Evergreen cones

Winter

- Animal tracks
- Visible animal homes
- Snow accumulation
- Shorter days



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Activity 22: Trees as Habitats

From their leafy branches to their tangled roots, trees provide a habitat for a host of plants and animals. In this activity, children will inventory the plants and animals that live in, on, and around trees and discover how plants and animals depend on trees in many ways.

Doing the Activity

Where do you live? A *habitat* is the place where a plant or animal can get all the things it needs to survive. The next time you pass by a tree, think of it as a habitat, or living space. While observing a tree, have children learn about the different ways plants and animals can find food, water, shelter, and living space by asking:

- What are some plants and animals that depend on trees?
- What do trees provide for these plants and animals?
- Can you see signs of life on the trunk, branches, roots, and leaves?
- How is a tree affected by the plants and animals that live on it?
(they may benefit, harm, or be neutral to the tree)

If possible, allow children to use hand lenses or binoculars to get a closer look. Ask them to use their sense of hearing to locate more plants and animals. Finally, compare a tree to your own home, or habitat. How are they alike or different?

Conduct a read-aloud using *Goodnight, Owl!* by Pat Hutchins. For a children’s story about how a cactus provides habitat for desert wildlife, check out *Cactus Hotel* by Brenda Guiberson. Both books can be purchased at <http://shop.plt.org>.

Adapted from Activity 22: Trees as Habitats from Project Learning Tree’s *PreK-8 Environmental Education Activity Guide*.



WEST VIRGINIA TREE FACT

Timber harvests are designed to create a diverse landscape with trees of all ages and sizes, along with open areas such as pastures and ponds, that provide habitat for many wildlife species.

DID YOU KNOW?

Even snags, or standing dead trees, provide an excellent habitat. For example, woodpeckers feed on insects that crawl on snags and then chickadees nest in the cavities created by woodpeckers. Tree frogs and beetles live under a snag’s bark, while squirrels and deer mice use snags to store food.

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Activity 64: Looking at Leaves

In this activity, children will take a closer look at leaves and find out more about leaf characteristics and how leaves can be used to identify plants.

Doing the Activity

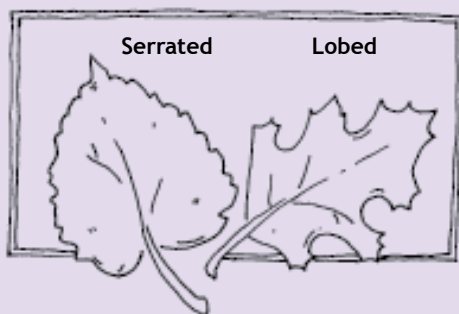
The next time you are in a forested area, have children collect leaves of various shapes, sizes, and colors from the ground. Conduct a comparison investigation by asking:

- What differences and similarities can you see?
- What do the leaves feel like? Do they have hairs? Or teeth?
- Can you find the tree that each leaf came from?

Explain that leaves can be used to identify trees. Try using a field guide to identify a tree. How many other trees can you find with this same type of leaf?

The edges or margins of leaves can provide clues to a tree’s identity. Another characteristic to identify a tree is the way its leaves are arranged on the twigs. Can you find **leaf margins** and **leaf arrangements** that match the images below?

Leaf Margins



Leaf Arrangements



Have children make prints of the leaves they collect. To make a leaf rubbing, place a leaf on a smooth, hard surface, vein side up, and cover it with a piece of paper. Rub a crayon back and forth across the paper, directly above the leaf. What do you see? The leaf’s margin and veins will appear on the paper as you rub.

Adapted from Activity 64: Looking At Leaves from Project Learning Tree’s *PreK-8 Environmental Education Activity Guide*.

WEST VIRGINIA TREE FACT

Sassafras trees have three different shaped leaves—oval, mitten-shaped, and bi-lobed—all found on the same tree. This, combined with their well-known “root beer” smell makes the tree easy to identify.

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Activity 65: Bursting Buds

In early spring, the tiny, bright green leaves of many trees burst forth. Where do the leaves come from? How do they form? In this activity, children will find the answers to these questions through observation and research.

Doing the Activity

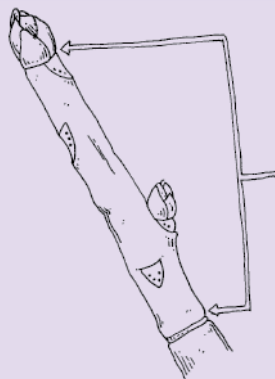
The Spring is a wonderful time to go outside. When walking through a wooded area, take a moment to draw attention to tree twigs and branches. Have children search for buds and then choose a single twig to study. Have them:

- Hold the branch for examination
- Point out the different features they can see
- Gently split open a bud and examine the leaves tucked inside

Explain that tree twigs have different identifiable parts. Children could use a digital camera--or sketchbook—to record what they see. Back indoors, have children draw a picture of their twig and then use the internet or a tree identification guide to label the different parts. Finally, ask children how they think buds change into leaves. One week later, go outside again to the same tree so children can see the change.

For a children’s science book about the structure and purpose of leaves, check out *How Leaves Change* by Sylvia A. Johnson, published by Lerner Publications, 1989, ISBN: 0822595133.

Can you identify the terminal bud; side bud; leaf scars; bud scale scar?



previous season's growth

Do this word search puzzle to discover some components of a branch. Look below for the answers.

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

Adapted from Activity 65: Bursting Buds from Project Learning Tree's PreK-8 Environmental Education Activity Guide.

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Answers to word search: bark; branch; bud; flower; leaf; node; pith; sap; scales; scars; shoot; stem; thorn; twig.

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WEST VIRGINIA TREE FACT

The sugar maple is the state tree of West Virginia

DID YOU KNOW?

By the time a tree's leaves drop in the fall, its leaves for the next spring are already formed. Tiny leaves, stems, and sometimes flowers are located in packages called buds. Buds are made of tough scales that form a waterproof case. In spring, sap rises from the roots to the branches; the scales fall off the buds; and the tree's leaves, stems, and flowers unfurl and grow. During the summer, the tree begins to develop new buds for the following year.



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Activity 76: Tree Cookies

One way to learn about tree growth is to look at annual rings. Tree rings show patterns of change in a tree’s life as well as changes in the area where it grows. In this activity, you can trace environmental and historical changes using a cross section of a tree, or “tree cookie.”

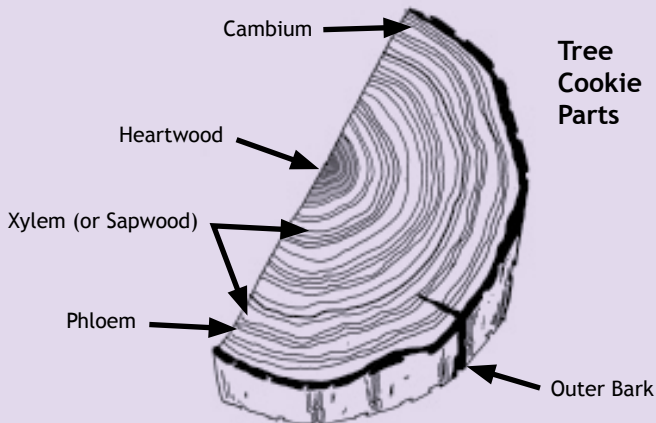
Doing the Activity

Have you ever counted tree rings? Every growth season, a tree adds a new layer of wood to its trunk and limbs. This means you can determine the age of a tree by counting its layers, or rings. Have children learn more about a tree’s life by examining a tree cookie and asking:

- How old was this part of the tree when the tree cookie was cut?
- Can you see different markings? Evidence of scars or narrow, misshapen rings?
- What might have happened to the tree to cause these different markings?

Use a hand lens to get a closer look at the tree cookie’s texture. Can you see any holes or channels that might allow water and nutrients to travel up the tree? Finally, ask children to draw a tree cookie the same age as themselves. What can they do to show when important events in their lives took place?

For a children’s book that describes the various parts of trees and their functions, check out *Outside and Inside Trees* by Sandra Markel, published by Simon and Schuster, 1993, ISBN: 0027623130.



Adapted from Activity 76: Tree Cookies from *Project Learning Tree’s PreK-8 Environmental Education Activity Guide*.

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WEST VIRGINIA TREE FACT

Twelve million of West Virginia’s 15.4 million acres are forested, making it the second most forested state in the country.

Do this word search puzzle to discover some components of a tree. Look below for the answers.

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

Answers to word search: annual, bark, cambium, climate, disease, drought, fire, growth, heartwood, insects, limbs, phloem, rings, sapwood, trunk, xylem



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Activity 78: Signs of Fall

In this activity, children look for signs of autumn. They observe the annual change of seasons, and investigate why leaves of deciduous trees change color in the fall.

Doing the Activity

As autumn approaches, take children on a walk through a wooded area, schoolyard, local park, or neighborhood sidewalk to look for signs of fall. Point out the differences between *deciduous* and *evergreen* trees. Have children find at least five of each and collect sample leaves and needles. Create leaf rubbings by covering a leaf with a piece of paper and rubbing a crayon over it. The leaf’s margin and veins will appear. Use crayons to match the fall colors found in the leaves. Encourage critical thinking by asking:

- What signs of fall can you see in the trees and on the ground?
- How many different leaf colors can you find?
- What will happen to the leaves?

Deciduous



Deciduous trees lose their leaves annually.
Example: Oak



Evergreen

Evergreen trees keep their leaves (needles) year-round.
Example: Pine

Have children use the colorful fall leaves to create a picture. For ideas, see *Leaf Man* by Lois Ehlert, published by Harcourt Children’s Books, 2005, ISBN: 0152053042.

Adapted from Activity 78: Signs of Fall from *Project Learning Tree’s PreK-8 Environmental Education Activity Guide*.

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WEST VIRGINIA TREE FACT

Sugar maple trees provide much of the yellow, orange and red coloring found throughout the West Virginia autumn landscape, and are also the major source of sugar and maple syrup.

WHY DO THE LEAVES CHANGE COLOR

With fall’s colder temperatures and shorter days, the cells of deciduous tree leaves begin to die. The dead cells block water and nutrients from the leaf. *Chlorophyll*, the green pigment in the leaves, breaks down and the yellow and red pigments begin to show through. Native Americans had legends to explain the fall colors. Invite children to create their own imaginative stories.



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Activity 79: Tree Lifecycle

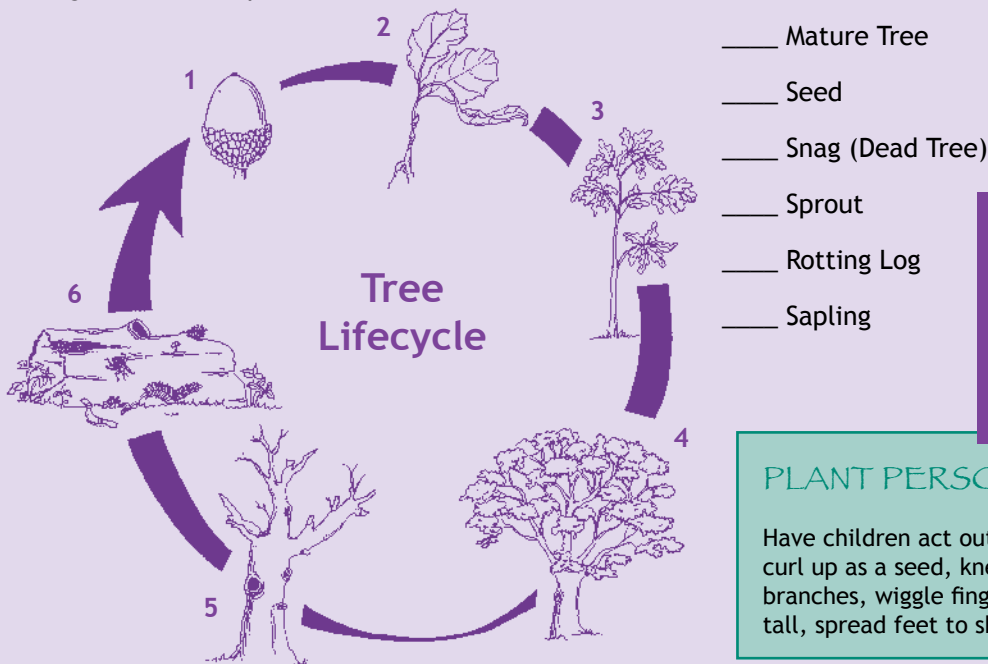
In this activity, students will discover that trees have a lifecycle that is similar to that of other living things.

Doing the Activity

Trees have a lifecycle that includes birth, growth, injury and disease, aging, and death. The next time you are in the presence of trees, ask children to identify the various stages of a tree’s life.

- Are trees alive? How do you know?
- How are trees born? Do they die?
- How does a tree’s life compare to the life of a person?
- Can you find a young tree? An adult tree? An elderly tree? A dead tree?

Have children match up the tree lifecycle images below with their correct name using the numbers provided.



WEST VIRGINIA TREE FACT

More than 94% of West Virginia’s forests are deciduous and regenerate naturally after timber harvests when seeds are exposed to moist soil and increased sunlight.

PLANT PERSONIFICATION

Have children act out the lifecycle of a tree. They can curl up as a seed, kneel to sprout, stick up arms as branches, wiggle fingers for leaves, stand up to grow tall, spread feet to show roots, and fall over to die.

Adapted from Activity 79: Tree Lifecycle from Project Learning Tree’s *PreK-8 Environmental Education Activity Guide*.

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Answers: 1. Seed, 2. Sprout, 3. Sapling, 4. Mature Tree, 5. Snag (Dead Tree), 6. Rotting Log

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