

DIY Tree Inventory

Objective: An inventory of current trees on the schoolyard, nearby boulevard, churchyard or park. The teacher chooses three trees per team and assigns numbers to the trees.

1. Measurement of TREE Diameter TEAM TASK

In the classroom, make your measuring equipment: each team will need a yogurt cup, a 3m piece of string, 3 different coloured markers, duct tape, and scissors.

1. Measure out and cut off 3 metres of string.
2. Make a hole in the side of a yogurt cup.
3. Put one end of the string through the hole.
4. Tie a knot near this string end and pull the knot tight against the inside of the cup.
5. Tape the loose end down inside the cup with duct tape.



6. Tie a big knot near the other end of the string. This knot will be the “zero” mark.
7. Make a duct tape “shoe lace end” at this end of the string so it doesn’t fray.



8. Use a meter stick and duct tape to make a tab to mark the string at 1.3m (130cm) to take the DBH at standard height. Mark the duct tape tab **1.3m**.



9. Wind the string around the yogurt cup to carry into the field.



In the field:

For each tree you have been assigned:

- a) Put the knot (“0”) at the root collar of the tree and stretch the string up along the bark to the duct tape tab (“1.3m”).
- b) Put one finger on the duct tape tab (“1.3m”) and have another person pick up the yogurt container and go around the tree at the 1.3m.
- c) Have another person check that the string is level.
- d) Use a coloured marker to mark the string where it meets the duct tape tab (at “1.3m”). You will have measured the circumference of the tree for later calculation of its diameter.
- e) Record the colour of the marker and tree number.
- f) Repeat for the diameter of each tree in your number set - use a **different coloured** marker for each tree.
- g) Check that your team has recorded the tree numbers and colours on the team data sheet for later reference work in the classroom.

Further Research Options:

Measure and map the distance between the trees and note North and scale on the team map.

2. Diameter Calculation TASK

In the classroom:

- a) Measure and record the circumference of each of your trees
- b) Use the following equation to change your tree circumference to a diameter:

$$d = C/\pi$$

Where d = diameter, C = circumference, pi = 3.14

E.g. if your tree measures 2.6 meters around, it has a circumference of 2.6m or 260cm.

$$d = 260\text{cm}/3.14 = 82.8\text{cm}$$

3. Carbon Calculator TASK

- a) Enter the diameter measured for each tree into the Carbon Calculator on the ACER homepage (www.acer-acre.ca) to calculate the amount of carbon stored above ground.
- b) Check out how this formula is possible.
(<https://apps-scf-cfs.rncan.gc.ca/calc/en/biomass-calculator>)
- c) Compare the weight for each tree to something else –e.g. you, a car

Further Research Options:

- d) Label a diagram of a cross-section of a tree. Draw and label a tree cookie.
- e) Where is the carbon stored?
- f) Check the parts of the “tree cookie” diagram – which layers transport water? Food?
- g) Find the special single cell layer that creates new cells so the tree grows in diameter.

May 2, 2016