Pacific Coast Tree Measuring

Before you go...

1. Grab a "Sprouts Kit".

2. Use the measuring tape at the Sprouts kiosk to measure the length of your step and your height at eye level and write it down in the space below.

Length of one step: _____ inches

Your height at eye level: _____ inches

Let's measure!

The **Tangent Height Gauge** is a tool that uses geometry to measure the height of trees from the ground. Use the directions included with the tangent height gauge to measure the height of trees. **Find the trees marked with a green ribbon** to test your measurement skills. Please stay on the paths and the lawns and never walk through the garden beds!

- Find a marked tree and position yourself on the side of the tree where you have space to walk and you won't trample any garden beds.
- Hold the tangent height gauge up to your eye and look through the sight rings toward the top of the tree you are measuring.
- Continue to hold the height gauge in place and look at the mirror on the tangent height gauge to make sure that the bubble in the level tube is centered.
- Line up the top of the tree with the sight rings by walking towards the tree or away from the tree.
- Stop in a place where the top of the tree is lined up with the sight rings and the level bubble is centered. Mark that spot.
- Measure the distance between you and the tree by walking from the marked spot to the tree and counting your footsteps.
- Multiply the number of steps between you and the tree with the length of one step.
- Add your height at eye level.
- **Now you know the height of the tree!**

To measure the distance between you and the base of the tree

First, count the number of footsteps it takes to walk to the tree. Second, multiply the number of footsteps by the length of one step that you measured at the Sprouts Kiosk at the beginning of the project. That will give you the distance to the tree in inches.

Example:

Number of footsteps from you to base of tree (a) = **18** footsteps

Length of one step (b) = **20** inches

Distance to tree in inches (D) = number of footsteps (a) x length of one step (b)

18 x 20 = 360 inches   The distance (D) to the tree is 360 inches.

To find the height of your tree

Add your height at eye level plus the distance between you and the tree.

Example:

Distance to tree (D) = **360** inches

Your height at eye level (H) = **48** inches

Height of tree in inches = distance to tree (D) + your height at eye level (H)

360 + 48 = 408 inches

The tree is 408 inches tall. Can you convert that number to feet?

PLEASE
Don't forget to return the Sprouts Kit and all contents to the kiosk before you leave!

Sprouts

A family education program at the Mendocino Coast Botanical Gardens