

Native Tree Planting & Care

(7LS.b; Bio 5.a; Env 2.d)

Time

2-4 45 minutes classes

GES Standards (# and text) Character Count: 1000

7-LS-5.b Obtain, evaluate, and communicate information from multiple sources to explain the theory of evolution of living organisms through inherited characteristics.

S7LS.b Construct an explanation based on evidence that describes how **genetic variation and environmental factors influence the probability of survival and reproduction of a species.**

9-12-GA-Bio-5.a Obtain, evaluate, and communicate information to assess the interdependence of all organisms on one another and their environment.

SB5.a Plan and **carry out investigations and analyze data to support explanations about factors affecting biodiversity and populations** in ecosystems.

SB5.c Construct an argument to predict the **impact of environmental change** on the stability of an ecosystem.

SB5.d Design a **solution to reduce the impact of a human activity on the environment.**

9-12-GA-EV-2.d Obtain, evaluate, and communicate information to construct explanations of stability and change in Earth's ecosystems.

SEV2.d Construct an argument to support a claim about the **value of biodiversity in ecosystem resilience including keystone, invasive, native, endemic, indicator, and endangered species.**

Phenomenon: what's growing in the schoolyard?



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Lesson Overview Character Count: 1000

Students will observe trees in the schoolyard, investigate why certain species are present or absent, determine whether the campus is biodiverse or not, and consider whether removing invasive species and/or planting native species could restore some ecological balance. They will plant at least one native tree in a place where it is needed and can be sustained in the schoolyard, and care for it so that it is likely to survive long-term.

Engage Character Count: 900

Take students out in the schoolyard to direct pairs of students to select and sit beside a tree. Prompt students to observe the tree, research and identify it, figure out how it got there, and construct an explanation that includes the following information:

- Is it a landscape tree that was planted when the school was built? Or planted sometime since then?
 - What species is it? Is it native to the area? Or non-native (introduced from elsewhere? invasive?)
- Is it a tree that grew wild?
 - What species is it? Is it native to the area? Or non-native (introduced from elsewhere? invasive?)
- Why do you think so? (What evidence do you have for that conclusion?)

Elicit Questions Character Count: 900

After observing the phenomenon of the trees that are growing (or not) in the schoolyard, prompt students to ask questions that they wonder about e.g. what species of trees are present, why they are there, what trees may be “missing”, why they are not present; and then craft a tentative, initial explanation for what is growing in the schoolyard and why.

Explore Character Count: 900

Identify, inventory (map), and investigate schoolyard trees, in small groups of students. Each group should then consider the following questions:

- Does the schoolyard have sufficient trees to provide shade for students to learn and play outside?
- Is there a natural area where students can explore, conduct investigations, and observe interactions in nature?
- What types of trees are currently growing in the schoolyard?
- What types of trees are native to the area and likely to have grown on the same site, before it became a schoolyard?
- If the native tree species and the current tree species are different, why is that?
- Do more trees and/or different tree species need to be planted in the schoolyard?
 - If so, what species should be planted and why?
 - If so, where should any additional trees be planted?
 - What existing tree(s) are valuable or interesting and should be protected? Why?
 - What existing tree(s) are invasive and should be removed? Why?

Make a “Missing Tree” flier, using the template for a wanted poster, milk carton missing person poster, or a lost pet flier. On the flier, students should identify, describe, and provide an image of a native tree species that seems to be “missing” from the schoolyard, tell what may have happened to it, and offer a reward for its return. This activity can be used as a way for student teams to propose species they think the entire class should vote on, to plant in the schoolyard.

Create a plan to Plant and Care for Schoolyard Trees, using some or all of the following resources. Small groups can tackle each of these subcategories using the [Jigsaw Classroom protocol](#); then share findings and recommendations with the entire class:

- Learn How to Plant Trees and Keep them Alive
 - [Student Tree Planting Guide](#) - Georgia Forestry Commission
 - [How to Plant a Tree that was Grown in a Container](#) - Georgia Forestry Commission
 - [Tree Owner’s Manual](#) - Georgia Forestry Commission
- Decide What Trees to Plant
 - [Native Plants for Georgia: Trees, Shrubs and Woody Vines](#) - UGA Extension
 - [Native Trees of Georgia](#) - Georgia Forestry Commission
 - [Native Oaks of the Eastern US](#) - USDA
 - [Ga Native Alternatives to Invasive Trees](#) - Bugwood
- Social and Cultural Factors to Consider in a Tree Planting Project
 - [Unintended Consequences of Planting Trees in Treeless Ecosystems](#) - US Forest Service
 - [From Conservation to Connection: Exploring the Role of Nativeness in Acceptance of Urban Trees](#) - Kaplan, H
 - [Why Don’t People Plant Trees? Uncovering Barriers to Urban Tree Planting Initiatives](#) - Reidman, E et.al.
- Decide Where to Plant Trees
 - [Design and Maintenance of Schoolyard Forests](#) - Green Schoolyards America
 - [Schoolyard Forest Spacings App](#) - Sean Corriel
- Find Resources and Sources for Trees
 - [Tree Seedlings](#) from Georgia Forestry Commission
 - [Making the Shade](#) grants for planting trees on school campuses from Georgia Forestry Commission
 - [Sources of Native Plants for Georgia](#) - Georgia Native Plant Society

Engineer Character Count: 900

N/A

Explain Character Count: 900

Students will return to their initial, tentative explanations for the quantity and types of trees growing in the schoolyard and revise it to identify, describe and characterize the trees that are present, and make a case for any specific new trees that they recommend should be planted, and why.

Environmental Stewardship / PBL Character Count: 900

Students will implement their tree planting plan by planting *and caring for* at least one native tree at an appropriate place in the schoolyard. The plan should address tree care continuity from year to year until it is established and thriving.

Extend Character Count: 900

Share the [Ecological Restoration](#) wheel and other related tools to engage students in exploring the extent to which their tree planting plan accomplishes the goal of restoring degraded or disrupted habitat.

Consider why some non-native, invasive species may have personal, cultural, or sentimental value to some people.

Evaluate Character Count: 900

A comparison of the initial and revised explanations should indicate growth in student knowledge and understanding of native vs non-native, invasive tree species; identification of tree species; the value of trees; and the ability to plant and care for a tree.

Re-Teach Character Count: 900

Students who are not able to explain the difference between planting native and non-native tree species after reading and participating in lesson activities, may benefit from watching this video from the City of Auburn AL: [Urban Forestry: Why are Native Trees Important?](#)

How this Lesson incorporates “Gather / Reason / Explain / Act / Teach” or “Obtain / Evaluate / Communicate” framework

Check relevant sections and add a line that describes specific, related lesson activities on the right. Character Count: 144

Gather / Obtain includes any of the following:

- Obtaining Information
- Asking Questions/Defining Problems
- Planning & Carrying Out Investigations
- Using Models to Gather Data
- Using Mathematics / Computational Thinking

Students will gather or obtain data and information by . . .

Answer Here or N/A
 Answer Here or N/A
 Answer Here or N/A
 Answer Here or N/A
 Answer Here or N/A

Reason / Evaluate includes any of the following:

- Evaluating Information
- Analyzing Data
- Using Mathematics / Computational Thinking
- Developing Evidence
- Constructing Explanations / Solving Problems
- Using Models to Predict & Develop Evidence

Students will reason and evaluate data or other info by . . .

Answer Here or N/A
 Answer Here or N/A
 Answer Here or N/A
 Answer Here or N/A
 Answer Here or N/A

Explain / Communicate includes any of the following:

- Communicating Information
- Arguing from Evidence (written & oral)
- Using Models to Explain or Communicate

Students will explain and communicate by . . .

Answer Here or N/A
 Answer Here or N/A
 Answer Here or N/A

Act

- Student-Directed Stewardship Project or Civic Action

Students will solve a real-world problem by . . .

Answer Here or N/A

Teach

- Presentation of Project to Stakeholders / Reflection

Students will share their findings and reflect by . . .

Answer Here or N/A

How this Learning Experience Integrates 3-D Science The checked elements are integrated in this lesson:**Science and Engineering Practice**

- Asking Questions and Defining Problems
- Developing and Using Models

Crosscutting Concepts

- Patterns
- Cause and Effect

- Planning and Carrying Out Investigations
- Analyzing and Interpreting Data
- Mathematical and Computational Thinking
- Constructing Explanations and Designing Solutions
- Engaging in Argumentation from Evidence
- Obtaining, Evaluating and Communicating Information

- Scale, Proportion and Quantity
- Systems and System Models
- Energy and Matter
- Structure and Function
- Stability and Change

Core Ideas

Physical Science

- Matter and Its Interactions
- Motion and Stability / Forces and Interactions
- Energy
- Waves and their Applications in Info Transfer

Life Science

- Structure and Processes
- Ecosystem Interactions, Energy and Dynamics
- Heredity, Inheritance and Variations
- Biological Evolution, Unity and Diversity

Earth and Space Science

- Earth's Place in the Universe
- Earth's Systems
- Earth and Human Activity

Engineering

- Engineering Design Process
- Links among Engineering, Technology, Science and Society

How this Learning Experience integrates STEM: Character Count: 900

Students will complete mapping and inventorying activities that include math and spatial planning.

What parts of this lesson are suited for Outdoor Learning and why?: Character Count: 900

Students will observe the phenomenon outside, conduct an investigation outside, and make a plan for a tree planting project to take place in the schoolyard.

Is there a project or series of which this Lesson is a part?

CoOL Schoolyards Lesson Collection

Is another version of this Lesson available?

Choose yes or no.

No

Lesson Name: Character Count: 144