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

October 2023

Overview

Monthly Theme	Environmental Awareness Days	Cultural and Identity Awareness Days
Forest Ecology	National Farm to School Month | Annual Trick or Trash Recycling Event | Earth Science Week (8-14) | World Habitat Day (2) | National Walk to School Day (14)	Filipino-American Heritage Month Black Poetry Day (17)

Elementary	1. Activity 1: Know My Forest 2. Activity 2: Trash or Treasure 3. Activity 3: Leave the Leaves
Middle and High School	1. Activity 1: Know My Forest 2. Activity 2: Trash or Treasure 3. Activity 3: Leave the Leaves

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, environmental educators, or park rangers.

Forest Ecology

ELEMENTARY ACTIVITIES

SUMMARY

During a walk in a local forest, students will become ecologists, discovering how the different elements of the forest are interrelated. They will also find information and resources for participating in the *Trash or Treasure* program and recycle candy wrappers during the Halloween season. In addition, groups can also find resources for "leaving the leaves" in gardens, yards, and habitats in their community during the fall season.

MATERIALS

- Know My Forest Lesson (attached)
- Tree and/or Wildlife Field Guides (if available, use guides that are specific to your region; see additional resources below for options)
- Cameras or cell phones with cameras
- Journals, notebooks, sketchpads, or paper
- Bags to collect leaves, seeds, or other items from the forest floor
- Trash or Treasure flyers (English and Spanish)
- Blog: 6 Excuses to Avoid Yard Work This Fall (attached)

BACKGROUND[1]

Forest Ecosystems

Forests are ecosystems in which the dominant vegetation is trees. Forests around the world vary in the types of trees, other plants, and animals that live in them. These variations are due to abiotic factors such as soil type, moisture, sunlight, and climate. Examples include the hot and rainy tropical rainforests, the temperate deciduous forests that change with the seasons, and the northern boreal forest, or taiga, which survives in cold temperatures. We can even include the urban forests in our cities and towns as forest ecosystems. They include biotic (people, squirrels, birds, trees, shrubs, flowers, and grass) and abiotic (sun, water, soil, buildings, and even cars) things interacting with each other.

A mature forest is made up of structural layers. The **overstory** is made up of the crowns of the uppermost trees in the forest. The **understory** is made up of the crowns of shorter forest trees and includes: The **shrub layer**, made up of woody plants with multiple stems. The forb layer, made up of non-woody plants. The **litter layer** includes leaves, branches, and other debris that have fallen onto the forest floor. These layers add dimension to forest ecosystems. There are many possible combinations of layers, which lead to a variety of forest ecosystems. A forest without a substantial forb layer will not have as many small, ground-

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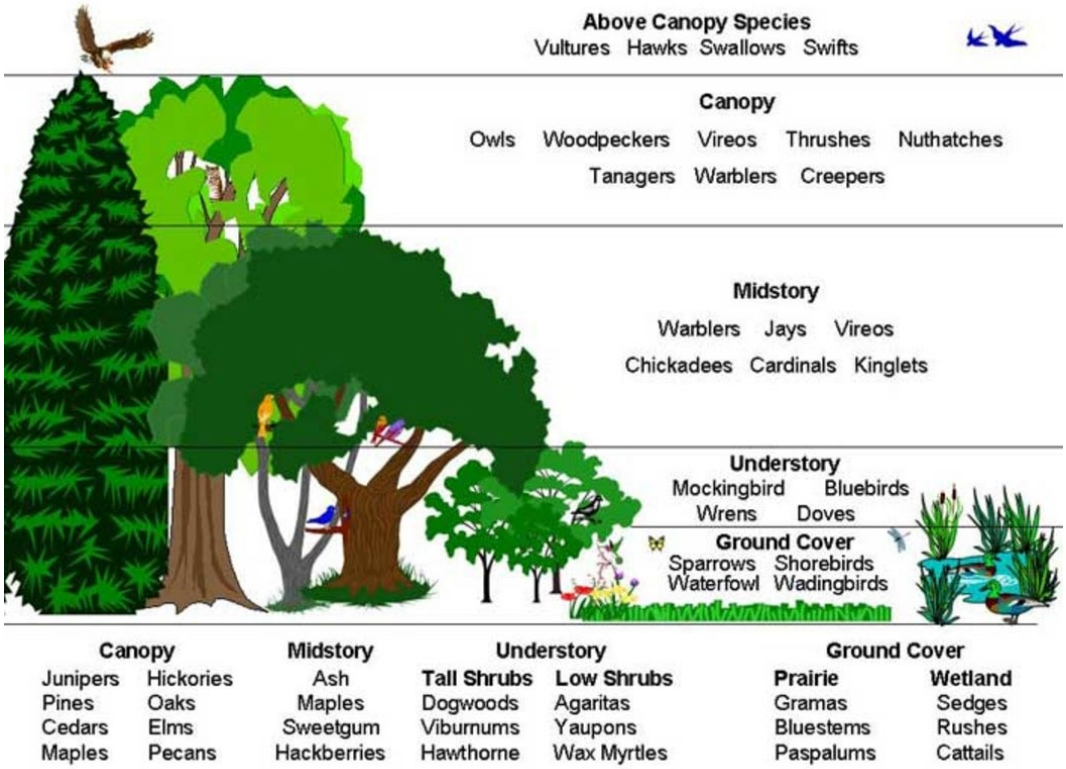
dwelling animals (e.g., mice). Certain birds survive in the overstory and rarely come into the lower layers. This means that the different layer combinations offer a wider opportunity for biodiversity. Understanding what layers exist in a given forest and what the benefits and drawbacks are to the different structures helps us understand how forests function.



https://forestnation.com/blog/walk-woods-ecology-lesson-plan/

WHAT TO DO

Activity 1: Know My Forest [complete lesson plan attached]

1. **Locate a Local Forest.** Use the ***Where To Go*** tool (www.discovertheforest.org/where. html) and plan a class trip to visit it, if possible. If not, plan to take your students to a nearby park or your schoolyard.

2. Obtain field identification guides for your students' use – field guides are helpful tools to enhance students' experiences in the field (your school or local library may have some to borrow), and/or review the online guides listed in Helpful Resources.

3. Gather cameras, cell phones with cameras, and/or pencil and paper to "collect" live specimens in non-disturbing ways. It's usually OK (check site regulations) to collect leaves, cones, and generally, other non-living specimens.

4. Cut 8-foot (2.44-meter) pieces of string, in two colors (several for each student). One color will represent "food sources," the other "protection" (warmth, shelter, etc.).

5. ***Optional:*** Invite an ecologist, local park or nature center educator, or city, state or national forest ranger to come and speak to your students about your local forest ecosystem. Or better yet, meet this specialist at your local forest, and ask abut getting a guided tour. In this way, your students will experience a career they may want to explore further!

6. ***Visit a local forest or park.***
Explain to students that they will be ecologists studying how living things in forests interact with each other and their environment. Have them bring their *journals* and field guides to a local forest, a local park with dense tree cover.

a. Break. students into groups corresponding to the layers of a healthy forest—canopy, understory, and forest floor. (***Canopy*****:** Old-growth trees that receive the most sunlight, and shade/protect the other forest layers; ***Understory*****:** New-growth trees, bushes, and other larger plants that are able to live under the Canopy's shade; ***Forest Floor:*** Decomposing plant and animal matter that creates nutrient-rich soil in which small plants, fungi, and seedlings can thrive).

b. Have students search for specimens from their assigned forest layer. Students may "collect" these specimens, in non-disturbing ways by drawing or photographing them, or by collecting non-living samples for later identification. Once they find a specimen have them also "collect its connections" by writing down at least one thing that the specimen is connected to in the forest (Example: The fallen leaf is connected to the tree it came from … and to the bug it is sheltering and the nutrient-rich soil it will become).

c. Upon returning to class, have students use their drawings, photos, and other information they've collected to create graphic organizers of the specimens. This will serve as a record of what the class has found. Categorize them in different ways such as living versus nonliving; canopy, understory, or forest floor; deciduous versus evergreen; etc.

ADDITIONAL RESOURCES

Field Guides

- Peterson Field Guide Series – by Roger Tory Peterson
- Enature.com's *Zip Guides* (field identification guides specific to your zip code, including bird songs: www.enature.com/zipguides/)
- The Arbor Day Foundation's *What Tree Is That?* Guide: https://www.arborday.org/trees/whattree/

Animal Sounds

- Discovertheforest.org's *Animal Sounds*: www.discovertheforest.org/what-to-do

- The Cornell Lab of Ornithology's *Macaulay Library Online Archive: The World's Largest Archive of Animal Sounds and Video*: macaulaylibraryorg/ index.do

Nature-Watch webcams

- www.fs.fed.us/outdoors/naturewatch/index.htm

For more information on healthy forest ecosystems, check out www.FindingMyForest.org/wonder3.html.

Activity 2: Trash or Treasure

The Trash or Treasure (TOT) program encourages us all to rethink what we consider trash and recognize its inherent value as part of the circular economy. The signature TOT mail-back candy wrapper recycling box brings that vision to life, inspiring communities around the country to recycle more all year round.

WHAT TO DO

1. Visit the Rubicon website to find more info and request boxes. https://www.rubicon.com/trash-or-treasure/
2. Order boxes in late September.
3. Set your boxes up for use during Halloween season.
4. Use **Trash or Treasure lesson plans** with students throughout the seasons.

Activity 3: Leave the Leaves Campaign

October is **Leave the Leaves Month!** It is a terrific time to keep active in your garden in the fall to make it even better for the multitude of wildlife species that need fallen leaves and other organic yard debris as habitat. Read on to find out how.

What it is:

Strategic placement of leaves and yard debris to help wildlife in garden beds, under tree canopies, and compost piles for the following benefits:

- **Provides Habitat** - Fallen leaves, dried stems, grasses and fallen twigs provide essential cover for many types of wildlife to survive the coming colder months.
- **Keeps Organic Matter Out of Landfill** - Leaving leaves can help reduce the volume of organic material being sent to landfills and the amount of greenhouse gasses (methane) contributing to climate change.
- **Keeping Leaves Saves You Money and Time** - Leaving the leaves does not require bagging and piling leaves into the street for pick up. Fallen leaves are natural mulch and fertilizer for your landscape. It's a form of recycling/reusing.

What is not:

Leaving the Leaves is **NOT** about leaving leaves and debris all over lawns and drive ways or sidewalks. It's about using fallen leaves on your property in ways that support the natural world rather than throwing them away.

How to Make A Difference

1. Certify Your Fall Habitat.

Leaving leaves and other fall garden practices provides food, cover and places for wildlife to raise young. These elements, with some simple extra steps can qualify your yard, garden or outdoor space as a Certified Wildlife Habitat® while supporting wildlife through colder months of the year. When you certify you join the movement of natural gardeners and help spread the message that we can all help create habitat for our local wildlife. **Use this Fall Gardening Checklist to get started!**

- **Receive 10% off your total when you certify and purchase any Certified Wildlife Habitat® sign.** This is a limited-time offer available online only through October 31, 2023. **Promo Code:** FALL10

Certification benefits include:

• A personalized certificate
• One year of National Wildlife Federation membership
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Your certification will help us reach 300,000 sites in our program's 50th anniversary year!

2. Learn More and Educate Others.

Educate your local municipality, HOA on **wildlife friendly and neighbor friendly landscaping practices** all year long.

3. Sign Up for Our Newsletter.

Each month, you'll get tips, tricks, and stories from across the country on how to attract wildlife to your yard or garden. **Sign up now** — one lucky winner will receive a Bat Box.

4. Get Social and Tell Us "How Does your Garden Grow?"

Be a **Leave the Leaves** champion and show us your Fall Habitats! Post photos of your wildlife gardens/activity with the hashtag **#GardenforWildlife** and look for your native garden pics on our social wall. Connect with the Garden for Wildlife community to share your story.

- **Follow @gardenforwildlife on Instagram** and **TikTok**
- **Join the Garden for Wildlife Facebook group**
- **Follow @Garden4Wildlife on Twitter**

Forest Ecology

MIDDLE AND HIGH SCHOOL ACTIVITIES

SUMMARY

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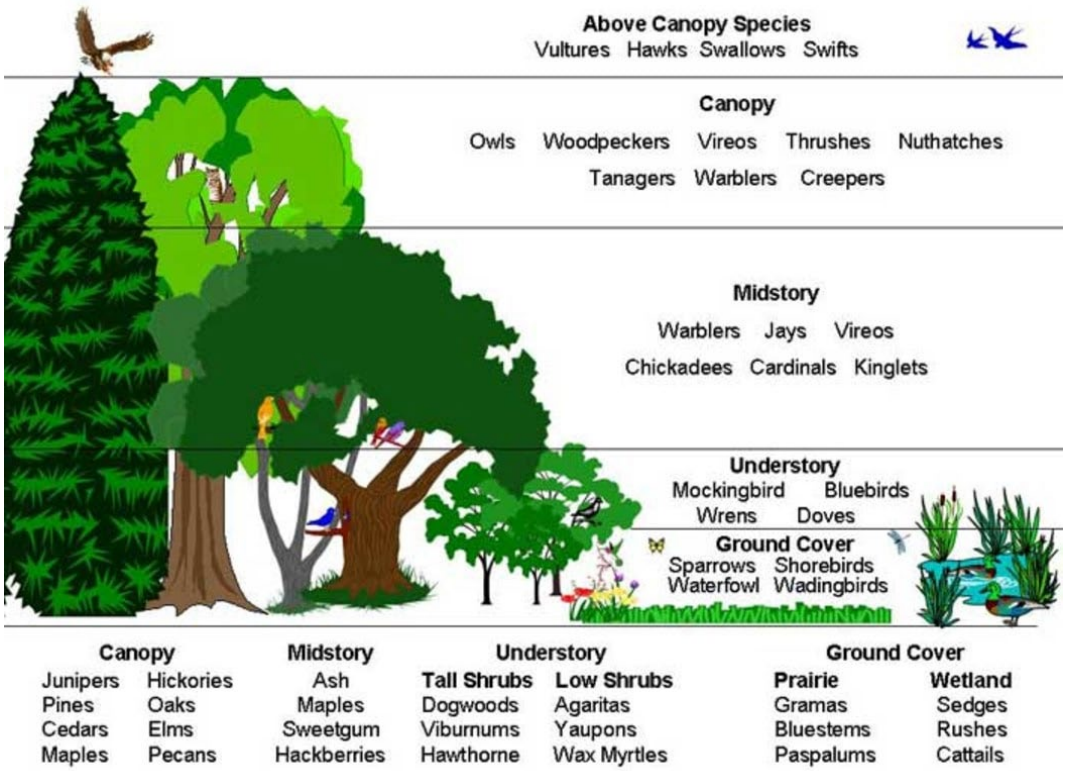

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Lesson 2 Know My Forest

Lesson Objective

How much do your students know about your local forest ecosystem? Your students will be **ecologists**, exploring a local forest and discovering how the different elements of the forest are interrelated.

At the end of this lesson, your student ecologists will be able to:

- Identify local plants and animals through touch, sight and sound, and collect specimens with minimal impact
- Explain how local plants and animals are interconnected within your ecosystem
- Identify threats to your local forest ecosystem and how they impact the ecosystem web

Standards Alignment: North American Association for Environmental Education (NAAEE):

Strand 1: A, B, C, E, F, G
Strand 2.1: A
Strand 2.2: A, B, C, D
Strand 2.4: B

21st-Century Skills:

- Creativity & Innovation
- Critical Thinking & Problem Solving
- Communication & Collaboration; Information
- Communications & Technology Literacy

21st-Century Themes:

- Environmental Literacy

Time Estimate: Two class periods

Advance Prep

- Use Helpful Resources (below) to plan *Sensory Stations* specific to your area.
- Locate a local forest using the *Where To Go* tool (www.discovertheforest.org/where.html) and plan a class trip to visit it, if possible. If not, plan to take your students to a local park or your schoolyard.
- Obtain field identification guides for your students' use – field guides are helpful tools to enhance students' experiences in the field (your school or local library may have some to borrow), and/or review the online guides listed in Helpful Resources.
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Helpful Resources

- **Field Guides:**
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- **Nature-Watch webcams:** www.fs.fed.us/outdoors/naturewatch/index.htm
- For more information on healthy forest ecosystems, check out **www.FindingMyForest.org/wonder3.html**.

Wonder:

What Is in My forest?

Your students may travel to—and through—forested spaces in your community. But how much do they *really* know about their local forest? To get students thinking about what they know and don't know about the forest(s) in their local community, have them complete a *"Wonder" Challenge* (see box, below).

Next, set up a series of *Sensory Stations* in your schoolyard or local park. If outdoor work is not possible, set up the stations in your classroom. Every student should visit each station. You might want to include:

- A **listening station** where students can listen to local forest sounds and count the different sounds they hear. This can be as simple as having a small group sit quietly outside or near an open window or they could listen to sounds of local birds, animals, and streams on a portable music player or computer.
- An **exploration station** where students can try to identify local flora. Bring your field guides outside for tree, bird, and plant identification. You could collect local flora respectfully by having your students bring in flora that they wish to identify and/or find images of local flora online.
- A **viewing station** where students can get up-close and identify local animals. This could be a school bird feeder, observing a butterfly/pollinator garden, or a field trip to a Forest Service Nature Watch site: http://www.fs.fed.us/outdoors/naturewatch/. This website also has nature cams, where you can observe wildlife online. Students could observe insects in their natural habitat by turning over a log or shaking a tree branch over a white sheet and seeing what they find. They could look at drawings or pictures you (or they) have brought in. Contact your local nature center and see if they have any additional animal resources you may borrow (skulls, skins, etc.). For a list of nature centers in the U.S., check out: www.eeweek.org/nature_centers.htm.

Have students record their observations and guesses for each sound, plant, and animal in their *Forest Journals*. As students switch stations, share the correct answers for the station they are leaving.

At the end of the experience, have students discuss what they now know about their local forest—and what they are excited to learn about next. Students may wish to record some research questions for further study in their *Forest Journals*. These could be answered in the next part of this lesson or throughout the year as your class continues to explore their forest.

Tip

Before taking your students outdoors, you may want to review how to experience the forest with minimal impact and share some tips about safety. Discuss plants to stay away from, like poison ivy, oak, and sumac; and animals/insects like ticks.

For more information on safe and low-impact exploration, check out **www.FindingMyForest.org/experience.html**

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"Wonder" Challenge

Offer each "Wonder" Challenge as an outdoor *Forest Journaling* activity, or as part of a class discussion. Include challenges such as:

- Name or draw three different local plants (including trees)
- Name or draw three different local animals (including insects)
- Name or draw three things besides plants and animals that you might find in a forest

Photo by Steve Kozlowski

Discover:

Where Is My Forest?

Explain to students that they will be ecologists studying how living things in forests interact with each other and their environment. Have them bring their *Forest Journals* and field guides to a local forest, a local park with dense tree cover or the schoolyard if travel is not possible. Break students into groups corresponding to the layers of a healthy forest—canopy, understory, and forest floor.

- **Canopy:** Old-growth trees that receive the most sunlight, and shade/protect the other forest layers
- **Understory:** New-growth trees, bushes, and other larger plants that are able to live under the Canopy's shade
- **Forest Floor:** Decomposing plant and animal matter (natural composting!) that creates nutrient-rich soil in which small plants, fungi, and seedlings can thrive

Tip

Expand this into a conservation lesson by having students safely remove any trash they might find.

Have students search for specimens from their assigned forest layer. Students may "collect" these specimens, in non-disturbing ways by drawing or photographing them, or by collecting non-living samples for later identification.

Once they find a specimen have them also "collect its connections" by writing down at least one thing that the specimen is connected to in the forest (Example: The fallen leaf is connected to the tree it came from … and to the bug it is sheltering and the nutrient-rich soil it will become).

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Tip

Some urban parks have areas with dense tree cover similar to traditional forests. Examples:

- Central Park, New York, NY
- Fairmont Park, Philadelphia, PA
- Forest Park, St. Louis, MO
- Griffith Park, Los Angeles, CA

Use Discovertheforest.org's *Where To Go* tool (www.discovertheforest.org/where-to-go) to find one in your area.

"Be the Web"

A healthy forest ecosystem is one that interacts in such a way that resources are shared and a diversity of plant and animal life is supported. Using the connections they wrote down during their search have students "Be the Web" and create a "human" forest ecosystem web.

1. Print or copy the students' drawings and photographs of the specimens.
2. Bring the class outside and have each student hold one or two images.
3. Have some students be the resources that the plants and animals rely on: sun, clean water, nutrient-rich soil.
4. Give each student several 8-foot (2.44-meter) lengths of string in each color.
5. Starting with the sun, have each student connect his/her pieces of string to another student holding:
   a) Color 1: Food sources for his/her plant or animal
   b) Color 2: Shelter, warmth, protection sources for his/her plant or animal

Once the web is complete, have students drop various strings to test how the web is affected if certain parts "drop out" due to impact of fire, invasive species, loss of open space, and/or unmanaged recreation. For example: What if canopy trees are logged (cut down) to make way for development? To demonstrate, the students holding canopy trees will drop their strings ... and in turn, students connected to canopy trees then drop their strings. How much of the web loses its sources of food and shelter as a result?

Extended Discussion:

Threats to your local forest ecosystem

- Challenge students in grades 6 through 8 to research threats to their local forest. Have them identify native and non-native species in their area, using www.invasivespeciesinfo.gov/ or Enature.com's Native/Invasive Plant Finder: www.enature.com/native_invasive
- Research how these species positively or negatively affect the ecosystem web. Information and activities on threats to our ecosystems can be found in The World's Forests issue of the Natural Inquirer (www.naturalinquirer.org/The-World%27s-Forests-i-13.html) and at www.invasivespeciesinfo.gov/resources/educk12.shtml.

Act:

Know My Forest

- Adopt the forest! Make the forest you visit in this lesson "your" forest. Return to this forest with the class throughout the year; each time have students complete their research questions and search for additional specimens to add to their forest ecosystem web. Students could even "map" a certain area of the forest to understand fully the breadth of living and nonliving elements and how they are interconnected.
- Add a **community service component** and have students monitor and care for the forest by removing litter, identifying and removing nonnative species (with approval of the forest's owners/caretakers), performing trail maintenance, planting native trees, and more.
- Using their *Find My Forest* grids and *Forest Journals* as catalysts, have students search for, identify and share additional specimens from the urban forest around their homes. Remind them to do the same in other forests—both nearby and far away—that they may visit on weekends or vacation. Finding additional specimens will involve the whole family *and* will encourage more time outdoors. Also, the more specimens they bring in from farther away the more they can map all of the different types of forests in the United States!
- Take a nature hike with your class! By keeping your class active, you will be addressing issues of childhood obesity, continuing your discovery of the forest, and instilling a life-long interest in the outdoors in your students. To learn more about helping kids maintain a healthy and active lifestyle, check out the *Let's Move Outside!* initiative at http://www.letsmove.gov/letsmoveoutside.php.
- Invite an ecologist, local park or nature center educator, or city, state or national forest ranger to come and speak to your students about your local forest ecosystem. Or better yet, meet this specialist at your local forest, and ask abut getting a guided tour. In this way, your students will experience a career they may want to explore further! To locate your closest Forest Service education coordinator, visit http://fs.usda.gov/conservationeducation.

Photo by Donna Edwards

Tip

Have each student adopt his or her own tree and chart its progress over time. Have your class pass along their records to next year's incoming students to keep the connections going. For more on this idea, see the Year-Round Calendar (page 20).

Connect:

Share My Forest

- Break students into groups, and have each group compose a blog entry that introduces "their forest" using their *Forest Journals* as inspiration. Blog entries should include the location of "their" forest (add the GPS coordinates, if known). Describe what the forest is like. For example: What you can see? What you can do? What did you find? Have students come up with forest-focused questions to pose to the readers of their blog.
- Start a *Forest Finds* feature on your iForest blog. This will be a recurring entry that highlights information, photos or videos of particularly interesting specimens, connections, and/or stories that have come from your students' forest fieldwork in their *Forest Journals*. Have students decide what the first post should be by choosing the most interesting thing they learned in "their" forest.
- Encourage students to be creative on their blogs. Remind them that, based on their work, your class could be selected to represent your entire state in the nation's *Forest Hall of Fame*!

RUBICON

TRASH OR TREASURE

Don't forget to bring your Halloween candy wrappers and deposit them in the Trash or Treasure recycling box!

You don't have to trash those candy wrappers and doom them to and eternity in a lanfill - or, aven worse, our oceans.

By putting your wrappers in the custom candy wrapper recycling box, you can keep our planet clean and contribute to the circular economy. Thank you for helping to make Halloween sweet and sustainable!

NATIONAL WILDLIFE FEDERATION

RUBICON

TRASH OR TREASURE

No te olvides de traer los paquetes de los dulces y depositarlos en la caja de reciclaje de Trash or Treasure.

No tienes que desechar los paquetes y condenarlos por una eternidad en un vertedero - o, incluso peor, en nuestros oceanos.

Al poner los paquetes de los dulces en la caja de reciclaje personalizada para paquetes, tu puedos mantener nuestro planeta limpio y ayudar a hacer de Halloween una fiesta dulce y sostenible.

NATIONAL WILDLIFE FEDERATION

6 Excuses to Avoid Yard Work This Fall • The National Wildlife Federation Blog

Dani Tinker ⁝ 5-6 minutes ⁝ 11/21/2013

They grow. They turn brilliant colors. They capture our hearts. Then they make a mess. Leaves can be a hassle, but put the rake down for a moment. It turns out, leaving the leaves in your yard is beneficial to both wildlife and the environment. Here are a few excuses to avoid garden cleanup.

1. Provide Habitat for Wildlife

Salamanders, frogs, toads, box turtles, invertebrates and a number of other species rely on leaf litter. The leaves provide cover and nest materials for many species. Some animals are just too shy for heavily landscaped gardens.

Box turtles are known to sleep, hibernate and travel in leaf litter.

2. Provide Nutrients for Organisms

Catering to the leaf litter helps maintain a healthy ecosystem in your yard. “Every resident of the leaf litter—or visitor to it—is connected to the food web in some way,” says Elizabeth Johnson, a program manager with the American Museum of Natural History’s Center for Biodiversity and Conservation. Birds will also feed on the seed heads and stalks of native flowers through winter.

Millipedes are decomposers that live in the leaf litter of forests.

3. Reduce Waste

Yard debris are taken to a landfill and dumped, where layers of waste stall the process of decomposition. The Environmental Protection Agency reported that in 2011, yard trimmings accounted for 13.5% of solid waste (approximately 33 million tons). Don't let your leaves be wasted, they have critical benefits to wildlife and your garden.

American toads use the leaf litter to hide and hibernate.

4. Increase Fertility of Your Soil

As plant material decomposes, nutrients are added to your soil. Composting and leaf mold piles allow for even more nutrients to develop, which can then be added to your garden. Leaving leaves also allows for greater water retention.

5. Reduce Pollution

Leaf blowers pollute. The trucks that haul yard debris pollute. The fertilizers used in place of natural nutrients pollute. The eco-friendly methods to dispose of your Autumn leaves, however, will eliminate these sources of pollution. Laziness never felt so good.

Chipmunks will often use leaves to build their nest.

6. Save Time

Imagine all the time you'll save by not having to clear all the leaves from your yard. That time could be spent on other projects, like building an amphibian house, to still get active and relax outdoors. You don't have to ditch the rake completely, you can use it to move leaves onto your flower beds or onto a compost or leaf mold pile.

Toads use the leaf litter to hide and hibernate.

How to Leave the Leaves

There is more than one way to ecologically handle leaves and other yard debris. Here are a few:

- **Leaf Mold**: This is one of the easiest things to do with your dead leaves. Basically, pile them in a corner of your yard and let them decompose over time. It's different than composting (see below) in that it is only leaves, no additional organic matter is added. Leaf mold improves soil structure and water retention. Learn the details and make leaf mold in your yard.
- **Composting**: This practice reduces the amount of debris in landfills, while creating fertile new soil for your garden. Compost adds nutrients to your soil, and can be added to your garden in addition to the leaf mold. Learn how to compost with worms.
- **Save Up**: Store excess leaves in paper bags until the spring and summer, when you have limited access to carbon-rich organic materials for compost.
- **Leave the Leaves**: This can provide nutrients and protection to your garden. Plus, you have an excuse to avoid the work!
- **Share Leaves**: You have a lot of trees, and too many leaves? That's a good problem to have. Your neighbors, local farms, schools, campuses and gardens will add your leaves to their leaf mold or compost pile.
- **Build a Wildlife Brush Shelter**: You can attract a variety of wildlife by creating a brush shelter. It's easy to build and you'll be supporting an abundance of wildlife in the process. Read more about the benefits of a brush shelter and how to build one.
- **Make Decorations**: Create beautiful Autumn decorations for natural materials, like leaves.
- **Make Leaf Prints**: Get some paint, collect your favorite leaves, and make leaf print arts and crafts.
- **Play**: Your yard full of leaves can become an Autumn obstacle course or playground. Just pile and jump!

Newts and salamanders often take shelter in leaf litter. (Photos by Dani Tinker)

Become a Wildlife Gardener with National Wildlife Federation. It’s free and you’ll get great wildlife gardening tips and learn how to certify your garden as an official habitat.

Learn More!

Find out more about the benefits of fallen leaves in our on Leave the Leaves content series: