



LEAF: Learning About Forests

GETTING STARTED, GRADES 9-12

LEARNING OBJECTIVES

This audit will help you and your students to identify and explore a local forest study area either on your school grounds or within your local community. Students will be able to identify major components of a forest ecosystem, examine relationships and measure the economic and environmental worth of the trees on your site. If you are in an urban setting, this audit can still be performed utilizing street trees, park areas or anywhere that you can find a number of trees.

Students will deepen their knowledge and begin developing a conservation and stewardship mindset about forests as a natural resources in order to -

- Identify key aspects of local trees and forests.
- Investigate the native biodiversity of forests on school grounds and in the surrounding community.
- Make connections between trees, forests and forest products.
- Improve the health and diversity of forests and trees within the local community.
- Provide information regarding the benefits of trees and forests to students, families and community.

INTERDISCIPLINARY CONNECTIONS

Art, Citizenship, Geography, Language Arts, Math, Science, Social Studies, Specific CTE programs

ECO-SCHOOLS USA PATHWAY CONNECTIONS

Biodiversity, Climate Change, Consumption and Waste, Energy, Healthy Living, Schoolyard Habitats®, WOW-Watersheds and WOW-Wetlands

METRICS NEEDED FOR AWARDS

1. Number of trees/shrubs planted in the forest study site.
2. Total environmental and economic worth in dollars (stormwater runoff, energy saved, CO₂ captured) of trees in the forest study site using *The Tree Benefit Calculator* (data needed: tree species, tree diameter and land use), <https://www.treebenefits.com/calculator>.



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UN'S SUSTAINABLE DEVELOPMENT GOALS – CONNECTIONS TO PATHWAY

<http://www.un.org/sustainabledevelopment/sustainable-development-goals/>



ARE YOU A GLOBE SCHOOL?

The Global Learning and Observations to Benefit the Environment (GLOBE) Program is an international science and education program that provides students and the public worldwide with the opportunity to participate in data collection and the scientific process, and contribute meaningfully to our understanding of the Earth system and global environment. **Learn more at >>** <http://www.nwf.org/Eco-Schools-USA/GLOBE.aspx>

Below are protocol connections to the LEAF audit. (Optional, but recommended.)

Atmosphere Protocols

Air Temperature | Precipitation | Surface Ozone |
Surface Temperature | Water Vapor | Wind

Hydrosphere Protocols

Alkalinity | Mosquitos | Nitrates | pH | Temperature

Pedosphere Protocols

Characterization | Fertility | Infiltration | pH |
Soil Moisture-Sensor or SMAP | Temperature

Biosphere Protocols

Arctic Bird Migration | Biometry | Carbon Cycle |
Green Up/Green Down | Land Cover Classification |
Ruby-Throated Hummingbird

MATERIALS

science notebook | audit forms | clip boards | tape measures (50-100m) | forestry diameter tape | tree flags | internet for research and data collection | soil and water temperature probes or thermometers | water and soil quality test probes or kits | regional and/or state tree, plant and animal field guides



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PROCEDURE

Adult volunteers are highly encouraged to assist in audit facilitation and provide expertise as a part of the Eco-Action team.

1. Determine who the **resource specialists** are in your community, region or state. These individuals can assist with the audit and provide richer student experiences and deeper understanding.
2. Read through the audit first and set aside realistic periods of time to complete each section.
3. The Eco-Action Team will work together to gather the required audit data.
4. **Analyze the results** and **develop an action plan**. Be sure to **communicate** results, actions and outcomes throughout the entire process.
5. **Keep this audit** with your records. This information is needed when responding to Eco-Schools USA surveys, when applying for awards and when communicating with the community, school board and members of the media.

Your data and all evidence, including notes, photographs, sketches, calculations, audits, etc. need to be kept in a location that is easily accessible to the Eco-Action team. We recommend binder, file system or Google folder.

Your documentation is very important and will be used:

- to inform decisions,
- to engage the community,
- as evidence to support findings,
- to update your dashboard, and
- to apply for awards.