

CARBON CAPTURE TREE MEASUREMENT SURVEY

Trees take in carbon dioxide through photosynthesis, thus playing a vital role in our battle against climate change. A rapid rise in the levels of carbon dioxide (CO₂) in the atmosphere, as a result of human activity, is threatening our planet and having huge impacts on the environment. Tiny Forests hold potential to capture and store carbon. We can monitor this by measuring tree growth rate, through looking at tree height and diameter.



EQUIPMENT PER GROUP:

- 1 x Tape measure
- 1 x Digital callipers
- 1 x Wooden cane marked at 10cm and 130cm
- 1 x Tree species ID guide
- 1 x Tiny Forest tree species list
- 1 x Tablet/phone/printed field sheet



WHEN TO SURVEY

- Any time of day
- Any time of year

INSTRUCTIONS

Find a tree that has a monitoring tag placed around the tree trunk. You might need to search carefully, low down the tree trunk in the mulch.

STEP 1:

The tag will have a number between 1 and 100 on it. Record this number on your tablet, phone or field sheet. Then, look at the tree species which has been assigned to this tag number.



If you are using a tablet or phone, this should be filled automatically. If you are using a paper form, check the tree species list for your Tiny Forest, which will show which species have which tag numbers. Decide where your selected tree is located and record the location on your tablet, phone or field sheet (if your tree is within 2m of the Tiny Forest edge [including paths or classroom area] then answer EDGE, otherwise it is MIDDLE).

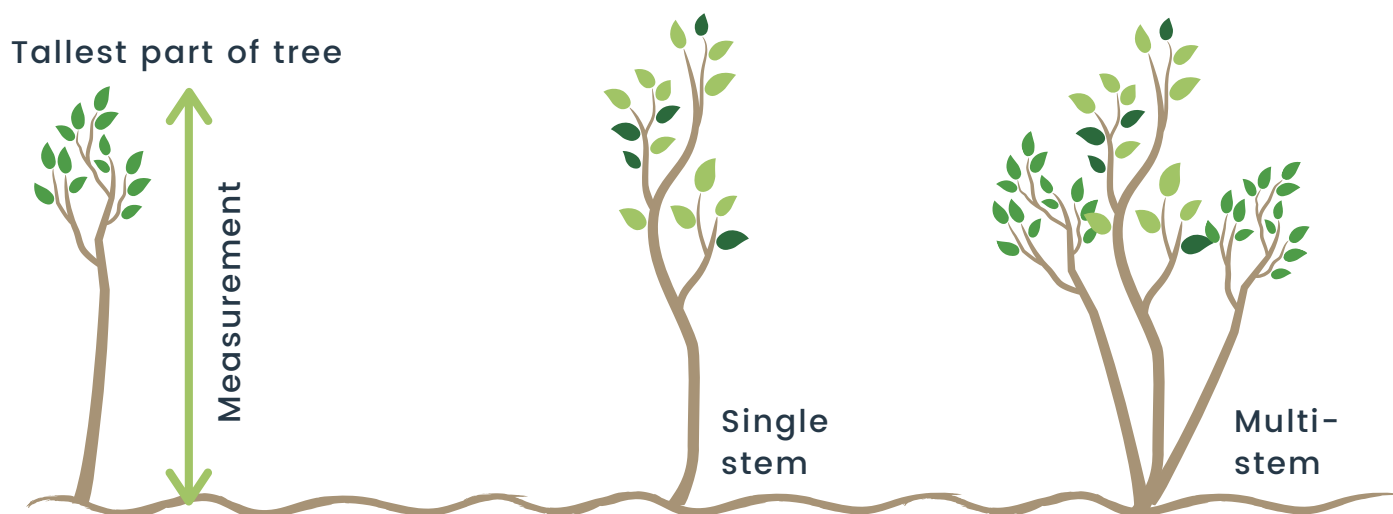
Using the Tree species ID guide, see if you can tell whether the tree that you are looking at has the correct species name. If you think it is correct, or you are not sure, then you can leave this question blank and move on. If you think the tree has the wrong species name, then please enter the correct species on your tablet, phone or field sheet.

Then assess whether your selected tree is dead. To do this, check if there are new shoots or leaves. If there isn't any obvious new growth then carefully scrape a tiny bit of bark with your fingernail. If it is green beneath the surface then the tree is alive, even if there are no leaves or shoots. If not, it is possibly dead - in that case record this on your tablet, phone or field sheet and do not continue measuring this tree. Instead find another tagged tree and begin the instructions from the beginning of step 1.

STEP 2:

Measure the height of your tree using the tape measure. Stand back from the tree and identify the tallest part of the tree (this might not be the central stem/trunk). You will need to move the mulch out of the way to reach the soil. Please replace this after measuring.

Measure only to the top of the tallest alive part of the tree and do not include any part of the tree that appears dead. Record the height of your tree in cm (to 1 decimal place) on your tablet, phone or field sheet. See the diagram below for an example of how the measurement is done. Take the height measurement from the tip of the tallest point straight down to the soil.





STEP 3:

Decide whether your selected tree has multiple stems or not. A stem is the main body or stalk of the plant. In some cases, there may be multiple stems all rising out of the soil from the base of the plant in a generally vertical direction. Record how many stems there are on your tablet, phone or field sheet. See the diagram above for an example.

STEP 4:

Measure the diameter of the stem. This is the thickness of the stem, at 10cm from the base of the tree. There are canes marked at 10cm and 130cm, which you can use to help you find where you should measure.

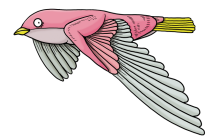
Turn the callipers on by pressing the "ON/OFF" button, making sure they are set to the correct unit (mm) and place the tree stem between the large jaws. Carefully close the jaws until there is firm contact between the jaws and the stem and read the measurement from the display screen. Record this on your tablet, phone or field sheet.



If the stem diameter of your selected tree was more than 100mm, you should measure the stem diameter again, but this time at 130cm from the base of the tree. Again, you can use the marked cane to help you find where this is. Measure and record the diameter of the stem in mm, either on your tablet, phone or in the table on your field sheet.



If your tree is multi-stemmed, you should repeat the above for all of the stems. When you have measured the diameter for all of the stems on your study tree, you can begin the steps again with a new tagged tree.



DID YOU KNOW?

The largest tree in the world is General Sherman, a Giant Sequoia that measures 24 metres in diameter – that's about the same as the length of two double decker buses!