



PULS-in-a-Box

Welcome to Pop-Up Labs for Sustainability's PULS-in-a-Box!

PULS's mission is to merge sustainability with STEAM learning to help students discover their potential in the fields while inspiring commitment to protect our Earth. We believe that in discovering the relevance of STEAM to the complex environmental issues confronting our planet and acquiring skills is critical as students become the innovators, resource managers and decision makers, educators, and more of their generation.

All of our units introduce students to a global issue that has local significance. By focusing on place-based exploration and action, we want each unit to create a bond between the student and their community. Each lesson utilizes components of the STEAM discipline and builds upon the other so please complete all.

PULS-in-a-Box offers an exciting distance learning option to our mobile Pop-Up Lab. The content in this "box" includes lesson plans, modules, and additional resources. We have modified the modules in ways to utilize more readily available supplies.

Unit: Become an Urban Foresters

Welcome

Why Urban Forestry?

Lesson 1: How Does a Tree Work?

Learn basic tree anatomy to understand how a tree works

Lesson 2: Urban Forest Assessment

Use science methods to measure tree health
Learn how to identify common urban trees

Lesson 3: Urban Trees Count

Focus on the many benefits and values of trees
Understand the trees root system in influencing urban runoff

Lesson 4: Urban Tree Stewardship

What does it mean to be a steward of trees?
Learn the benefits of planting native
Provide solutions to helping our urban forest

STEAM

is Science, Technology, Engineering, Arts+design, and Mathematics.

Sustainability

The capacity of meeting the needs of the present without compromising the ability of future generations to meet their needs. The concept of **sustainability** is composed of three pillars: economic, environmental, and social.

NGSS Standards Addressed

ESS2 Earth's System
ESS3 Earth & Human Activity
LS1 From Molecules to Organisms: Structures and Processes
LS2 Ecosystems: Interactions, Energy, and Dynamics
LS4 Biological Evolution: Unity & Diversity
PS3 Energy
MS Natural Selection & Adaptations

For more information go to:
www.nextgenscience.org or contact us at pulshawaiiinfo@gmail.com.

Why Urban Forestry?

Did you know that the urban forests make up a significant amount of America's tree canopy? In fact, over 140 million acres of America's forests are located in cities and towns, and these trees provide essential benefits for humans and improved habitats for urban wildlife.

The urban forest can be defined as all forest stands and other tree-dominated vegetation in and near urban areas. Urban trees, which are the focus of this lesson, can be classified into numerous groups including street trees, residential trees, park trees, and woodland trees. They may have been recently planted or they may be old-growth remnant forests on public or privately owned land.

As Hawaii's population increases and cities continue to grow, the landscape continues to change. Small towns become big towns, in-fill development covers open lots, and sprawling suburbs expand into undeveloped areas. In most areas these changes mean that trees and forests disappear. Maybe you have already witnessed this phenomenon in your community? In this lesson, we will explore why it is important to keep, maintain, and plant our urban forests.

Urban forestry has emerged as a new profession and a field of scientific attention. Urban foresters contribute to making cities all over the world more attractive and more comfortable places in which to live and work.

Through this lesson, we want to help students:

- ★ See their community's urban forests as significant, valuable, and worth sustaining
- ★ Gain meaningful skills in an important and growing field
- ★ Become a tree steward and advocate for urban trees
- ★ Learn to plant, care, and monitor the health of trees in your local community

How PULS-in-a-Box Works?

Each unit contains four lessons. Each of the four lessons are in individual packages and includes a discussion sheet and module activities. Modules are presented at the end of each lesson but you can run the module while giving the lesson. We also offer a range of information and a variety of modules which you can decide the ones to use with your class. PULS-in-a-Box provides the supplies needed to run several of the modules.

Enjoy!

Dr. Pamela Weiant
PULS Founder

Urban forests are a forest, or a collection of trees, that grow within a city, town or a suburb.

Urban forestry is the care and management of single trees and tree populations in urban settings for the purpose of improving the urban environment. Urban forestry involves planning and management of the urban forest. Urban forestry advocates the role of trees as a critical part of the urban infrastructure.

Urban foresters specializes in the care and management of tree populations in urban settings for the purpose of improving the urban environment.

Arboriculture is the management of individual trees (also referred to as 'tree care').

An **arborist** is a practitioner of arboriculture. These are career professionals that can cultivate, manage, care for, and rehabilitate trees and shrubs.

Urban planners are direct the development of cities and towns. Many urban planners work for local government, although some advise nonprofit and community groups on ways to best grow and develop their cities.

Please contact us if you have questions or need assistance pulshawaiiinfo@gmail.com. We also love feedback!