



Maths
Age 9-11

How to measure a tree

• Measurements



● Overview

Involving measuring a tree by looking through your legs, this maths activity is a practical way to encourage estimation, accurate measurements, and lead into real data analysis.

● Previous learning required

- How to estimate heights and the concept of tallest/shortest etc.
- How to use a measuring tape or trundle wheel to measure distances in m/cm.

● Learning outcomes

- To accurately use measuring devices to calculate distance
- To use reasoning skills to check reliability of measurements

● Resources

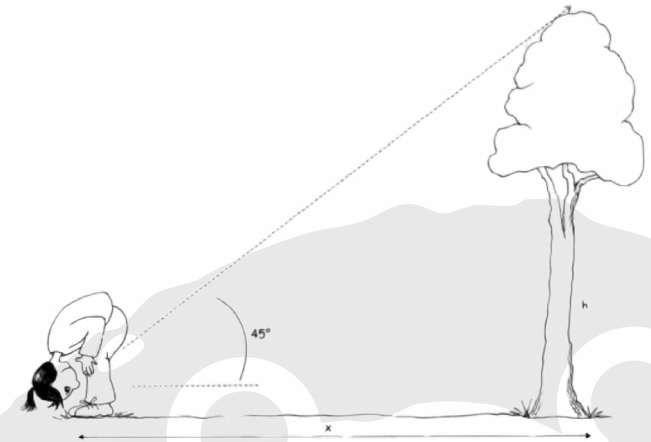
- Trees of various heights
- Long tape measures or trundle wheels

● Activity

1. Ask pupils to pick a tree they want to measure and firstly estimate its height.
2. Pupils should stand with their backs to the tree and start to walk away from it.
3. At regular intervals, they must lean forwards and look backwards through their legs.
4. Ask them to stop when they find the spot where they can just see the very top of the tree. (If there is sky, they have gone too far!)
5. The distance from that point back to the trunk is the same as the tree's height.

● Check for understanding

- This method works because you are creating a right-angled triangle which has two equal length sides – as long as you create a 45 degree angle! Use a clinometer to make sure a 45 degree angle is being created from the pupil to the top of the tree.
- Compare the tree heights calculated to that of a known object and use reasoning to test it e.g. does the height make sense? If the pupils are approx. 1.5m, is the tree 5 times as tall?
- Practise the technique by testing it on something we know the height of already, e.g. football goal, school building etc. Pupils can refine the method with known heights.



Learning
through
Landscapes

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