Learning about Forests (LEAF) Monthly Planning Guide for LINKS Chapters

January 2024

Overview

Monthly Theme	Environmental Awareness Days	Cultural and Identity Awareness Days
Forestry Careers and Leaders	National Mentoring Month	George Washington Carver Day (5) | Martin Luther King Day (15)

Elementary	1. Activity 1: Forestry Career Exploration 2. Activity 2: Who Works in the Forest? 3. Activity 3: Interview a Forestry Professional
Middle and High School	1. Activity 1: Forestry Career Exploration 2. Activity 2: Who Works in the Forest? 3. Activity 3: If You Were Boss

Mentoring Moment Suggestion

Seek out passionate volunteers, activists, elders, and Indigenous members of the community, consider accessing the expertise of foresters, natural resource managers, arborists, biologists, ecologists, conservation scientists, park rangers, wildland firefighters, or science journalists.

Forestry Careers and Leaders

ELEMENTARY ACTIVITIES

SUMMARY

These activities will provide youth with an opportunity to explore a variety of forest careers, identify the education requirements and skills needed for them, and gain a deeper understanding of forestry management.

MATERIALS

- *Video:* People of Forestry: Discover Careers in Forestry
- *Video:* People of Forestry: Onesphore Bitoki of Virginia
- *Video:* A Career in Forestry
- *Reading*: Career Fact Sheet: Forester (attached)
- *Lesson Plan and Worksheet*: Who Works in the Forest? (attached)
- *Worksheet:* Exploring Forest Jobs Interview (attached)

BACKGROUND

Our society depends on forests to provide timber and other forest products, as well as providing wildlife habitat, helping to clean the air and water, and offering recreation opportunities. People in the forestry field work to manage forests sustainably so that forests provide all the things we need and want from them.[1]

Forestry is more than just planting trees, fighting forest fires, or harvesting logs, although managing those tasks may be part of a forester's responsibilities. Forestry also includes professionals who specialize in individual parts of the forest, such as soils, water, or wildlife. It encompasses work in computer modeling, mapping, statistical or budget analysis, and education. It also includes people engaged in harvesting, milling, transporting, engineering, or marketing forest products such as lumber, plywood, paper, and pulp.

Forest research and management involves professionals with backgrounds in many fields, including forestry, biology, wildlife, soils, water, land management, urban planning, engineering, sociology, geography, technology, environmental education, and chemistry. [2]

There is a wide array of forestry-related careers. They range from direct care of trees, to landscape planning, to the processing and production of lumber and products. One of the fastest growing specialty areas in forestry is in urban forestry, where people are involved in

[1] https://www.plt.org/wp-content/uploads/pdf/PLT_LearnAboutForests_WhoWorksInThisForest.pdf
[2]https://www.crivitz.k12.wi.us/site/handlers/filedownload.ashx?moduleinstanceid=615&dataid=3509&FileName=4careers%20exploration.pdf

caring for trees in urban and suburban areas.

Careers in forestry-related fields generally require some type of higher education due to the level of science and technology used. Education may include an advanced degree and/or technical training. Well-developed people skills are also important for those in forestry-related careers. Communication with the public and professionals in other natural resource fields is important when managing resources.

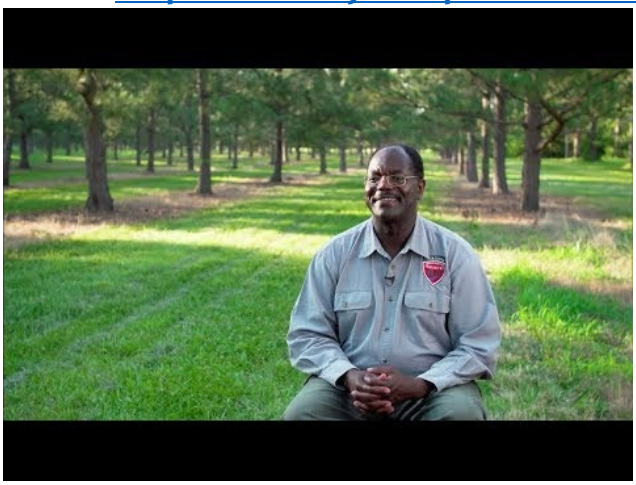
Activity 1: Forestry Career Exploration

WHAT TO DO

Explain to students that they will be exploring careers that focus on the forest during these activities. Use the following resources to introduce students to forestry professionals, leaders, and career opportunities.

1. ***Video:*** **People of Forestry: Discover Careers in Forestry**

2.Video: People of Forestry: Onesphore Bitoki of Virginia



3. Video: A Career in Forestry

4. *Reading*: Career Fact Sheet: Forester (also attached)

Activity 2: Who Works in the Forest?

Full lesson plan with procedure and worksheet is attached.

This lesson will provide youth with an opportunity to explore a variety of forest careers and identify the education requirements and skills needed for them.

Prep: Make copies of the Who *Works in the Forest?* Worksheet; cut them apart to make sets, and put each set in an envelope to hand out to youth.

Activity 3: Interview a Forestry Professional

Worksheet with interview questions is attached.

WHAT TO DO

Choose a forest-related job to explore in more detail. If possible, contact a professional who works in that field and ask to conduct an informational interview about their job. You may interview them in person, on the phone, or virtually. Use the questions on the worksheet and feel free to add your own questions. If you are not able to interview anyone, use the internet to research answers to the questions.

Forestry Careers and Leaders

MIDDLE AND HIGH SCHOOL ACTIVITIES

SUMMARY

These activities will provide youth with an opportunity to explore a variety of forest careers, identify the education requirements and skills needed for them, and gain a deeper understanding of forestry management.

MATERIALS

- *Video:* **People of Forestry: Onesphore Bitoki of Virginia**
- *Video:* **A Career in Forestry**
- *Reading*: Career Fact Sheet: Forester (attached)
- *Publication*: **Black Faces in Green Spaces: The Journeys of Black Professionals in Green Careers** (120 pages; not attached due to size)
- *Lesson Plan and Worksheet*: Who Works in the Forest? (attached)
- *Narrative and Worksheet*: If You Were Boss (attached)

BACKGROUND

Our society depends on forests to provide timber and other forest products, as well as providing wildlife habitat, helping to clean the air and water, and offering recreation opportunities. People in the forestry field work to manage forests sustainably so that forests provide all the things we need and want from them.[3]

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[3] https://www.plt.org/wp-content/uploads/pdf/PLT_LearnAboutForests_WhoWorksInThisForest.pdf

[4]https://www.crivitz.k12.wi.us/site/handlers/filedownload.ashx?moduleinstanceid=615&dataid=3509&FileName=4careers%20exploration.pdf

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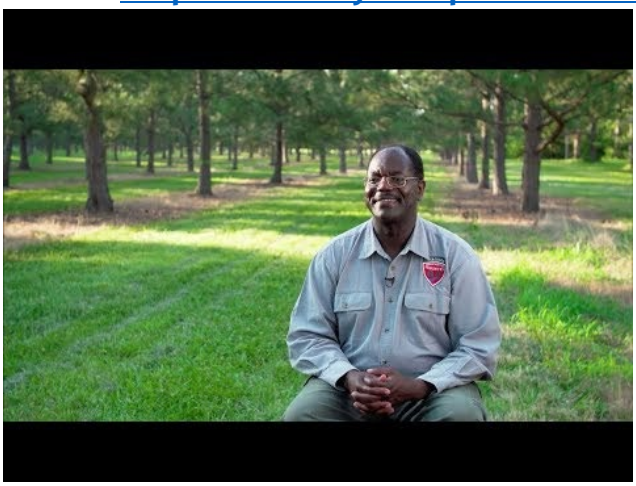
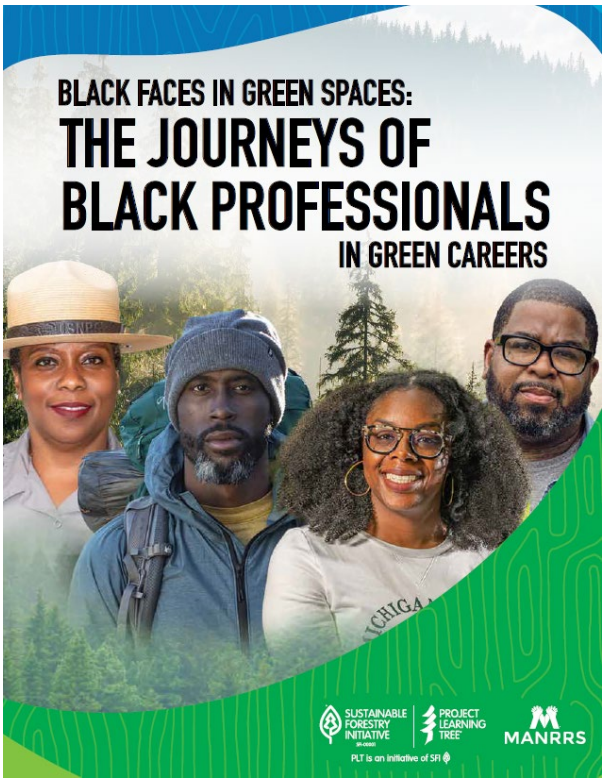
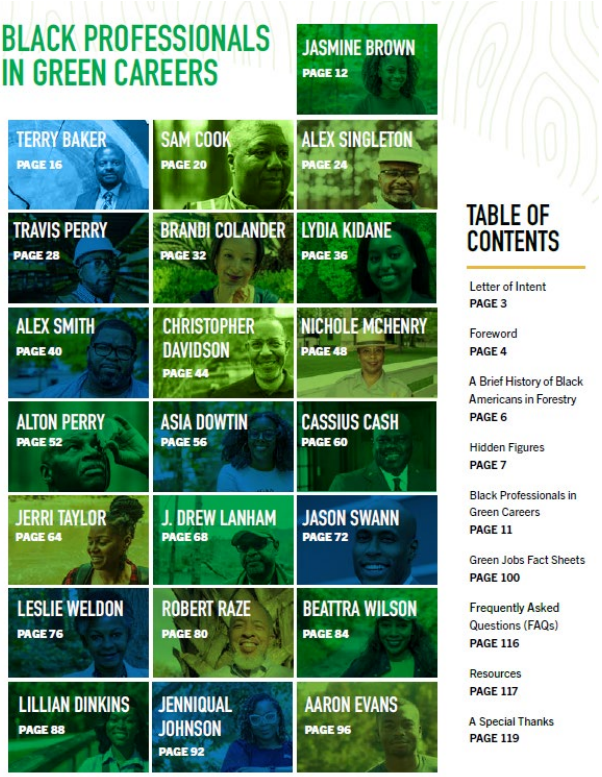


2. Video: A Career in Forestry

3. *Reading*: **Career Fact Sheet: Forester** (also attached)

4. *Publication*: **Black Faces in Green Spaces: The Journeys of Black Professionals in Green Careers** (120 pages). Download additional individual copies or order a box of guides from Project Learning Tree here: https://www.plt.org/journeys. Find an Educator Toolkit HERE.





Black Faces in Green Spaces: The Journeys of Black Professionals in Green Careers profiles the career pathways of 22 Black American forest and conservation professionals. It aims to make youth and young professionals aware of and excited about the many jobs in the forest and natural resources sector, advance representation through inspiring stories from historical and current environmental heroes, and highlight the green career opportunities that abound for Black Americans.

The publication features profiles of Black professionals who provide impactful stories and describe their journeys into their green careers.

Each profile includes:
- Their introduction to the forest and green jobs sector
- The challenges they overcame
- The importance of mentorship in helping to mold their trajectory
- Advice for future job seekers

Activity 2: Who Works in the Forest?

Full lesson plan with procedure and worksheet is attached.

This lesson will provide youth with an opportunity to explore a variety of forest careers and identify the education requirements and skills needed for them.

Prep: Make copies of the Who Works in the Forest? Worksheet; cut them apart to make sets, and put each set in an envelope to hand out to youth.

Activity 3: If You Were the Boss

Activity narrative and worksheet are attached.

Acting as foresters, students must make decisions about how to manage a forest sustainably while serving different needs of their community.

WHAT TO DO

Explain to students that they will work in teams to develop a management plan for 400-Acre Wood and make a map of it. Their goal is to find what their group thinks is the best balance between five priority interests: 1) the number of visitors, 2) wildlife conservation, 3) forest cover, 4) cultural site protection, and 5) costs and revenues.

CAREER FACT SHEET: FORESTER

Do you care about wildlife, the environment, and forests? Do you feel most comfortable in the outdoors, getting your hands dirty? If so, have you considered becoming a forester? Every day, thousands of foresters across the U.S. lace up their boots, don high-visibility vests, and venture into the wild. Their goal for the day? To manage the health of our forests so that the communities and wildlife that depend on them can thrive!

Foresters are problem solvers. They ask themselves what future problems might be encountered and create plans that tackle these challenges and reflect long-term forest management goals. For example, foresters use scientific information and research to help make decisions that ensure the long-term health of a forest. They also monitor the impacts of the decisions they make, using what they learned to make better choices for the future.

Foresters are great communicators and must share plans with communities, businesses, and state and federal governments. They must include public voices before, during, and after project planning. Foresters are equipped with scientific and ecological knowledge. They collect and analyze field data, using these findings to create a plan for how to best work with forests from multiple perspectives.

PUT YOURSELF IN A FORESTER'S BOOTS:

HOW DO YOU THINK CLIMATE CHANGE WILL AFFECT FORESTS?

If excitement is something you value in your everyday life, forestry could be a great fit for you. Some days can be spent creating maps and writing reports, other days can be consumed supervising forestry operations in areas only accessible by helicopter.

A PART OF THE BIGGER PICTURE

Forests can be thought of as a community's lungs, water filter, supermarket, and gathering place. The work done by foresters goes beyond the coordinates of a forest plot or the boundaries of a local park. As a forester, you are part of a global movement.

HOW?

- Follow laws and regulations that help manage our forests.
- Contribute to the United Nations 2030 Agenda for Sustainable Development Goals, supporting global sustainable forest management.
- Plan reforestation operations that help remove CO_2 and mitigate the effects of climate change.
- Collaborate with Indigenous communities to ensure their values are heard and respected.

MOVING FORWARD

In order to become a forester, a bachelor's degree is often required.

HIGH SCHOOL: In high school, plan to study Biology, Chemistry, Mathematics, Physics, and Pre-calculus.

COLLEGE: In college, plan to complete a four-year Bachelor of Science program with a major in forestry. See www.forestryusa.com/universities-colleges.html for a list of U.S. colleges and universities that offer forestry degrees. Check your state's public universities for the most cost-effective options.

DID YOU KNOW?

When you graduate from an accredited college program, you can register as a Registered Professional Forester (RPF). RPFs follow a code of ethics to ensure forest health and sustainability.

For more career fact sheets, see www.plt.org.

SALARY

A forester's annual salary can vary by state, employer, and type of work, but average amounts center around $70,000.

WHERE CAN YOU GROW?

The field of forestry offers many opportunities for personal and professional growth. You might grow your skills as a woodland manager, biodiversity specialist, or environmental consultant. Your knowledge and experience could also land you a job as a forest economist, or maybe you'll find yourself offering forest expertise at the international level.

A forester's skills are desirable to:

- Government agencies (state and federal)
- Forest industry
- Forestry and non-profit organizations
- Consulting firms
- Forest certification auditors

LEARN ABOUT FORESTS

We all depend on trees and forests! Use this fun, hands-on activity to engage youth in learning about sustainable forest management. It's perfect for educational events, career days, or field visits.

WHO WORKS IN THE FOREST?

PLAN

KEY CONCEPT: The forest sector generates diverse employment opportunities including foresters, natural resource managers, scientists, harvesting professionals, truckers, factory workers, engineers, architects, wildland firefighters, carbon modelers, and many more. [PLT's Forest Literacy Framework, Concept 2.C.4]

OBJECTIVES: Provide opportunities and materials for learners to

- Explore a variety of forest careers.
- Identify the training or education requirements and supporting skills for specific forest-sector jobs.

SESSION TIME: 50 minutes

SETTING: Indoors and outdoors

For more *Learn About Forests* activities and supporting resources, visit www.plt.org/learnaboutforests

BACKGROUND

Our society depends on forests to provide timber and other forest products, as well as fas well as providing wildlife habitat, helping to clean the air and water, and offering recreation opportunities. People in the forestry field work to manage forests sustainably so that forests provide all the things we need and want from them.

Forestry is more than just planting trees, fighting forest fires, or harvesting logs, although managing those tasks may be part of a forester's responsibilities. Forestry also includes professionals who specialize in individual parts of the forest, such as soils, water, or wildlife. It encompasses work in computer modeling, mapping, statistical or budget analysis, and education. It also includes people engaged in harvesting, milling, transporting, engineering, or marketing forest products such as lumber, plywood, paper, and pulp.

BENEFITS OF FORESTS

Jobs in sustainable forestry help to maintain or restore ecosystems and ensure that forest products are sustainably produced. Worldwide, more than 54.2 million people work in jobs connected to forests.

PREPARE

MATERIALS: Scissors and envelopes.

GET READY: Make copies of the Who Works in the Forest? Worksheet, cut them apart to make sets, and put each set in an envelope to hand out to the learners. Invite one or more of your colleagues, ideally people who have different jobs, to talk with the group about their job, answering such questions as:

- What education, training, skills, and personal characteristics are needed for this job?
- Why did you choose this job?
- What is the most interesting thing about it, and what is the most challenging part?
- What does a typical day involve?
- What types of organizations or businesses hire people for this job?
- How has this job changed over time?
- Why is this job important?

EXPERIENCE:

1. Divide the group into teams or pairs and give each a set of career cards. Challenge teams to categorize the jobs by different criteria, such as indoor versus outdoor, high tech versus low tech, amount of interaction with other people, academic discipline, education level required, and so on.
2. Ask a few volunteers to name a job that interests them and explain why. Encourage learners to think about the skills needed for the jobs and reflect on how those skills compare with their own strengths.
3. Introduce your colleague(s) to the group and ask them to describe their job. Allow time for learners to ask questions.

LEAD

INTRODUCE:

Ask learners to list out loud some of the resources that forests provide. Answers might include

- Plant and animal habitats,
- Paper and wood products,
- Places for recreation, and
- Air, soil, and water protection.

Make the connection that forests can be managed by people to enhance each of these different resources. Challenge learners to think of some jobs that are related to forestry.

CONNECT:

Point out that many people who work in and for forests are motivated by a deep connection to nature. Invite learners to find something outdoors that they connect to, whether an it is an object, feeling, or action. Encourage them to ask a question related to their observations and then consider what type of job or professional could help them explore this topic.

CLOSE

Challenge learners to think about what skills are necessary for the job that most interested them. Have them write down three skills they have that might make them well suited for this job and three skills they might need to strengthen.

TAKE ACTION

Challenge learners to create a new job or tool related to forests. Encourage them to think about a forest-related problem they would like to solve (such as litter or pollution) and then invent a job or tool to help solve it. For example, their job might involve a virtual reality teaching tool, a mobile app, or a new forest product.

WORKSHEET
WHO WORKS IN THE FOREST?

People have many different jobs that sustain our forests. Cut apart the following cards and categorize the jobs by indoor versus outdoor, high-tech versus low-tech, amount of interaction with other people, academic discipline, level of education needed, or other criteria.

FORESTER

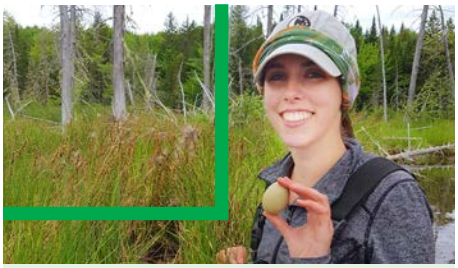
Foresters, or forest managers, oversee public or private forestlands. In my job, I develop short- and long-term plans for planting and growing, monitor trees for healthy growth, and make sure our forest practices comply with environmental regulations.

ENVIRONMENTAL EDUCATOR

I teach children and adults about forests. As an environmental educator, I lead school and community groups in learning activities focusing on trees and forest ecosystems. I especially enjoy guiding field trips where learners can experience nature firsthand.

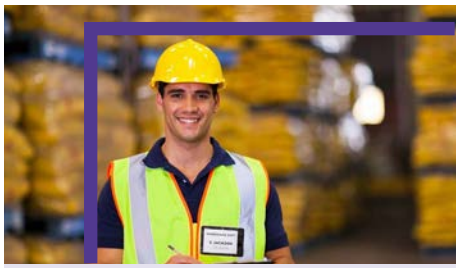
NATURAL RESOURCE ECONOMIST

I am passionate about ensuring the sustainability of forest resources. I determine the value of assets from the forest such as timber and ecosystem services. I also work to find the most efficient ways to supply or manufacture forest products.



WILDLIFE BIOLOGIST

I study wildlife and their habitats to understand what they need to thrive. I consider the relationships of birds, mammals, fish, reptiles, or amphibians to the forest and to each other. My work helps manage wildlife habitats for the benefit of all.



SAFETY INSPECTOR

I review forestry job sites, either in the field or at the mills and ensure that the workplace is a safe and healthy place for workers. I provide information, advice, and guidance to both employees and employers to help them meet safety compliance policies and regulations.

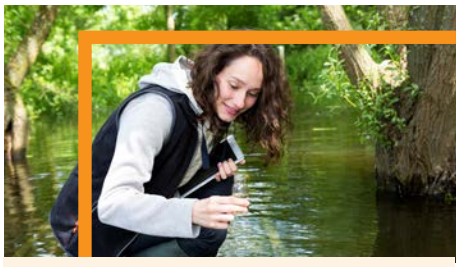
FOREST ENGINEER

As a forest engineer, I figure out how to utilize trees and conduct forest operations in the most efficient, cost-effective, and sustainable way. I may develop and test wood products, or design and supervise the construction of a trail or bridge.

WORKSHEET
WHO WORKS IN THE FOREST? PAGE 2

WILDLAND FIREFIGHTER

My job is to help protect and maintain the health of the forest by preventing, controlling, and putting out wildfires. To prepare for fire emergencies, I maintain and test firefighting equipment. I also talk to the public about ways they can help prevent wildfires.



HYDROLOGIST

I investigate water in forests by studying how it travels through the forest, into the soil, and eventually to a stream. In addition to learning about the water cycle, I try to solve for water-related effects or issues such as how streamflow affects forests or how climate change impacts watersheds.

MILLWRIGHT

A millwright is an industrial mechanic who maintains or constructs machinery for mills, print shops, or other businesses. As a millwright, I must be familiar with different machines and how they work, and have the analytical skills necessary to fix problems.

SOCIAL MEDIA DIRECTOR

I spread awareness about my organization's forestry program to various audiences on social media platforms. I get to be creative when planning media campaigns related to the forest, and work with a team to share stories and build meaningful connections.

PACKAGING TECHNOLOGIST

I'm a problem solver who enjoys working with materials. As a packaging technologist for a forest products company, I am responsible for designing, developing, and manufacturing packaging for a range of products, helping to reduce ocean plastic pollution.

NATURE PHOTOGRAPHER

Forests are my shooting sets. I use various cameras, lenses, and tools to document elements of our natural world to share with clients. My work involves traveling to remote areas, where I patiently wait to capture the perfect moment depicting wildlife and nature.

WORKSHEET
WHO WORKS IN THE FOREST? PAGE 3

ARCHITECT

As an architect, I try to reduce the ecological footprint of buildings and homes through carefully crafted designs using sustainable and certified wood and other materials. Sometimes I create spaces that let people coexist with nature by bringing the outdoors indoors.

LUMBER MILL WORKER

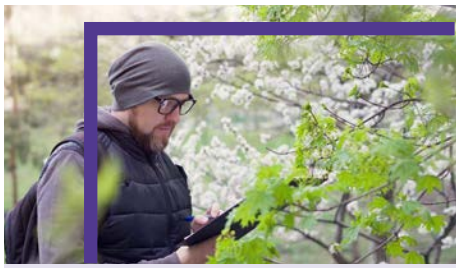
I work in a mill that cuts logs into lumber for building materials such as framing, flooring, windows, and doors. You may be surprised to learn that my job is very high-tech: computers help me determine the best way to cut each log and how to minimize wood waste.

LOGGER

As a logger, I harvest timber from forests, which people rely on for building materials, furniture, paper, packaging, and many other products. My job is to cut the trees safely and in a way that ensures water quality and the long-term health of the forest remains.

PARK RANGER

As a park ranger, I work to educate forest visitors about the forest and to explain and enforce the rules and regulations. I help keep the visitors safe in the forest and help keep the forest safe from visitors.



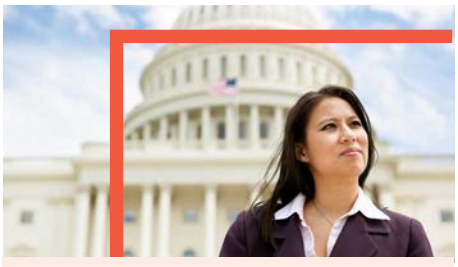
CARBON MODELER

As a carbon modeler, I work with forest owners to quantify the carbon being stored or sequestered in the forest. Based on this information, owners exchange "carbon credits" with companies that emit carbon dioxide as a way to reduce overall carbon emissions and climate change effects.

PAPER MANUFACTURER

I work as a machine operator for a paper manufacturing company that makes various paper products. I run the paper-making machines and conduct quality inspections on the finished products.

WORKSHEET
WHO WORKS IN THE FOREST? PAGE 4



POLICY ADVISOR

As a forest policy advisor, my job is to analyze laws and programs that affect the forest and to provide guidance on ways to improve them. I enjoy looking at all the ways policies might impact people and the forest and finding the best balance.

SUSTAINABILITY MANAGER

As a sustainability manager, I ensure that my organization upholds environmental standards and minimizes environmental harm. I make sure that my organization uses paper products that come from sustainably managed forests.

FORESTRY TECHNICIAN

My job takes me into the forest almost every day, and I spend a lot of time outside. As a forestry technician, I work with foresters and forest engineers to maintain forestland. Depending on the need on any given day, my duties can range from fire suppression to data collection to trail repair.

WOOD SCIENTIST

Wood is an amazing natural resource that we use for paper, construction lumber, particle board, and other products. As a wood scientist, I study the physical, chemical, and biological properties of wood to improve the way we process it into different products.

GIS SPECIALIST

As a geography or Geographic Information Systems (GIS) specialist, I work with computers to create graphs and maps showing forest-related data, such as land use, tree cover, and environmental practices. My work helps inform the public and decision-makers about forests.

FINANCIAL FORECASTER

As a financial forecaster for a wood products company, I work with numbers every day. I analyze lumber and paper pulp market prices and international exchange rates to help my company make the best investments and sound financial decisions.

WORKSHEET
EXPLORING FOREST JOBS

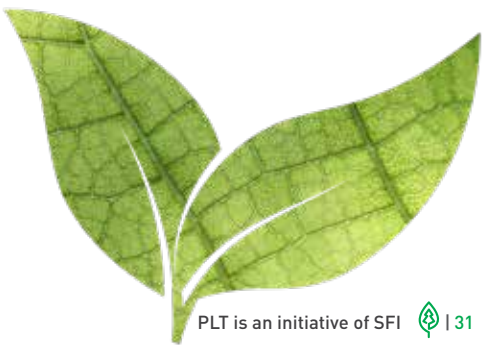
Choose a forest-related job to explore in more detail. If possible, contact a professional who works in that field and ask to conduct an informational interview about their job. You may interview them in person, on the phone, or through an app like Skype, using the following questions as a guide. If you are not able to interview anyone, you may use the internet to research answers to the questions.

JOB TITLE:

SOURCE(S) OF INFORMATION:

QUESTIONS:

1. How would you describe your job?
2. What education or training does someone need for this job?
3. What are some of the necessary skills?
4. What personal characteristics are important for doing this job?
5. What is the most interesting thing about it?
6. What is the most challenging thing about it?
7. Why did you choose this job?
8. Where are some possible places to find this type of job?
9. What are related job opportunities?
10. What are suggested college, university, or trade schools for this career?
11. What do you think the future of this kind of job looks like?
12. How is this job changing?
13. Why is this job important?



WORKSHEET
YOU DECIDE

A magnificent forest, 400-Acre Wood, has just been donated to your community. You and your team have the job of deciding what to do with this forest.

As you might have guessed, 400-Acre Wood is a parcel of forestland that is 400 acres in size. An acre is an area of land equal to a square that is 209 feet or 70 yards on each side, and 400 acres is approximately 0.6 square miles.

HOW BIG IS AN ACRE?

An acre is a measure of land area that is exactly 4840 square yards. It can be any shape, but is approximately the size of a football field without the end zones.

1 acre = About the area of a football field

Metric Unit Conversion:

1 acre = 0.4047 hectare
1 hectare = 1 square kilometer

400-Acre Wood is made up of pine forest, with about 150 mature pine trees per acre. Because the forest currently has no roads or trails, few people visit it. It has a small stream running through it, which contains trout. In addition, lots of wildlife live in the forest, including owls, deer, bear, woodpeckers, turkey, quails, wood rats, fish, and woodland salamanders.

Wildlife biologists use something called management indicator species to evaluate the positive and negative effects of people's actions on the environment. For 400-Acre Wood, the indicator species are barred owls, wood rats, and woodland salamanders. Wildlife biologists estimate that eight owls, 400 wood rats and 10,000 salamanders currently live in 400-Acre Wood.

In the northwest corner of 400-Acre Wood is a rock outcropping with three petroglyphs on it. These images were chiseled into the rock surface by Indigenous ancestors and are believed to be 600 to 1,000 years old. Your plan should safeguard this cultural site, keeping trails, camping, and exhaust from cars (which can erode the rock) a safe distance away.

You and your team will develop a management plan for 400-Acre Wood and make a map of it. You may decide to do one thing with the entire forest, such as create a campground. Or you may want to divide the forest and do different things in different areas, such as devote 200 acres to wildlife management or hiking, 80 acres to a campground, and 120 acres for timber or hunting. Your goal is to find what your group thinks is the best balance between five priority interests: 1) the number of visitors, 2) wildlife conservation, 3) forest cover, 4) cultural site protection, and 5) costs and revenues.

NOTE: Managing a landscape for various uses will lead to different effects. Effects can be both positive and negative, and play a huge role into the decisions made on the landscape. The following effects described are specific to this learning activity. Actual forests may have very different effects depending on the geography, species of trees, types of animals, and people involved, as well as other local conditions.

Below are the different forest uses you can include in your plan. The "What's the Score?" worksheet will help you evaluate your plan's total effect on the five priority interests (wildlife, trees, visitors, cultural site, and cost and revenue).

FOREST USE	EFFECTS
Wildlife Management Area The purpose of a wildlife management area is to allow wildlife to thrive by preserving important ecosystem features and removing any impact from human activities. Typically, wildlife management areas have no roads, operations, graded trails, or campsites.	Wildlife management areas will bring some visitors to the forest. The numbers of trees and amount of wildlife will remain the same. These areas are also compatible with the cultural site. It will cost money to monitor the area.
Timber Harvest and Regeneration Timber harvest and regeneration involves cutting trees for logs and planting new trees. Part of sustainably managing a forest includes determining which areas of the forest to harvest and regenerate. Using sustainable practices based on research, trees are removed in a way that minimizes effects on wildlife and people, while also producing logs over the long-term. For pine trees, which take 35 years to reach maturity, one-fifth of the trees are cut every 7 years. Trees must also be removed to build the road.	Note that to protect the stream's water quality, timber production may not occur next to the stream. This is called a streamside management zone. With the addition of roads, some visitors will come to this area. The timber harvest and regeneration will have a minimal effect on the three indicator species. It will cost money to build and maintain the road and for management, but the harvested trees can be sold.
Trails Graded trails allow different types of visitors to enjoy a forest area, including walkers, cyclists, families with strollers, and wheelchair users. Trails should not be built near a cultural site.	Trails will bring more visitors, but will also disturb the wildlife, particularly the owls and wood salamanders. It costs money to build and maintain trails, and trees will need to be cut to make room for the trails. But you may sell the cut trees and charge an entrance fee.
Campground A campground allows visitors to enjoy a forest area overnight or over the weekend. It typically has campsites, plus picnic tables, fire pits, parking spaces, and bathrooms. A campground also needs to have a road winding through it. Campgrounds should not be built near a cultural site.	A campground will bring more visitors, but will cause all three indicator species—owls, wood rats, and salamanders—to disappear from the area. Trees will need to be removed to build the road and campsites. It costs money to build and maintain the campground. But you may sell the cut trees and charge a camping fee.

FOREST USE	EFFECTS
Hunting and Foraging Some forest areas are managed to encourage game animals (deer, turkey, and quail) for hunters and edible items (medicinal plants, mushrooms, and berries) for foragers.	Hunting and foraging will bring some visitors, but with regulations to keep game populations constant, there should be no effect on the three indicator species—owls, wood rats, and salamanders. It will cost money to manage the area. But you may charge a license fee.
Reservoir To supply water to the nearby community, a forest stream can be dammed to form a freshwater reservoir. A reservoir will bring visitors for kayaking and other non-motorized boating. Trees will also need to be removed to create the reservoir.	The reservoir will cause all three indicator species—owls, wood rats, and salamanders—to disappear from the flooded area. It will cost money to build the dam, and it will cost money to manage the reservoir. But the cut trees can be sold, and visitors may be charged a recreation fee.
Cultural Sanctuary The purpose of a cultural sanctuary is to allow space to honor the people who lived there before and to respect the history, culture, and beliefs of Indigenous people today. A cultural sanctuary has no roads, graded trails, or campsites.	A cultural sanctuary will not change the number of visitors, trees, or amount of wildlife. It will cost money to monitor the area.

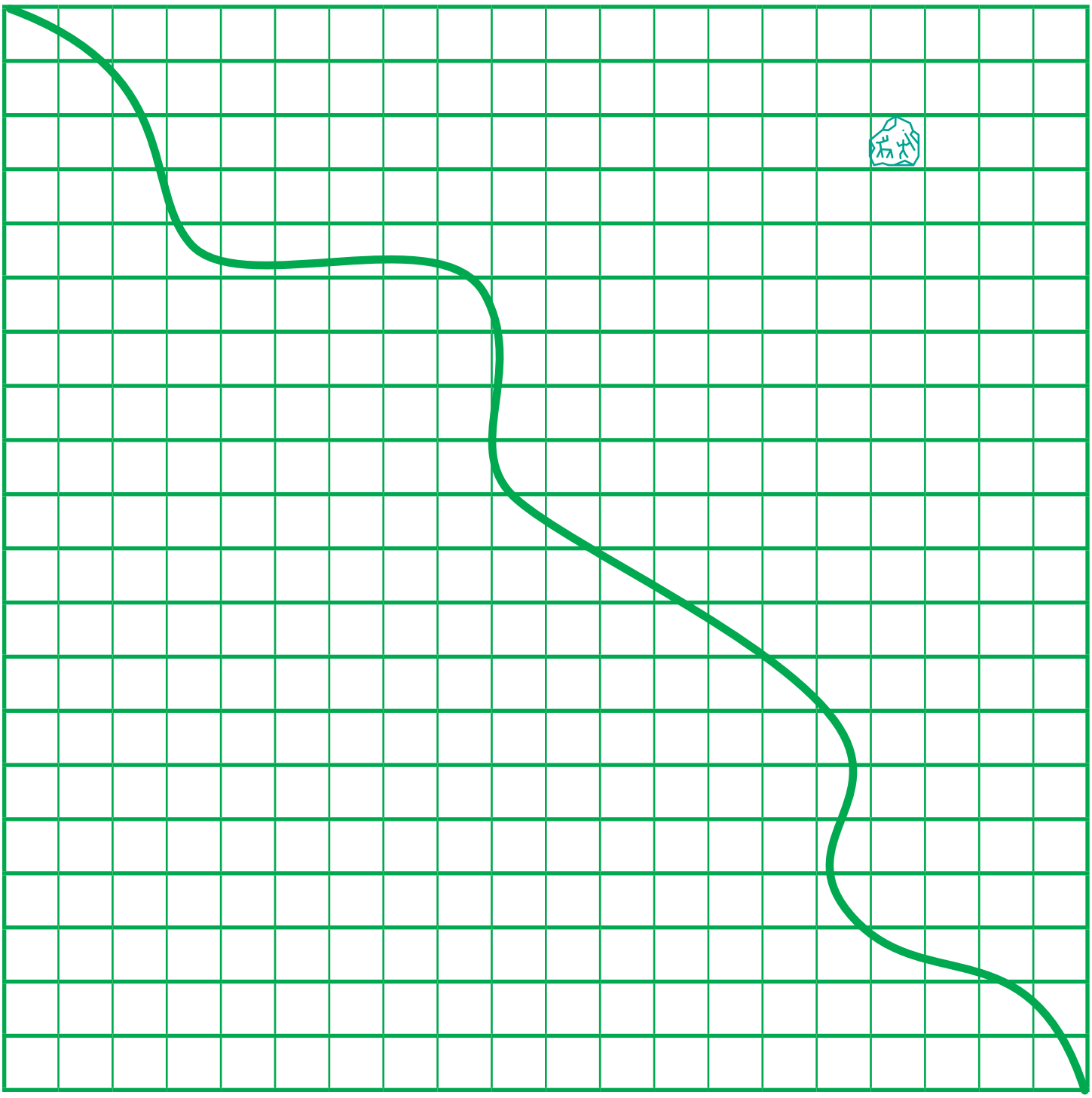
WORKSHEET
400-ACRE WOOD

- 400-Acre Wood measures 20 acres by 20 acres.
- Each small square is 1 acre and is 209 feet per side.
- Diagonally across one square measures 294 feet.

LEGEND

Stream

Cultural site



WORKSHEET
WHAT'S THE SCORE?

FOREST USE

Identify how many acres you plan for each forest use. Remember the total must equal 400 acres.

	FOREST USE							
	Wildlife	Timber	Trails	Campground	Hunting/ Foraging	Reservoir	Cultural Sanctuary	**TOTAL**
Area (acres)								400 Acres

ENVIRONMENTAL FACTORS

STEP 1 – WILDLIFE CONSERVATION

Determine how this plan will affect the wildlife management indicator species. Put the number of planned acres for each forest use in all the blank boxes below for that use (a black space means that the species won't live in an area with that use). Multiply the total acres per species by the number of animals per acre. (For owls and wood rats, round down to the nearest whole animal.) Compare the new population totals you get to the original population of 8 owls, 400 wood rats, and 10,000 salamanders.

	FOREST USE							TOTALS		
	Wildlife	Timber Production	Trails	Campground	Hunting/ Foraging	Reservoir	Cultural Sanctuary	Total Acres Per Species	Animals Per Acre	New Population
Owls									.20	
Wood Rats									1.0	
Salamanders									25	

STEP 2 – FOREST COVER

Trees will need to be removed for any trails, roads, campground, or timber harvest and regeneration your plan includes. Put the number of planned acres for each forest use in the blank boxes below for that use. Multiply the total acres for each use by the number of trees removed per acre. Sum up the total trees removed. There are initially 37,000 trees in 400-Acre Wood. Calculate how many trees will remain with your plan.

	FOREST USE							TOTAL	
	Wildlife	Timber	Trails	Campground	Hunting/ Foraging	Reservoir	Cultural Sanctuary	Trees Removed	Trees Remaining
Area (acres)									
Trees Removed per Acre	0	40	10	20	10	150	0		
Total Trees Removed									
Total Trees Remaining Per Plan									

STEP 3 – STREAM PROTECTION

To protect the stream, timber harvest may not occur next to it. Check that your plan does not have any timber harvest and regeneration squares touching the stream.

SOCIAL FACTORS

STEP 4 – NUMBER OF VISITORS

Calculate the number of visitors your plan will attract to the forest each year. Multiply the number of acres for each forest use by the numbers below. Then, sum the totals.

	FOREST USE							TOTAL
	Wildlife	Timber	Trails	Campground	Hunting/ Foraging	Reservoir	Cultural Sanctuary	
Area (acres)								
Visitors per Acre per Year	5	5	25	50	2	60	0	
Visitors per Plan per Year								

STEP 5 – CULTURAL SITE PROTECTION

Calculate how well your plan safeguards the cultural site. For each forest use in your plan, measure on your map the nearest distance (in feet) to the cultural site, and place that distance in the table below. Assign points based on the distance from the site, with 1 point for each 500 feet in distance (rounded to the nearest whole number). Wildlife and Cultural Sanctuary are 10 points each as they do not affect the site. The final score is the lowest of the points that isn't 0.

	FOREST USE							SCORE
	Wildlife	Timber	Trails	Campground	Hunting/ Foraging	Reservoir	Cultural Sanctuary	
Area (acres)								
Distance (in feet)								
Points	10						10	

ECONOMIC FACTORS

STEP 6 – COST AND REVENUE: FOR DEVELOPMENT

Calculate the net cost of developing the site for your plan. To determine the construction cost, multiply the number of acres for each forest use by the dollar amounts below, and then sum the total. To calculate the revenue, multiply the number of trees removed for each forest use (from Step 2 above) by $50 per tree, and then sum the total. Subtract the total revenue from the total construction cost to determine the net cost. (If the number is positive, it is a cost; if it is negative, it is a revenue.)

		FOREST USE							TOTALS
		Wildlife	Timber	Trails	Campground	Hunting/ Foraging	Reservoir	Cultural Sanctuary	
Area (acres)									
Costs	Construction Cost per Acre		$2,025	$1,200	$6,000	$2,025	$16,200		
	Total Construction Cost								
Revenue	Revenue: Sale of Trees ($50 per Tree)								
Net Cost	Net Cost (Total Construction Cost Minus Income)								

STEP 7 – COST AND REVENUE: EACH YEAR

Calculate the annual management cost for your plan. To calculate the management costs, multiply the management costs per acre by the number of acres for each forest use, and then sum the totals. To determine the income from fees, multiply the fees per visitor by the number of visitors for your plan (from Step 4), and then sum the totals. Subtract the Total Revenues from the Total Management Costs to determine the annual cost or revenue. (If the number is positive, it is a cost; if it is negative, it is a revenue.)

		FOREST USE							TOTALS
		Wildlife	Timber	Trails	Campground	Hunting/ Foraging	Reservoir	Cultural Sanctuary	
Area (acres)									
Costs	Management Costs per Acre	$4	$40	$20	$100	$8	$20	$4	
	Total Management Costs								
Revenue	Revenues: Fees per Visitor	$1	$2	$2	$8	$6	$6	$0	
	Total Revenues								
Net Cost	Net Cost or Revenue (Total Management Costs minus Total Revenue)								

Foresters use maps to make forest management decisions that ensure forest health and support culturally important areas.
Project Learning Tree