

Which Tree Is Which?



Lesson: Which Tree Is Which?

Level: Beginner

Objectives:

- 1) The student will study trees on their campus, document findings and collect samples, then analyze the data upon returning to their classroom in order to identify their trees.

Materials:

GPS receivers
 Teacher Map
 Student Map
 Field sheets
 Plastic sandwich bags (one for each group)
 Tree field guides

Science:

NS.5-8.1

Science as Inquiry

- Students will be able to identify questions that can be answered through scientific investigation.
- Students will develop descriptions, explanations, predictions, and models using evidence.
- Students will think critically and logically to make the relationships between evidence and explanations.

Language Arts:

NL-ENG.K-12.7

Evaluating Data

- Students conduct research on issues and interests by generating ideas and questions, and by posing problems. They gather, evaluate, and synthesize data from a variety of sources (e.g., print and non-print texts, artifacts, people) to communicate their discoveries in ways that suit their purpose and audience.

Other Standards:

NS.K-4.2 Physical Science

NS.K-8.5 Science and Technology

NS.K-8.6 Personal and Social Perspectives

NS.5-8.7 History and Nature of Science

Procedures:

Getting Ready:

In this lesson, there are no containers to hide! The students will be studying the variety and biodiversity of tree life in their schoolyard. They will work in groups to study one tree in particular that they must collect data from in order to identify it. Go out into the schoolyard and choose many different trees (or shrubs if the schoolyard does not have many trees). Choose one for each group in your class. For example, you might have your class split into 7 groups of 3 or 4 students per group. You would then choose 7 trees. Record each tree's waypoint and mark them on your teacher map. This might be a good time for you to learn what each tree is, but you do not need to.

However, you can leave it entirely up to the students' research. Remember, you do not have to emphasize finding an exact answer; it is in the discovery that a student can learn a great deal. You may want to photograph each tree and give a picture to younger students before the hunt begins in order for them to more easily identify the tree when they come upon it.

Let's go EdUcaching!

Tell the students that today we will be going on a hike in order to discover the different kinds of trees that live in our local environment. The students will assemble in their groups. Pass out the GPS receivers, worksheets, and plastic sandwich bags. Explain that the bags are for collecting a few samples of objects from the tree to study back in the classroom, but the students are not to harm the tree in any way (most objects may be picked up from the ground near the tree). Have students enter the coordinates for their tree. Remind students of appropriate outdoor behavior and your group expectations of them before going outdoors. When they are finished with their field sheets, they are to meet you back at a central location. The students will need their pencils and field sheets, along with a crayon for the bark rubbing.

The students will then go to their coordinates and find their trees. Use your master map to assist any students in finding their tree, but don't give away the tree's exact location. The students will then study their tree as a group and write down their findings and observations on their worksheets. When they are finished, they will make their way back to the central location with their field sheets and bags full of the materials they collected. Have students who return early share their findings with the rest of the students, making predictions about what kind of tree it might be. When all students are finished, or when an appropriate amount of time has passed, bring students back into the classroom.



Back at Headquarters: Now that the outdoor search is over, the “re”-search must begin! The students' task is to identify their trees using their observations and the clues they found. This may be a great place to do a mini-lesson on tree classification. Discuss with the students that many scientists use a tree's unique leaves among other things (seeds, twigs, bark, etc.) to identify a type of tree. The background information can be found in many tree guides, but you want to discuss with the students the type of leaf that they collected. For example, discuss its margins (edges), its texture, whether or not it is arranged in an opposite, alternating, or whorl pattern and whether it is a simple or compound leaf. The presence of seeds, flowers, and/or the bark rubbing they made, will all aid in their discovery. Pass out field guides from your school's library or information from the internet. (Hint: Tree guides are usually found in categories of Eastern or Western trees in North America. Most state's Natural Resource Departments have literature that identifies trees that are in that state, free of charge.) The students will sit in their groups and discuss their findings with each other. The students will use the guides to identify their trees as you circulate the room and assist where needed. You may want to set aside a trip to the school computer lab for internet research.

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The following are trustworthy and notable web sites for your students:

- www.arboday.org/trees/treeID.cfm
- <http://www.oplin.lib.oh.us/tree/>
Ohio Trees
- http://www.dnr.state.oh.us/forestry/publications/pdf/ohio_trees_booklet.pdf
An excellent downloadable PDF guide to Ohio's trees

Here are just a few reliable tree identification guides:

- *National Geographic Field Guide to the Trees of North America*
by Keith Rushforth and Charles Hollis
- *Collins Wild Guide Trees:*
East by Steve Cafferty
- *DK Eyewitness Companions Trees*
by Colin Ridsdale, John White, and Carol Usher
- *The Easy Tree Guide*
by Keith Rushforth

The assessment for this lesson can be in the form of a final group project. Students can make a “Touch and Learn” Poster which is an informational poster that has three dimensional objects posted on it. Any objects they have collected from their tree, including their bark rubbings, may be glued on their poster along with descriptions of each object. They must identify what their tree is and give a multiple paragraph description of it. The students should also include a small map detailing where their tree can be found along with its latitude and longitude coordinates.

Another possible assessment could be for the students to make a three-dimensional model of their tree using any medium of their choice (i.e. paper mache, clay, construction paper, etc.). The students write a 1-2 paragraph description of the tree and the trees can then be placed in the classroom or library on display for all to see the “School Forest.”

Variations: This lesson could easily be adapted or extended to include a study on plant life cycles, depending upon the time of year. You may even want to use the GPS to locate different varieties of flowers in the school-yard and have students make drawings, labeling the parts of their flower to describe their flower's reproductive process. They can study their flower over the course of a few days or a few weeks, charting its changes over time and even observing how insects and birds might be interacting with their flower.

Another variation could be a long-term discovery throughout the course of the year, studying the trees' changes as they go through the four seasons. If you're up for the task and have enough plants on your school grounds, you could have each individual student (or groups of students "adopt" a tree). They would get their own tree that they could track the progress of during the school year, continuing to make observations and inferences.

Sample

Educaching



Field Sheet

Name(s): _____

Date: ____ / ____ / ____

Lesson: Which Tree is Which?**Getting Ready** 

Field sheet, pencil, plastic sandwich bags, GPS instruction card

Let's go EduCaching!

Use the space below to record your findings. Describe the characteristics of the tree you are researching. You may want use the back side of this sheet to map out the location of your tree with regard to major landmarks (i.e a school entrance, flagpole, parking lot, etc)

	Describe the characteristics
A	
B	
C	
D	
E	
F	

Place this sheet on your tree and make a rubbing of the tree bark with your pencil.

Back at Headquarters 

Be prepared to discuss the objects placed in the plastic bag and the characteristics listed. Use the information you collected and the guides in your classroom to identify your tree.