Follow the Forest Discovery Trail signs and stop at each designated area.

FIRST STEPS

Welcome to the Forest Discovery Trail!

Let's have fun, and stay safe!

Safety Tip #1

There are some hazards in the forest. It is important that groups stay together. One great way to do this is to keep students between a trail leader and the trail caboose.

What are some possible trail hazards?

- Stinging insects
- Getting lost at trail and road intersections
- Falling and getting hurt
- Though encounters are very rare, we do share the forest with cougars and black bears. Staying with your group will make encounters extremely unlikely.

Safety Tip #2

Take care of yourself, and others.

How can we take care of ourselves and others?

- **Stay on the trail**
- **Stay in our own safety bubbles**
- **Keep sticks on the ground**
- **Don't put things from the forest in your mouth**

Safety Tip #3

Learn to Identify Poison Oak.

Pro Tip! Look with your eyes, before you touch anything.

ASK! *Does anyone know how to identify poison oak?*

Let's Learn together!

Remember this rhyme *"Leaves of three, let it be"*

ASK! *Has anyone had poison oak before? How did it feel?* **Itchy and painful!**

FIRST STEPS

Activity!

Near this stop, you can easily find Poison Oak leaves, White Oak and Blackberry leaves. Find and compare all three plants.

- Oak-shaped leaf (lobed leaves), smooth leaf edges
- White Oak has just one lobed leaf coming off a stem

- "Leaves of three, let it be"
- Poison oak has oak shaped leaves in groups of three

- Blackberry leaves can be in groups of three or five, but have "teeth or triangles" around the leaf edges

Follow the trail to the next stopping point

...PEAVY'S GIANTS

Along the Way

Look for different leaf shapes along the trail. Take photos of the shapes or have a grownup carefully collect leaves in a paper or ziplock bag (not poison oak, of course!). Look at all the different shapes you collected when you finish the walk or get back to the classroom.

Back in the Classroom

Have students draw or do leaf rubbings of all the different leaf shapes found on the walk. Display them all together to see the diversity of leaf shapes in the forest!

PEAVY'S GIANTS

Big things start small. Meet the Redwoods.

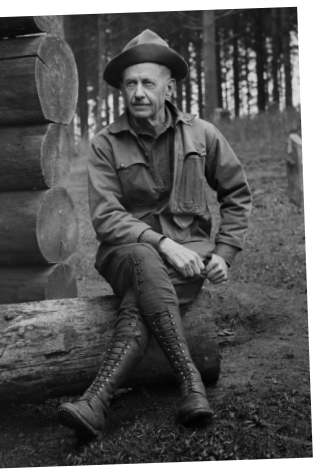
How old do you think this tree is?

These redwood trees were planted sometime around 1926, when this land was first purchased by the College of Forestry to create Peavy Arboretum: a botanical garden devoted to trees from all over the world. These trees are no older than 90 years old (in 2020). A redwood.A redwood can live for 2000 years. In proportion to a human lifespan of 80 years, these trees would only be 4 years old!

Do you know why it is called the "Peavy" Arboretum?

This arboretum is named after George Peavy. Dean of the School of Forestry from 1913-1940, President of OSU from 1934-1940 and mayor of Corvallis from 1947-1951.

George Peavy started with just an idea. He wanted his students to have a living laboratory where they could learn about trees and forests. That little idea became the Peavy Arboretum and grew into the 7000 acres of the McDonald Forest!



Let's have fun and stay safe!

Activity!

Can you find a cone?

Redwood cones are about the size of an olive! This is a very small cone and the seeds inside are is even smaller!

Isn't it amazing that something so tiny has grown into one of the world's largest tree species?

PEAVY'S GIANTS

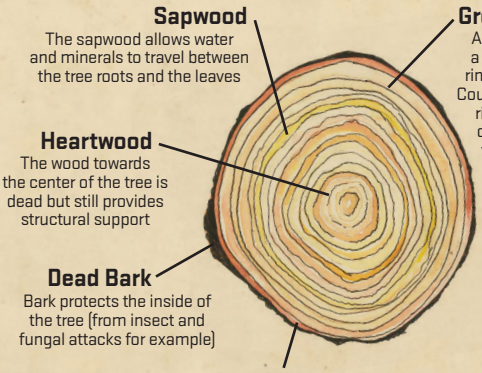
Activity!

Can you find a redwood sapling?

These trees are just a little bit taller than you. These are baby redwoods!

Touch the Redwood's tree bark. **How does it feel?**

Bark acts like the skin of the tree and protects the tree, just like our skin protects our insides! You can learn how old a tree is by counting the growth rings. The tree produces a new growth ring every year.



Activity!

How big do redwoods get?

Cross the forest road safely to the big grassy area. Have your whole group hold hands in a circle.

Approximately 15 –20 people holding hands in a circle simulates how wide the biggest redwoods are!

Follow the trail to the next stopping point

...THE DARK FOREST

THE DARK FOREST

You have just entered the forest.

Did you notice any changes as you entered the forest?

Forests can be dark. The forest canopy is made up of tree branches that capture a lot of sunlight before it reaches the forest floor. Trees provide shade on sunny days and shelter from the rain.

You have entered a small plantation of Ponderosa Pine trees. These trees and many of the trees in this forest have been planted by College of Forestry researchers and students who wanted to learn more about trees and the how they grow.

Activity!

Take a moment to find a pine cone. Pick them up gently!

Why Gently? Some of them are spiky! These are Ponderosa Pine cones. Look at the needles all over the ground. How many needles are in each bunch? Three!

These three long needles help us identify these Ponderosa Pine.

- **Are the needles always in threes?**
- **Can you find a cone that is not spikey?**

These are Douglas-fir cones – some people think it looks like little mice are trying to jump into the scale head first!

- **Can anyone find Douglas fir needles?**
- **How are they different from the Ponderosa Pine?**

Let's Learn!

In the forest we will see many different shapes, colors and textures. There are lots of different species of trees in the forest. Each tree species has unique leaves or needles, cones, seeds and bark. That helps us identify different tree species from one another.

Can you find any of the different species on your scavenger hunt sheet?

Keep looking on your hike!

THE DARK FOREST

Living Layers

Trees grow very tall and create many different spaces for other species to live and grow.

Activity!

Questions

- Where would you like to live in the forest if you were a forest animal?
- What do you think would make a good forest home or shelter?
- What do you see that you could use to make a shelter in this forest?

Let's Learn! Plants, animals and fungus live in all sorts of nooks and crannies of living and dead trees. Birds build nests on the forest floor and all the way into the crown of the tree. Woodpeckers use their strong bills to drill into tree trunks making homes for themselves and many other birds and animals. Insects and salamanders can be found inside and underneath fallen logs. Lots of organisms are found in the soil! Forests are full of life – or as scientists say "biodiversity".

Let's all Say a big Science Word: "Bio-di-vers-ity!"

Classroom/Home Activity: Watch what happens when you dry out a wet Douglas-fir cone, or put a dry cone into a glass of water. You can leave them in a glass of water overnight, or allow wet ones to dry out overnight. Then switch activities. The cone scales will open and close! The scales protect the growing seeds.

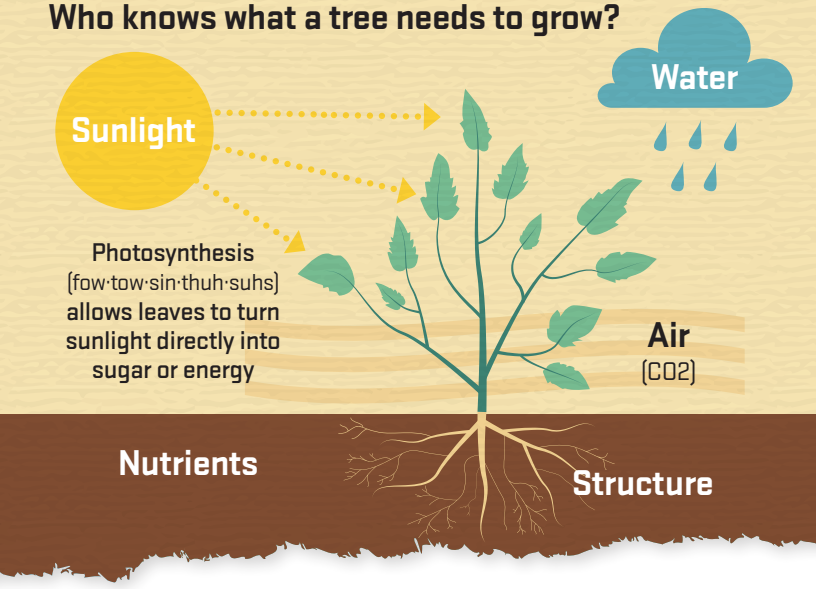
Follow the trail to the next stopping point

...THE WHITE OAK

THE WHITE OAK

The Life of a Tree

Who knows what a tree needs to grow?



Activity!

Could a tree grow here?

- **Can you find a sunny spot and stand there?** (Sunlight).If you find a sunny spot, plant your feet on the ground. Stand still and pretend your roots are growing into the ground.
- **Without moving your feet, can you find any water where you are?** (Examples: Wet leaves, wet ground, or wet wood?)
- **Can you find nutrients?** Look for leaves, needles or sticks on the ground, any organic matter.
- **Can you find air?** Take a deep breath in and out.

THE WHITE OAK

Let's Learn

200 year ago, White Oak was the main tree species here. For thousands of years, White Oak dominated this landscape, and was scattered throughout beautiful grasslands. This habitat is called Oak Savanna. Oak Savannas were carefully maintained through-out the Willamette Valley by the Kalapuya people, using fire. But many things have changed over the last 200 years. The White Oaks in Oregon have an important story to share.

Activity!

Journey of the Acorn

Follow the trail until you see the fence we share with our forest neighbor. **Look for the acorn sign** and have your group members find a place to stand. Turn your imaginations on full blast, and imagine you have turned into a tree. Read the following story. Let all your group members "act" out the different roles in this trees life.

You are an acorn. You fall onto the warm grassy oak savanna. Your roots begin growing into the soil. Your first leaves push out of the acorn shell and reach up towards the sunlight. You are growing well. Many acorns around you get eaten by squirrels and acorn woodpeckers. Many more are collected by the Kalapuya people and ground into acorn flour.

Fires burn nearby. You can feel the heat, but you are not burned by the flames. After the fire, there are fewer plants competing for sunlight. You grow taller! Deer and elk come by and nibble your leaves but you keep growing.

In the 1830 and 40s, Euro-American settlers arrive and began farming the land around you. Many Kalapuya people have died from diseases that arrive with the settlers. Those who survive eventually move to the newly formed Grand Ronde reservation (1856). The fires stop. Many of the oak trees growing near by are cut down by settlers for fences for their farm animals and firewood. But you keep growing. You are growing when Corvallis first becomes a city (1853).

Soon, small trees begin growing around you. These are Douglas-fir and they love sunlight. With fires no longer destroying their seeds, they quickly begin growing tall. Every year they take more and more sunlight. It is getting harder for you to grow. Eventually the Douglas-fir are taller than you. It is now cold and dark in the forest. Many years go by. You grow very little.

One day, you feel heavy machines rumble into the forest. The Douglas-fir are cut down, but you are left standing. Finally you feel the sunshine again

Follow the trail to the next stopping point

...HUMANS IN THE FOREST

HUMANS IN THE FOREST

Welcome to Mary McDonald's Forest

Welcome to the McDonald Forest! This forest is named after Mary McDonald. Mary provided the College of Forestry with the money to buy the majority of this forest. The McDonald Forest is a research forest, used by scientists, students, and foresters to learn more about forest ecosystems and how to best manage them.

Mary made her own fortune from cutting forests on lands she owned with her husband in Northern California and Southern Oregon. After making her fortune, she was inspired by the conservation work (the wise use of nature) of President Theodore Roosevelt and John Muir. She decided she wanted to use her wealth to improve conservation and education for future generations.

Mary had no children of her own and wanted to help the youth of the future learn more about protecting and managing natural resources. She had learned about OSU's College of Forestry and Dean George Peavy and Professor TJ Starker's dream of having a living forest laboratory. Her legacy is the McDonald Forest.

This working research forest is here for you to enjoy and learn from.

- **What do you think takes place in a forest living laboratory?**
- **What kind of research do you think takes place here?**
- **What would you do if you had a million dollars to donate to something?**
- **What would you like to learn about this forest?**

HUMANS IN THE FOREST

Let's Learn

Some of this forest has grown naturally and some has been planted by foresters, researchers, and students.

Why do you think forests are important to people?

- Forests provide wood for houses, buildings and structures, and paper products.
- Forests filter water. Half of the City of Corvallis' water is filtered by forests surrounding Mary's Peak.
- Forests store carbon and lessen the effects of climate change.
- Forests provide wildlife habitat.
- Many medicines were originally discovered from forest plants.
- Forests help keep our air clean. Trees are air filters, removing pollutants from the air.
- Forests provide recreation and wellness benefits. People love walking, biking, running, and exploring our forests.

What do you think foresters think about when they manage the forest?

- Providing society with wood and forest products
- Maintaining wildlife habitat and biodiversity
- Providing recreation opportunities for communities
- Leaving trees along streams to protect the water

Activity!

Can you tell that humans have been using this forest? As you continue walking through forest, see if you can notice some of the things people have done to manage, use, or learn more about this forest. There are hints on the map, on the trail, and on the trees themselves!

What to look for:

- **Plastic netting wrapped around the bottom of the cedar trees by Arbor Creek** (close to where you are standing now)
- **Trails and roads to help people move through the forest**
- **Metal inventory tags on trees**
- **Brightly colored ribbons on trees**
- **Wildlife tree tags**
- **"Gaps" cut into the forest**

Follow the trail to the next stopping point

...FOREST BIRD HABITAT

FOREST BIRD HABITAT

Bird Biologist Activity!

To see if you can hear any bird or animal sounds, set the timer for two minutes and listen very carefully.

- **Did you hear any birds singing or woodpeckers drumming?**
- **Can you imitate the songs/sounds you heard?**
- **How many different songs/sounds did you hear?**

In the spring and early summer you may hear lots of birds singing. Each species has their very own song. In the fall and winter, you may still hear birds calling to one another or woodpeckers drilling into trees to find insects hidden in the bark.

Chickadee

- **Did you know that only male birds sing?**
- **Does anyone know why birds sing?**

  Male birds sing to attract a mate for the breeding season and to establish territories.

Bird pairs (couples) need a certain amount of space to collect all the food and nest material they need to raise their families. Male birds use their song to let other birds of the same species know that the land is taken. Fights can break out between neighboring birds if boundary lines are crossed.

Pacific Wren

- **Did you hear more then one type of song when you were listening?**

Different species of birds can share the same space because they may prefer a different food type or nesting site. Some species like to live high in the tree tops (hermit warbler), while other species like to live down low near the forest floor (Pacific wrens). Other species (chickadees) like to live inside dead trees in holes that were made by wood-peckers. The forest is like a giant apartment building for birds.

Scientists learn a lot about birds by listening to them, just like you did. Many scientists who study birds can identify all the different bird species by song to discover who is living in the forest and where.

Some birds stay in Oregon all winter and survive our cold and wet weather. But some birds leave Oregon and fly South—to tropical forests in South America.

- **Does anyone know why?** Warmer climate, more food.

But the journey is dangerous. Not all birds survive migration. And those that do must learn to survive threats in both North and South America!

- **Can anyone name some of the dangers birds face?** Cats, hawks and other predators; buildings and windows, storms, starvation, habitat loss...

FOREST BIRD HABITAT

Migration makes Conservation Science an International Affair

Bird Populations have declined in North America by 30% over the last 50 years (3 billion fewer birds) mostly due to human activities. **Can you name some of these threats?** (1) habitat loss, (2) climate change (3) domestic cats (4) glass windows (5) pesticides

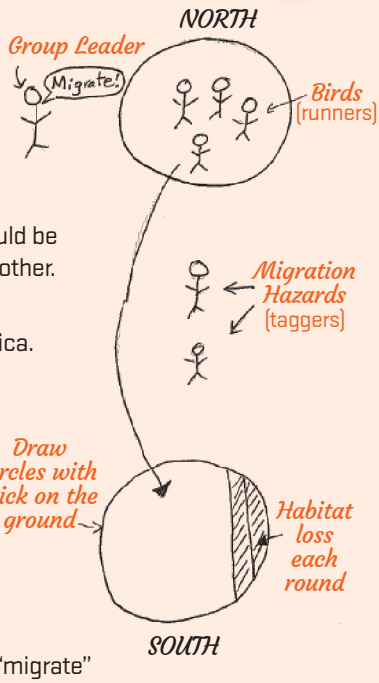
Scientists are learning about the important roles birds play in our forest ecosystems. **Can you name some benefits birds provide?** Reducing insect outbreaks, pollinating plants, dispersing seeds, making cavity homes for many other species.

Can humans learn how to protect bird populations? Because migratory birds use habitat in both North , Central and South America—scientists (like OSU's Dr. Matt Betts) are working with scientists, politicians, and conservation groups in Costa Rica, Brazil and many other regions in Central and South America to find solutions to declines in bird populations.

Activity!

Lets Play a Game!

(Similar to Sharks and Minnows)



1. Use a stick to draw two circles in the dirt big enough for your group to stand in and not touch another student. Each circle should be 50 giant steps away from one another.
2. Designate one circle as North America and one as South America.
3. Designate one or two students to stand between the two circles to act as "migration hazards" (a storm, a building with many glass windows, a cat or predator).
4. Have all the students start in North America.
5. When the group leader calls out "migrate" students "fly" to the South circle and try not to get tagged. If a bird is tagged they join the "migration hazards".
6. But habitat loss is shrinking both the Northern and Southern habitats . Make the circles smaller every turn. Birds need enough room to not touch any other birds. If birds do not have enough room in the circle they become a "migration hazard".

What happens to your population of "birds"?

Follow the trail to the next stopping point

...INTERSECTIONS

INTERSECTIONS

Where do we go from here?

It is almost time to start making our way home. If you are on the "Meet the Forest" tour, follow the blue signs for your loop. The trail to your right will take you to the 510 road and lead you to the FDT trail.

If you are continuing on the Forest Discovery Trail follow the signs for the Forest Discovery Trail down hill. Adults—let kids help you look at the map and determine the right way to go.

Before starting back, intersections are great places to take a break and reflect on our time in the forest. Here are some fun activities you can choose to do before hiking back to the trail head!

Activity!

Activity ideas that you can do on the way out

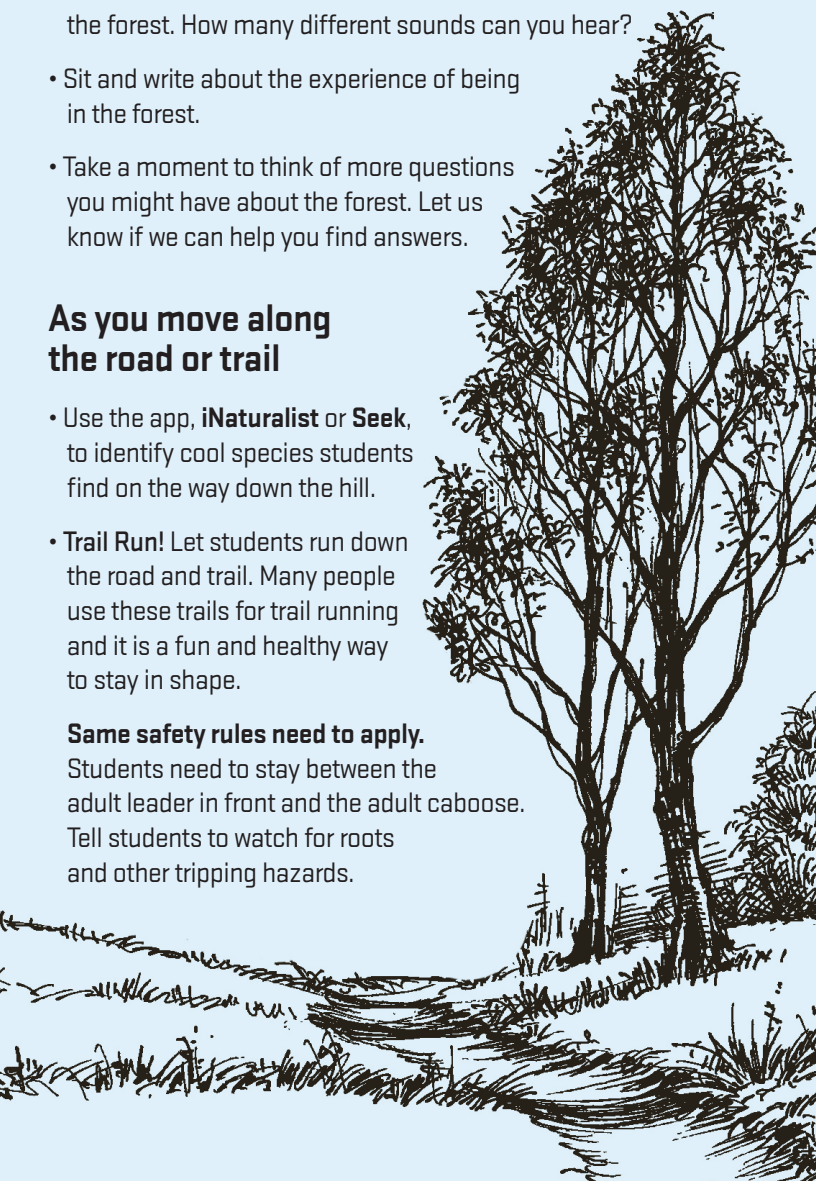
Take a moment to enjoy the forest

- Let students sit and draw something from nature.
- Set a timer for 1-2 minutes and listen to all the sounds in the forest. How many different sounds can you hear?
- Sit and write about the experience of being in the forest.
- Take a moment to think of more questions you might have about the forest. Let us know if we can help you find answers.

As you move along the road or trail

- Use the app, **iNaturalist** or **Seek**, to identify cool species students find on the way down the hill.
- **Trail Run!** Let students run down the road and trail. Many people use these trails for trail running and it is a fun and healthy way to stay in shape.

Same safety rules need to apply. Students need to stay between the adult leader in front and the adult caboose. Tell students to watch for roots and other tripping hazards.



INTERSECTION

Activity!

As we walk along the road, let's play "I spy with my little eye" or "I hear with my little ear"! You can use the Nature Savenger Hunt to help find species and check off more species!

- **Moss**
  (may be growing on the tree trunks, logs, forest floor)
- **Lichens**
  (may be growing on the branches and up into the canopy)
- **Ferns**
  (you can find them growing in clumps along the side of the road and trails, as well as on tree branches.)
- **Vines of poison oak climb high up tree trunks**
- **Birds** (see or hear them)
- **Animals** (see or hear them)
- **Holes, nooks, or crannies**
  (tree cavities where birds or animals live.)
- **Mushrooms/fungus**

Nature Scavenger Hunt

How many things can you discover along the way?