What is That Plant?

This lesson plan was created by Judith Cullen as part of the Acadia Outdoor Classroom Collaborative program. AOCC created lesson plans are created by educators for educators. Any books or links suggested in this curriculum are not an endorsement by the National Park Service.

Grade Span	K-2
Time Span	3 Sessions (can be broken into more, shorter sessions as needed) Sessions can be repeated early fall & spring
Standards	gr1-LS1.A: Structure and Function All organisms have external parts. Plants have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow. gr22-LS4.D: Biodiversity and Humans There are many different kinds of living things in any area, and they exist in different places on land and in water.
Focus Question	➔ What are the different plants/bushes/trees in our outdoor classroom? ➔ How can leaves help us identify the different plants/bushes/trees? ➔ How can we help others to identify these
Overview	In this second part of a study of leaves, students will use their knowledge of attributes including leaf shape, edges and arrangement to identify many of the different plants, shrubs and trees in a selected nearby area, such as an outdoor classroom. **Use data to create a field guide to plants (including bushes & trees) in the local habitat.**
Objectives	Students will use attributes of leaves to identify schoolyard/nearby trees & shrubs. Students will create a field guide to schoolyard/nearby trees & shrubs.
Materials Needed	Outdoor classroom space with plants, shrubs & trees. Hand lenses Collection of leaves, including several with each of these attributes: palmate & pinnate (hand shaped & not); smooth, toothed, & lobed edged; simple and compound. Field guides (see some examples *Plant ID Cards*: several example cards, & plenty of blank templates Variety of field guides available for browsing & reading *Field Guide template* (see note about choices)
Vocabulary	Leaf plant bush shrub tree Parts of a leaf:

	edge margin petiole blade base tip *(see leaf parts diagram)* Names of trees/shrubs/plants (sight dependent)
Teacher Prep	Collect a variety of plant & tree field guides (both student & adult) Download the Seek app on student iPads (if area is on school grounds/in wifi range.) Choose 4-6 different trees or shrubs in your outdoor classroom area. Shrubs are a better height for students to really see their leaves up close; though in the fall, fallen leaves can be used if matched to the correct tree. Use the *Plant ID Cards* provided if there are some of those trees are in your area or make your own with a photograph of a leaf and the whole bush/tree for the ones you choose. Then make a set of the cards you will use for each group/partnership.
Background	Students have completed the first activities in this unit and are familiar with classifying and describing leaves by attending to attributes including shape, edge & arrangement. Allow for browsing of field guides (plant & tree, as well as other guides for birds, insects, etc.) to build familiarity with the structure of these books.
Procedure	**Engage: Leaf Games!** Start with a whole class game of I Spy/5 questions with leaves. For either game, students can sit in a circle with a variety of leaves in the center, or in their own space with their own collection (be sure to include several with each of these attributes: palmate & pinnate (hand shaped & not); smooth, toothed, & lobed edged; simple and compound.) For I Spy: the leader secretly chooses one leaf and tells the class "I spy with my little eye, a leaf that is/has ___." naming one attribute of the leaf. Students may guess or wait for another clue; a second & third clue can be given as needed. For 5 questions: students take turns to ask, "Is your leaf___" and name an attribute. Leader can only answer yes or no. Challenge students to determine the leaf using the least amount of questions, but no more than 5. Students can then play the game in small groups or with a partner for practice with naming & identifying attributes correctly. (If needed, this can be broken into 2 sessions.) **Explore 1: What's That Tree?** Once students have had plenty of practice with sorting & identifying leaves by their attributes, and are familiar with looking at the shape, edge, and arrangement of leaves, use *Plant ID Cards* that you have prepared to identify the trees/bushes in your outdoor classroom area. Demonstrate using one card at a time: bring it to a bush/tree that might be a match & compare leaf attributes: is it the same shape? Is the edge the same (smooth/toothed/lobed?) Is it a simple or compound leaf? If you think you have a match, check it on your tree id (bush id) sheet. If not, try another tree/bush, & another until you have found a match to the card. Students can work with a partner or on their own to identify Depending on the time you have for each session; you may want to return to this activity several times to allow

for everyone to match all the leaves with their tree/bush.

Explore 1A: What's That Tree?
Once students have identified all the trees/bushes from leaves on the Plant ID cards, you can use field guides to identify trees/bushes that did not match any of the cards. Students should have plenty of opportunities to browse and become familiar with field guides before you begin to use them for identification.

Head outside with clipboards, *What's That Tree? sheet*, pencil, and field guides. Instead of trying to find a tree/shrub to match a particular page of the book, students should choose a tree/shrub to identify, then use the book to find a leaf match (with same shape, edges & arrangement.)

When they have an ID, they can record it on their *What's That Tree?* Sheet by drawing the leaf &/or drawing the whole tree, and labeling. Students may only find one or two in one outing, so plan for 3-4 sessions to allow for identification of plenty of trees/shrubs (& encourage students to identify different ones than their classmates.

An alternative to field guides is the Seek app. You will want to demonstrate how to use it with a tree or shrub students have already identified, then let students try on that tree/shrub for practice. With the app, as with the field guide, students will choose a tree/shrub to identify, then find a match for leaf shape, edges & arrangement.

Explore 2: School Field Guide
To make the pages for the field guide, assign one or more specific trees/shrubs the class has identified to each student. To make their page for the field guide, students can add color & detail to their completed What's That Tree sheet for the tree they have been assigned, then write a few words or sentences telling field guide users what to look for, or other interesting/important info about their tree (see example.) Students could use a leaf rubbing rather than draw the leaf; this will show lots of leaf detail (see What is a Leaf lessons.) Demonstrate making a page, including drawing/adding detail to the leaf & tree on the page, and adding descriptive words or a few sentences, then keep the example page where students can refer to it as needed.

Alternatively, if your students need a larger space for drawing, you might consider drawing each tree, leaf, and any other close-up details (seed, blossom, bark, etc) as well as their writing about "what to look for" on separate papers, then arrange them together on a larger paper. Your students may even come up with their own ideas for your class field guide format. For example, during a poetry unit, students might want to write a poem about their tree/shrub to include on their field guide page.

Explanation : Scientists identify the living things around them, and create field guides to organize what they know and to share with others who want to learn.

Extensions:	*Writing*: Create labels for identified bushes & trees. Students can use their best handwriting to write the name on a 4x6 index card or piece of cardboard. Signs can be laminated (or written in Sharpie) & mounted on a small stick or spoon stuck in the ground.
	Observation Bottles: *To prepare, collect some plastic (or glass) wide mouth bottles with lids, one per student, and index cards or other blank labels.* Give a bottle to each student & assign a different tree/shrub. The student will create a label for their bottle with the name of their tree/bush, then put a leaf from their tree in the bottle (you should go out & collect new leaves for this activity-you will want fresh ones, & it is good practice with tree identification.) Students may also put seeds, blossoms, bark, or other

part of their tree if it fits in their bottle with room for the leaf. Fill the bottle with water & tightly close the lid - this will create a magnifying jar that will allow students to see more details of their leaf (& other plant parts.) It will also keep the leaf fresh for repeated observation over a week.   *If students ask how it happens, here's the explanation: when light travels through water, the light beams slow down and bend. When that happens, the light spreads out and the objects in the water appear larger.*

__Who Lives Here__? To prepare, collect some fallen leaves, twigs, bark, fruit, or nuts that show signs of plant or animal life in the trees/bushes you have identified. (Signs may be chewed holes, tunnels, scrapings, insect egg cases, webs, galls, moss, lichen, or fungi.)   1.Read the book Goodnight Owl to students & discuss: what animals visited the hollow tree? What sounds do they make? What was each animal doing there? How did they use the tree? Allow partners/small groups to explore some of the animal signs you found, then discuss- what do they notice? What animal might it be from? What was the animal doing? Briefly introduce the word habitat (provides food, water, shelter & space.)
2.Visit the outdoor classroom & assign each pair a bush/tree: Challenge them to find evidence of other living things on or near their bush/tree (they can use their hand lenses if they want!) and record what they find on the *What Lives Her*e sheet. You can prompt them to look for: bird nests, chewed leaves/nuts, or other animal signs, animals climbing around or in the tree (remember, bugs are animals too!), or flying to/from it, other plants/moss/lichen/mushrooms growing on/near the tree, etc.
3. Students share their observations by showing what they drew/wrote, then talking about what they found. Discuss how the tree/bush is a good habitat for other living things- how does it provide food? Water? Shelter? Space?
4. Have fun imagining & drawing a tree or bush habitat & the creatures who live there.

__*Math*__: __*How Many of Each*__*?*
Provide a tree tally/shrub count sheet to each pair/small group to count how many of each tree/shrub in your area. Clearly mark the boundaries so students know where they should be counting. If the area is very big, you can divide up the area into sections & give each group a section; If not, have all groups do the whole area and compare results.
For young students, you may want to count just one or two trees/shrubs on each outing for more focused & accurate counting.
Create a class graph with the data you have collected.
Have more time/student interest? Choose another area to do a count of the same trees/shrubs and compare the two areas. If possible, choose an area that is noticeably different from the first one: on a different side of the school (so gets sunlight at different times), one near a road or by the sea while the other is not, etc. Ideas for discussion: Are there many more/less of any particular tree/shrub? Why do you think it is so?

__*Phenology*__:If you haven't already, choose 1 each: plant bush and/or tree somewhere the class can visit weekly throughout the year (less in winter.)

Wrap-Up	**Evaluate:**
	Formative Assessment:
	Are students able to identify trees/shrubs using the cards? Are they able to use a field guide or app (with support) to identify? In their observations, do students include details about leaf edges, shape, etc? Do students use vocabulary introduced in the lessons to talk about their trees/shrubs?
	Summative Assessment: Each student will complete at least one page for the class field guide with a detailed drawing of their tree/shrub, a close-up detailed drawing of a leaf from their tree/shrub, and words or sentences telling some information about it. Student will also be able to verbally tell you about their tree/shrub & how to identify.

Examples of Field Guides

- Field Guides for Kids - Series - ABDO (abdobooks.com)
- Field guides | Peterson Field Guides (harpercollins.com)
- The Best Field Guides for Kids - Only Passionate Curiosity

Plant ID Cards:
trees

Birch	Elm	Maple
Oak	Poplar	Walnut

Plant ID Cards:
blank

What's That Tree?
recording sheet

Tree Tally/
Shrub Count sheet

Tree Tally/ Shrub Count Sheet

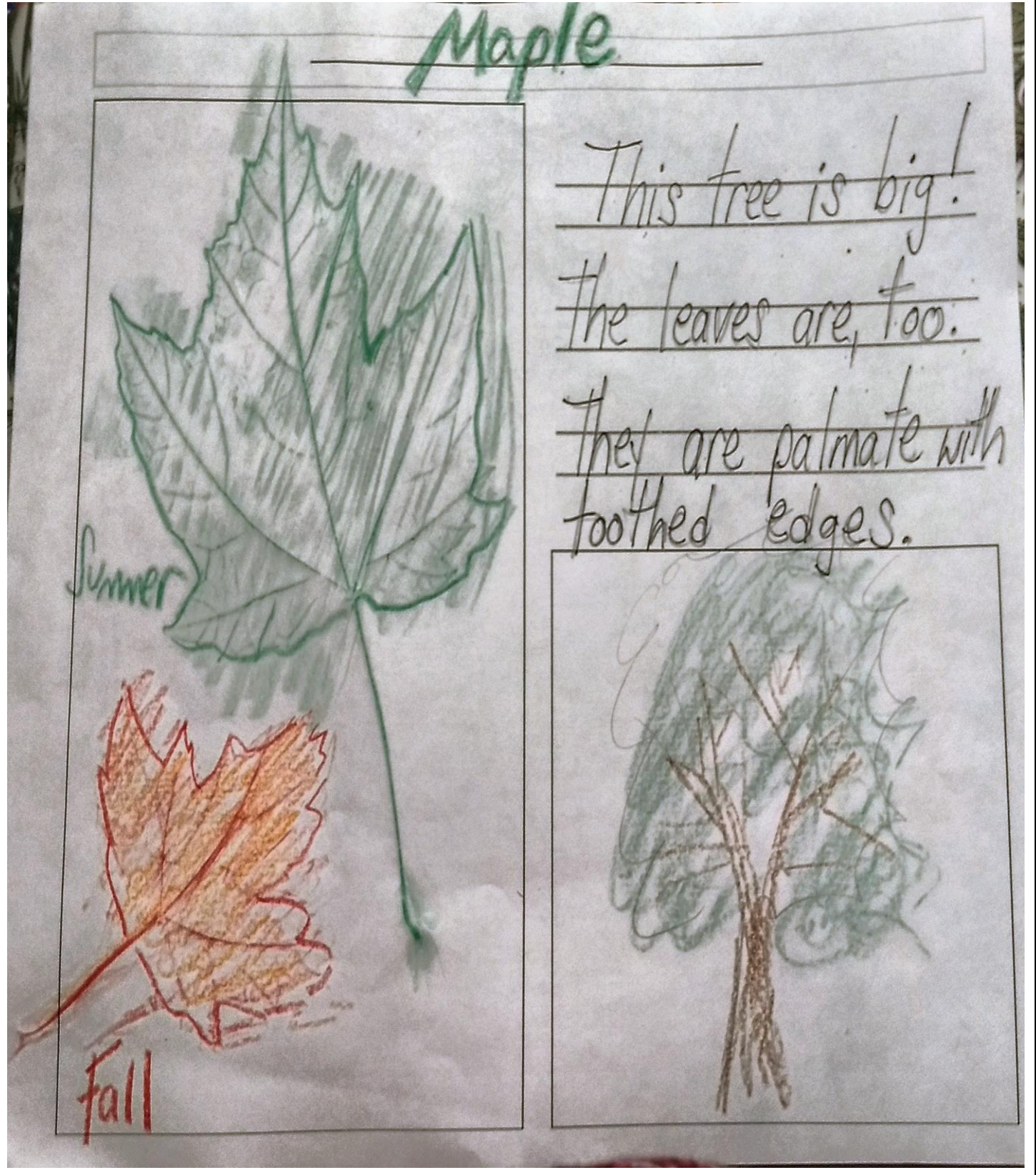Make a tally mark under each tree for each one you find.

Birch	Maple	Oak	Elm

Example
Field Guide page: Maple

Maple

Summer

Fall

This tree is big! the leaves are, too. They are palmate with toothed edges.

Example
Field Guide page: Lilac

Lilac

This bush has sweet smelling A purple flowers in the spring. It can grow tall!