GLOBE Trees

Toolkit for Informal Educators

Resources for Building and Promoting Programs

Overview

- Navigating the Toolkit
  - Getting Started
  - Protocol Pages
  - Resource Library
- Featured Resources
  - Seeing Trees in 2D and 3D Activity
  - Paper Clinometer
  - Worldcat Demo
  - Flyer Demo
- Local Science Connections
  - Topic Ideas
  - Finding Local Experts
  - Connecting to Other Projects

TOOLKIT for INFORMAL EDUCATORS

Co **ission to real-world science**
by **BE Observer, an app-based**
cit **rated**
int **and**
aq
Sim **integrate GLOBE Observer i** **no,**
or create a new cart or event

It's easy to get started with GLOBE **the**

app, register for an account and plan your program using the resources inclu **ill find**

Observer

Get the App | On GLOBE Observer | Lead a Program | Get Data | News, Events, and Notes | Publications | About | Search

GLOBE Observer > Lead a Program > Trees

Share

GLOBE Trees

Resource Library | Quick Facts | Tips and Troubleshooting

Along with producing the oxygen that we breathe and providing habitats for animals, healthy forests are also an important carbon sink– meaning that they store carbon. Tree height is a primary indicator of how well an ecosystem can grow trees. NASA scientists study trees from space using satellites like ICESat-2, which measure forests using lasers. Your tree height and circumference measurements can help scientists understand how carbon moves through ecosystems.

Integrate GLOBE Trees into your programming by exploring the role of trees through a fun game of tag or using various tools and methods to measure tree height.

Resource Library

Activities

Find activities to integrate into your programs, demonstrations, classes and more.

Books, Videos and Presentations

Add books, videos and presentations to your program.

Printables and Promotional Materials

Promote your program with these resources and give visitors something to bring home.

Quick Facts

Why measure tree height? What do trees have to do with Earth's carbon cycle? Prepare for your program or develop a script using these common questions.

Tips and Troubleshooting

Safety

Trees are a type of land cover and they often rely on the precipitation carried by clouds, while also impacting the formation of clouds.

< Clouds | Land Cover >

The ice, clouds, and land elevation satellite, or ICESat-2, measures the height of a changing Earth, one laser pulse at a time. ICESat-2 was launched September 15,

Activity

Seeing Trees in 2D and 3D

This demonstration uses blocks to compare different types of satellite data.

One represents the 2D data (forest extent) collected by Landsat 8, while the other represents the 3D data (forest height) collected by ICESat-2.

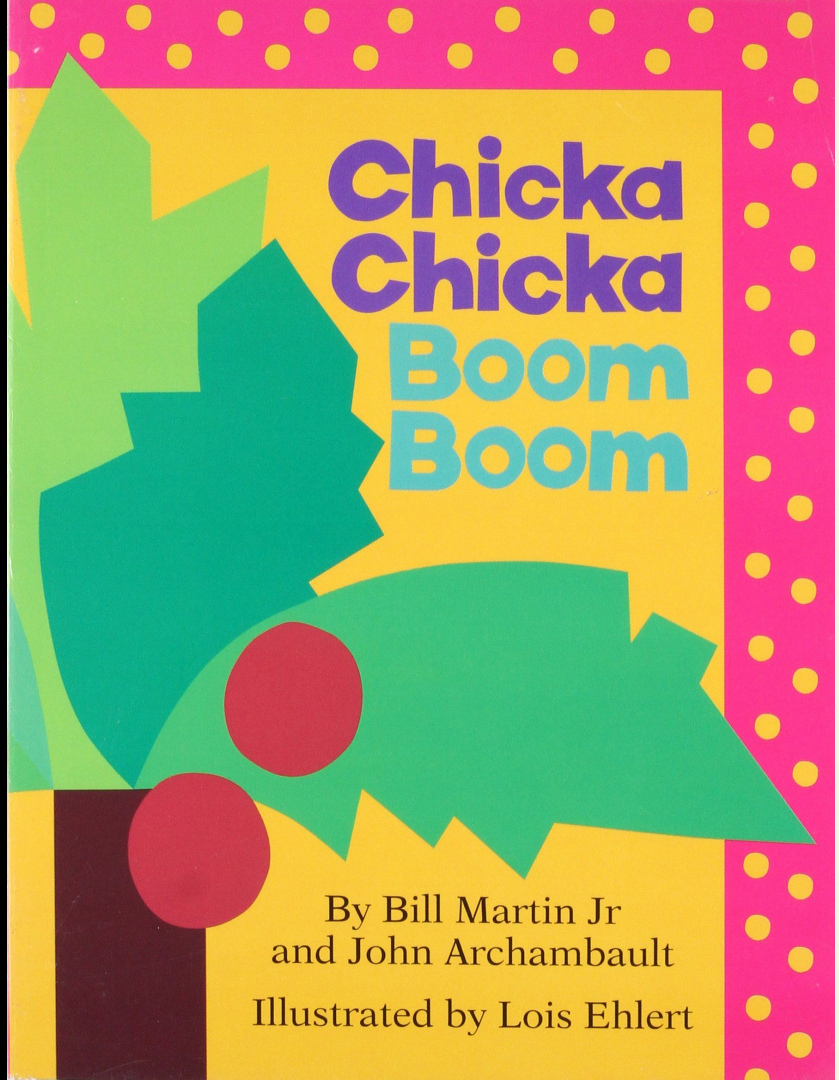
Printable

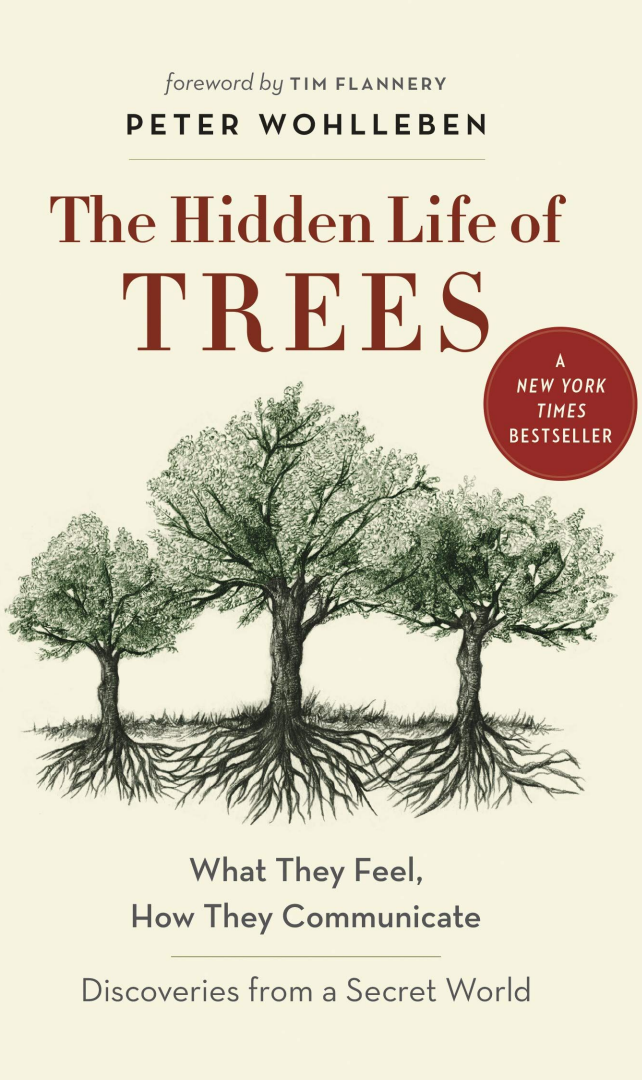
Paper Clinometer

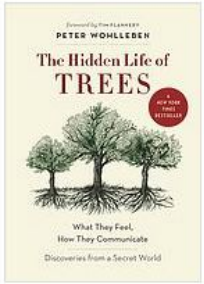
Build a clinometer using a straw, a weight, string, and a piece of paper. There is a worksheet for calculating tree height on the back. Compare your measurements from the clinometer and the app.

Books for All Ages

www.worldcat.org/profiles/GLOBE_Observer/lists







HIDDEN LIFE OF TREES : what they feel, how they communicate? discoveries from a secret world.

Author: PETER WOHLLEBEN

Publisher: [Place of publication not identified], GREYSTONE Books, 2018.

Edition/Format: Print book : English View all editions and formats

Rating: ☆☆☆☆☆ (not yet rated) 0 with reviews - Be the first.

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2. Gallaudet University Library Washington, DC 20002 United States	Book	14 miles MAP IT	Library info Ask a librarian Add to favorites
3. St John's College Library		14 miles	Library info

National Aeronautics and Space Administration

TREES CHALLENGE 2020

APRIL 1 - APRIL 30

In celebration of the 50th Anniversary of Earth Day and the 25th Anniversary of the GLOBE Program, we are challenging you to make every tree count by contributing to a global inventory. The individuals, teams, and schools that measure the most trees will be recognized.

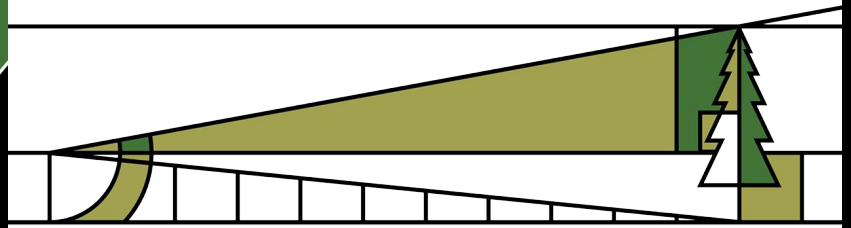
To get started, download the free GLOBE Observer app from the Apple App Store or Google Play.

Learn More:
OBSERVER.GLOBE.GOV/TREES-2020

www.nasa.gov

MEASURE TREES
(NO CLIMBING REQUIRED)

The GLOBE Observer app uses the angle measured by your phone's sensors and an estimated step length based on your height to calculate tree height.



DO SCIENCE WITH NASA

Our goal is to contribute to a global tree inventory. Observing tree height allows NASA scientists to study forest health and better understand the role that trees play in Earth's global carbon cycle.

TEAM UP

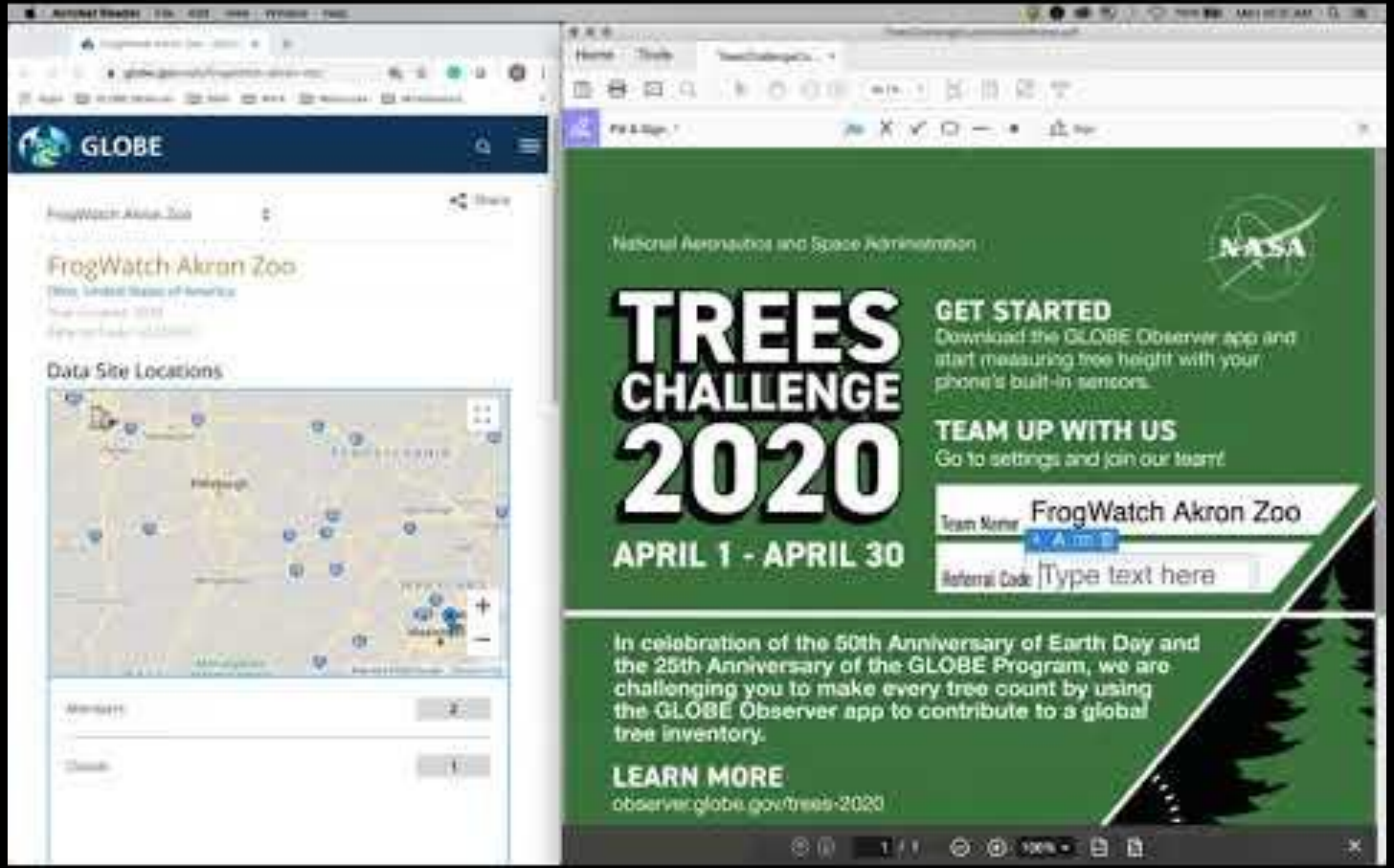
Learn more about joining a team, creating a team, or participating as a school at:
OBSERVER.GLOBE.GOV/TREES-2020

GET UPDATES

Follow us on social media for updates on Trees Challenge 2020 and other news, events, and releases:

@THEGLOBEPROGRAM @GLOBEPROGRAM

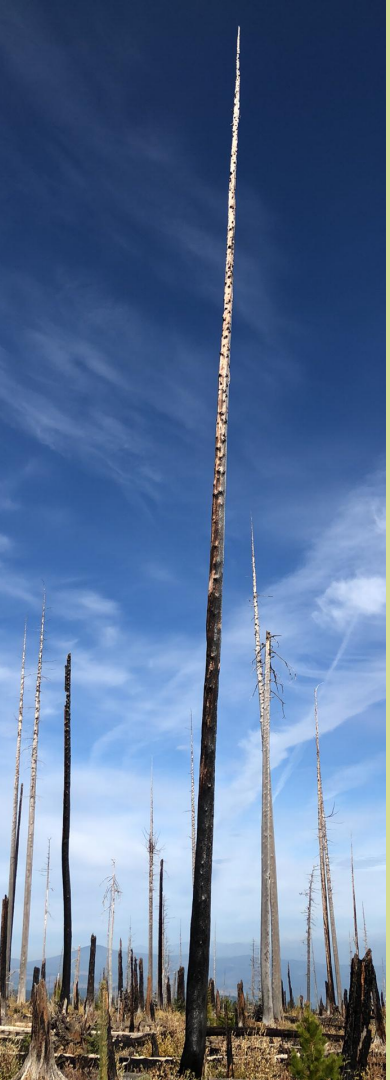
Flyers and Templates


GLOBE
FrogWatch Akron Zoo
Data Site Locations
National Aeronautics and Space Administration
NASA
TREES CHALLENGE 2020
APRIL 1 - APRIL 30
GET STARTED
Download the GLOBE Observer app and start measuring tree height with your phone's built-in sensors.
TEAM UP WITH US
Go to settings and join our team!
Team Name
FrogWatch Akron Zoo
Referral Code
Type text here
In celebration of the 50th Anniversary of Earth Day and the 25th Anniversary of the GLOBE Program, we are challenging you to make every tree count by using the GLOBE Observer app to contribute to a global tree inventory.
LEARN MORE
observer.globe.gov/trees-2020

Community Connections

People are often concerned about local issues because the impacts are more tangible; and when people are concerned about an issue, they often want to know what they can do about it.

You can engage your audiences in science that doesn't just help NASA with our global research, but also with a local or regional issue that they're concerned about.



Science Topics

- Invasive Species
  - Spruce Beetle
  - Emerald Ash Borer
  - Hemlock Wooly Adelgid
- Disease
- Wildfires
  - Burn Intensity
  - Burn Recovery
- Habitats
  - Monarchs and Eucalyptus Trees
  - Habitat Restoration
- Public Health
  - Urban Heat Island Effect
  - Air Pollution
- Drought

Finding Local Experts

Colleagues
Are there researchers or resource managers that are a part of your organization or system?

Government
Which local and state government organizations might be interested in your topic? Park Service, Dept. of the Environment, Forest Service, etc.

Universities
Are there universities nearby? Do they have an environmental science department or other related department?

Connecting to Other Projects

We ask for tree height measurements because this data can help us study the health and mass of forests at a global scale. For local and regional topics, you may wish to collect additional data through another project.

Add what you find to your field notes within the app, or simply note that you took a concurrent observation.

iNaturalist

eBird

leafsnap

scistarter
Science we can do together.

Online Resources

Trees Challenge 2020
observer.globe.gov/trees-2020

Toolkit for Informal Educators
observer.globe.gov/toolkit

SciStarter
scistarter.org

Thriving Earth Exchange
thrivingearthexchange.org

NASA Scientific Visualization Studio
svs.gsfc.nasa.gov

National Park Service Gallery
npgallery.nps.gov

USFWS Digital Library
digitalmedia.fws.gov