

A photograph of a residential street lined with mature, leafy green trees. The sun filters through the leaves, creating dappled shadows on the asphalt road. A silver car is driving away from the camera in the right lane. In the background, other cars and houses are visible under a clear blue sky.

**Beat the Heat  
with  
Urban Forestry**

The most effective strategy we can use to reduce the urban heat island effect is the reintroduction of trees into our city . The planting and maintenance of trees in cities is called **Urban Forestry.**



**Have you ever planted or  
maintained a plant before?**

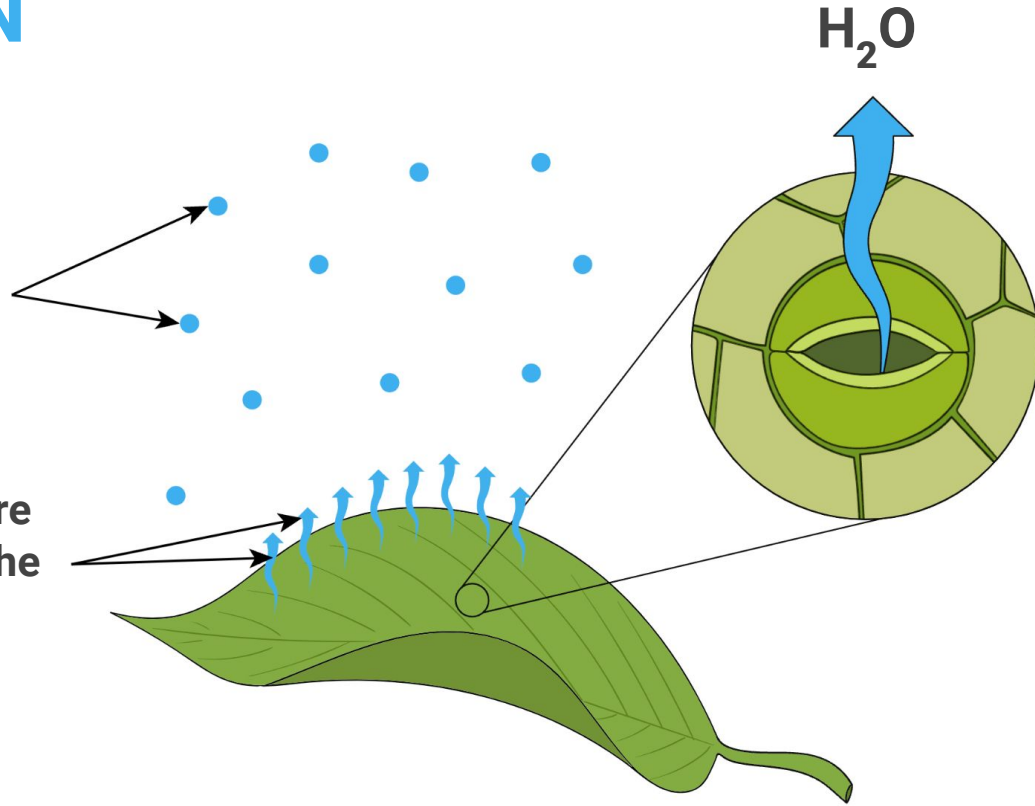
Trees reduce the urban heat island effect by **shading** paving materials and buildings. This cools down sidewalks and roads and keeps building from having to use air conditioning. Trees also cool the air by evaporating water through their leaves through a process called **transpiration**.



# TRANSPIRATION

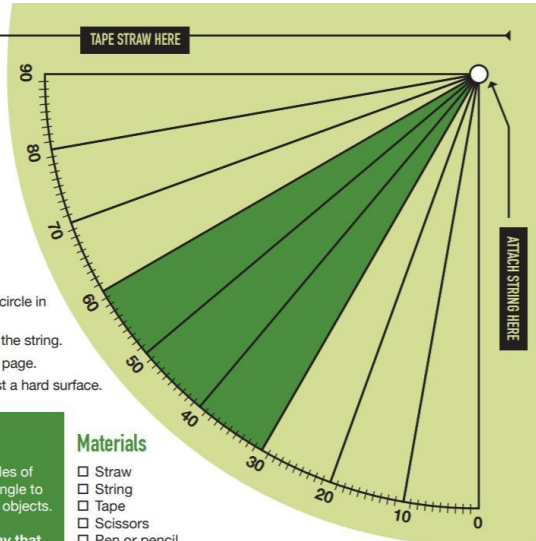
The evaporation of water vapor cools the air reducing UHI

Water molecules are evaporated off of the surface of the leaf



We can use the Neighborhood Science kit to determine the height of trees. The kit includes the materials needed to create a **clinometer**, a tool used to measure angles to determine an object's height.

## Build a Clinometer



1. Pull a knotted string through the circle in the upper right corner.

2. Attach a weight to the bottom of the string.

3. Tape your straw to the top of the page.

4. Clip to a clipboard or hold against a hard surface.

### What is a clinometer?

A clinometer is tool for measuring angles of slope or elevation. You will need this angle to calculate the height of trees and other objects.

Measuring tree height is just one way that scientists study the health of forests. Give it a try using this paper clinometer.

### Materials

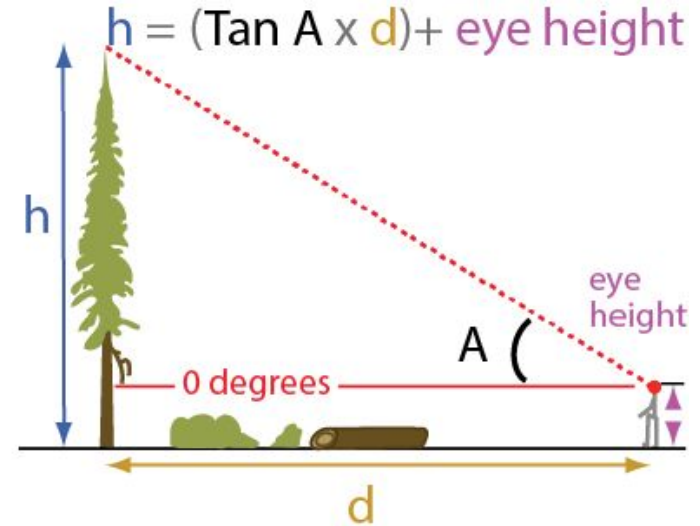
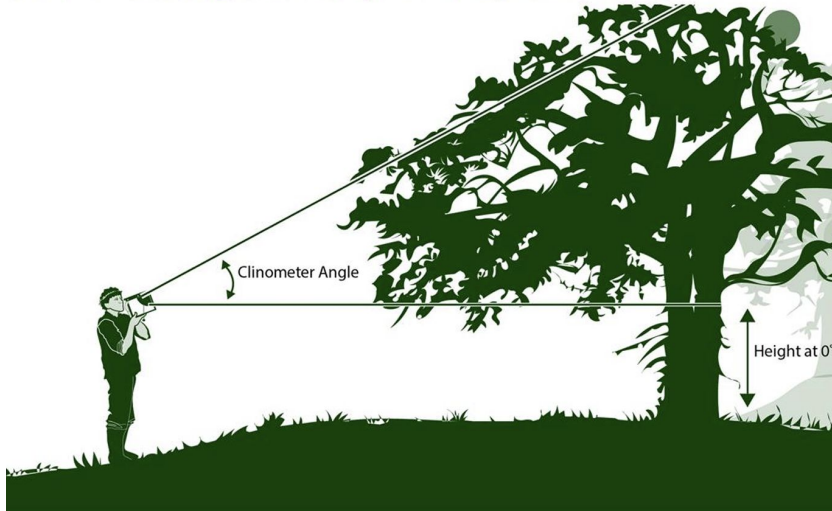
- Straw
- String
- Tape
- Scissors
- Pen or pencil
- Hard surface (clipboard, book, cardboard)
- Weight (beads, paper clip, metal washer)

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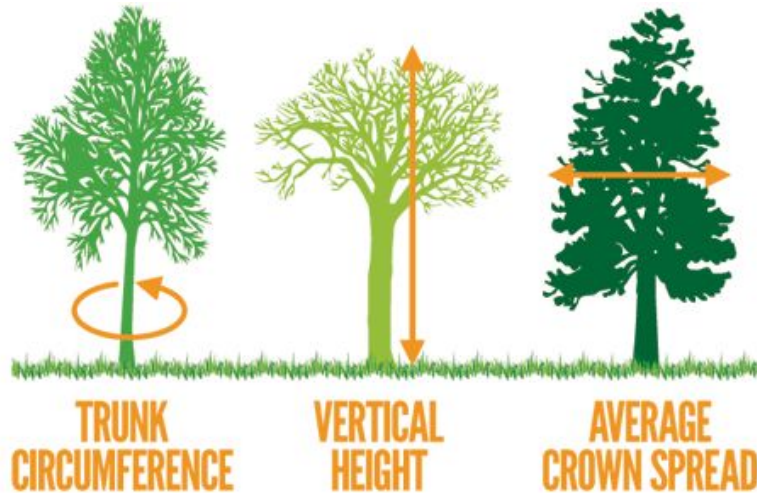


Walking to achieve a **clinometer angle of 45°** will mean the distance from your feet to the trunk of the tree (+ the height from your feet to your eyes) is exactly the height of the tree.

### Measure Tree Height on a Slope: Stand by Tree Technique



You can also use the tape measure to determine other important measurements of a tree such as trunk circumference and crown spread. The kit's included Tree Finder book can help you determine the tree's species.



Trees are an essential element to our cities that can reduce heat and add beauty to our lives.

