

You're Getting Warmer!

Experiment - Student Worksheet

Gathering Data _____

- Using databot, take 3 CO₂ readings around the tree you will be studying.
1. _____ 2. _____ 3. _____
- Measure the circumference of your tree in centimeters at a height of 1.4 meters from the base of the tree.
 - C = _____
- Measure your pace in centimeters. _____
- Pick a spot far enough away from your tree that you have a clear view of the tree top.
- Record the number of paces you walk from your tree (this is where you will conduct your inclination reading). _____
- While lying on the ground in your chosen spot, record your angle of inclination in degrees to the top of your tree. _____ degrees

Basic Calculations _____

- Diameter - Calculate the diameter of your tree: Circumference / 2 / 3.1416 = the tree radius.
- Multiply this by 2 to get your diameter, D.
 - D = _____
- Distance from Tree - Calculate your distance from the tree where you took your angle measurement.
 - Pace Measurement (how big are your steps ?) _____
 - X Number of Paces _____
 - in cm / 1000 = _____ distance in meters
 - = distance from the tree _____

Basic Calculations (cont.) _____

- Height of Tree - Calculate the height of your tree using a scientific calculator. There is a link to an online calculator in the Experiment resource area - make sure you set the unit of measurement for the Tan function to degrees!
- $\tan(\text{angle of inclination}) \times \text{your distance from the tree} = H$ - the height of your tree!

Carbon Sequestration Calculations _____

We calculate the amount of carbon stored, or sequestered, through the following calculations using the data you gathered!

- Calculate the green weight (full of moisture) of the tree using its diameter and height.
 - $\text{Green Weight (GW)} = .0577 \times D^2 \times H$: _____
- Divide this in half to estimate the Dry Weight - weight of the wood after all moisture extracted.
 - $DW = GW / 2$ _____
- Divide this again in half to get your Carbon value in Kilograms. This is how much carbon is stored in your tree!
 - $\text{Carbon} = DW / 2$ _____