

Trees on Newington Green

In this trail we are going to focus on the plant life on Newington Green. Why? Because Islington has the smallest amount of green space of any borough in the country so it's important we look after it.

Work in pairs/groups with trail and clipboard/squared paper each. Tree sections, calculators, metre rules, tape measures, 30m tape measures, 1cm² paper available in TGC hut

Newington Green has been a place for people to enjoy themselves ever since King Henry VIII used to come here in 1530 to hunt deer, wild boar and bulls. In those days it was a clearing in the forest. Nowadays it's a busy roundabout but the trees and plants are still an important part of the Green.

CHALLENGE 1: Newington Green is surrounded by plane trees on all sides. How many plane trees are inside or just outside the Green?

CHALLENGE 2: We know these trees were planted around 1892 so how old are they this year?

If we didn't know when they were planted there is a way to find out but it involves chopping the tree down! Have a look at the tree sections on the bench outside the TGC hut. Can you count the rings?

A tree grows a new layer of bark every year so one ring is about the same as one year. Why might some rings be bigger than others?

But what happens if you want to know the age of a living tree? By measuring around the tree and carrying out a simple calculation you can make a very rough estimate about how old a living tree is.

Start with a silver birch tree in the middle of the Green. With the help of a friend, use a cm tape measure to measure the circumference of the tree trunk at a height of around 1 metre. Try to avoid any lumps on the trunk surface.

Now divide the circumference in centimetres by 2.5. (You can borrow a calculator from the TGC hut if you need to)

You should now have an approximate age of your tree!

Does your answer seem reasonable?

If you found this easy, measure a plane tree and see if you can find its age.

Why do you think it is important to preserve old trees? .

CHALLENGE 3: Here's another problem. If a tree is diseased it may need to be felled, or taken down. The tree surgeon needs to know how tall it is to plan to take it down safely, without damaging buildings, cars or people. You can do an estimate of tree height by imagining lots of metre rulers on top of each other. Try this on one of the silver birch trees.

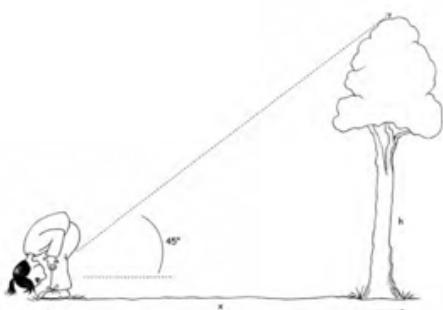
Does your answer seem reasonable?

There's a more accurate way of measuring the height of the tree which involves trigonometry, which is all to do with angles. You need to be pretty fit to try this. You also need to be OK about looking silly!

Think about the right angled isosceles triangle: it has one right angle, two other angles which are always 45° and two equal sides. This information is what we need to find the height of the tree.

Stand at the base of a silver birch tree and walk away from it into an open space but at regular intervals bend forward and look through your legs back to the tree. Stop when you are at a point where you can just see the top of the tree. Get a friend to measure the distance along the ground from the tree to you, using a 30m tape measure. This is equal to the tree's height:

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Can you mark on the sketch where the right angle is?

If it was easy to find the height of a silver birch can you try the same method to find the height of a plane tree? You might need more than two people to do this.

Can you estimate which is the tallest tree on the Green?

Plane trees are good trees to plant on a busy traffic roundabout like Newington Green because the bark flakes off, and in doing so, sheds pollutants that may interfere with air reaching the trunk.

CHALLENGE 4: Find a holly bush. There are several on Newington Green including one just outside the TGC hut.
The leaves look like this:



Do the holly leaves all have the same number of prickles?

What is the largest number of prickles you can find on one leaf?

What is the smallest number of prickles on one leaf

Can you calculate an average for one twig like the photo above?

CHALLENGE: would you expect more leaves to have an even or an odd number of prickles?

Check to see if your guess is correct. Can you explain?

Are the leaves higher up on the bush different to leaves lower down?

Can you explain that? (Here's a clue animals!)

Have a look at other holly bushes around the Green. Are they the same?

CHALLENGE 5: Look at some other leaves on trees or bushes. Do they have any lines of symmetry? Can you find any leaves that are symmetrical? Is the symmetry precise or approximate? Draw a leaf that is symmetrical. You could ask your teacher or the TGC volunteer if they know the name of the plant.

CHALLENGE 6: Look at the plants around the Green. Can you spot the plant which has the biggest leaves? Draw the leaf and estimate its area in cm^2 .

Now choose a leaf from the basket on the TGC bench and place it on 1cm^2 paper and draw round it. You need to add up all the squares to find the area of the surface of the leaf. Remember to include all the $\frac{1}{2}$ and $\frac{1}{4}$ squares and use your multiplication skills to save yourself time. Compare your answers to see who found the biggest leaf and the smallest leaf.

LOOKING AFTER NEWINGTON GREEN

We all need to make sure we look after Newington Green so everyone can enjoy it. What can YOU do to help take care of Newington Green?

Can you pick up one piece of litter and put it in the bin before you go back to school?