



Tree Benefits

High School



Suggestion: To complete this lesson, you will need a beautiful day so that you and your students can go outside to explore the trees on your tree's campus.

Materials

• Why Trees? Presentation	• Tree Benefits Handouts
• Clipboards for Recording Information Outdoors	• Computer or Tablet for Data Entry and Calculation
• Flexible Measuring Tape	• Writing Tools

Objectives

- I can collect accurate field data by noting tree characteristics and measuring its circumference.
- I can use the MyTree modeling tool to calculate ecosystem services provided by a tree.
- I can interpret and evaluate data outputs to determine how trees contribute to carbon storage, air quality, and flood mitigation.
- I can develop and support a claim using evidence and reasoning about the environmental and social benefits of trees.
- I can communicate data-driven conclusions through written and visual presentations.

Anticipatory Set

Begin the lesson with the Why Trees? slides showing how trees help our comfort, heart, lungs, and brain. (Slides 1-11)

For each slide in this set, present the claim and ask students how they think trees can help. After hearing from multiple students, present the slide that contains the evidence that supports the claim.

When you reach the “What Else Do We Get From Trees” slide (Slide 12), have students engage in a “turn and talk” to brainstorm with a partner. Have students share their ideas with the group.

*** Answers may include how trees provide homes to animals, how they provide materials such as wood, and how they clean our air and give us oxygen.*

You are now ready to go through slides 13-16, discussing these additional benefits that trees provide.

Explain that people can measure and calculate many of these benefits, which students will do later in the lesson.

Introduction

Show slide 16 from the Why Trees? presentation. Have students brainstorm to answer the question that is presented.

*** Answers may include knowing how big the tree is, what kind of tree it is, and the health of the tree.*

Go to slide 17. Share the different information that students will collect on the tree they are assessing.

- Tree Species (it is helpful for teachers to know the species of trees in advance to help students with identification- The app “Picture This” is a great resource as well as any tree identification guides.)

- The condition of the tree (A rubric is included on the Tree Benefits Handout)
- The size of the trunk which is measured by measuring the circumference of the tree at breast height- 4.5 ft. above the ground.
- The amount of sun exposure the tree receives.
- The tree's proximity to a building.
- The direction of the tree in relation to a building.

You should demonstrate how to measure the trunk's circumference using a flexible measuring tape. Y

Review outdoor behavior expectations and safety rules.

Distribute handouts, measuring tape, writing utensils, and clipboards. Proceed to slide 18.

Guided Practice

Take students outside in small groups to locate and measure a tree on campus.

Students use their Tree Benefits handout to note the tree's species (or best guess), trunk circumference, condition, sun exposure, and distance and direction from a building.

Encourage students to think about how their tree benefits the school environment.

You can return to the classroom once all data has been collected and recorded.

Use slides 19- 22 of the Why Trees? presentation to demonstrate to students how to use the MyTree tool.

Independent Practice

Students should enter their tree data into the MyTree tool.

Once the benefits have been calculated, students can explore results such as air pollution removal, carbon sequestered, and stormwater mitigated.

Students should view the “Benefits” and “Equivalents” tabs to enter their results for present day and for 20 years from now.

Closure

Have students share the benefits of their tree at present day and compare it to the benefits at 20 years. Ask students what could contribute to the change in the results.

Have students use the results they collected to write an argument on why it is important to keep mature trees on our school campuses and in our neighborhood.

Optional extension activities:

- Students can design a label that identifies their tree species and shares the benefits of their tree. They can display their label near their tree to share its benefits with others.

Calculating the Benefits of Trees

mytree.itreetools.org



Species of Tree: _____

Tree's Condition:

Excellent	Good	Fair	Poor	Critical	Dying	Dead
(Tree has less than 1% of its leaves missing.)	(Tree is missing 1-10% of its leaves.)	(Tree is missing 11-25% of its leaves.)	(Tree is missing 26-50% of its leaves.)	(Tree is missing 51-75% of its leaves.)	(Tree is missing 76-99% of its leaves.)	(Tree is missing all of its leaves.)

Trunk Measurement in Inches: _____

This can be determined by measuring the circumference of the tree at about 4.5 ft. from the ground.

Sun Exposure:

Full **Partial** **Shade**

Is the tree within 60 feet of a building? _____

If yes, how old is the building?

**Built
before
1950**

**Built
between
1950-1980**

**Built
after
1980**

If yes, how far is it from the building? _____

If yes, what is the compass direction from the tree to the building? _____

Reporting on the Benefits of Trees



Species of Tree: _____

Estimated i-Tree benefits this year: _____

Equivalents:

Offsets this many miles worth of CO² from the average gas-powered car: _____

Absorbs enough stormwater to fill this many bathtubs: _____

Removes pollution from the air that equals the weight of this many smartphones : _____

Estimated i-Tree benefits over 20 years: _____

Equivalents:

Offsets this many miles worth of CO² from the average gas-powered car: _____

Absorbs enough stormwater to fill this many bathtubs: _____

Removes pollution from the air that equals the weight of this many smartphones : _____

Thanks for downloading!

Please check out batonrougegreen.com/programs/canopy_kids for more awesome tree related information and lessons.