

## How to measure the height of your school (or any tall tree)

This is a great Maths project for primary school aged children. Complete it on or before Number Day. Share your pictures and videos with us.



"GOOD LUCK"  
JOHNNY BALL

### You'll need:

- Something big to measure
- A stick that's over a metre tall
- A tape measure
- A sunny day

### How it works:

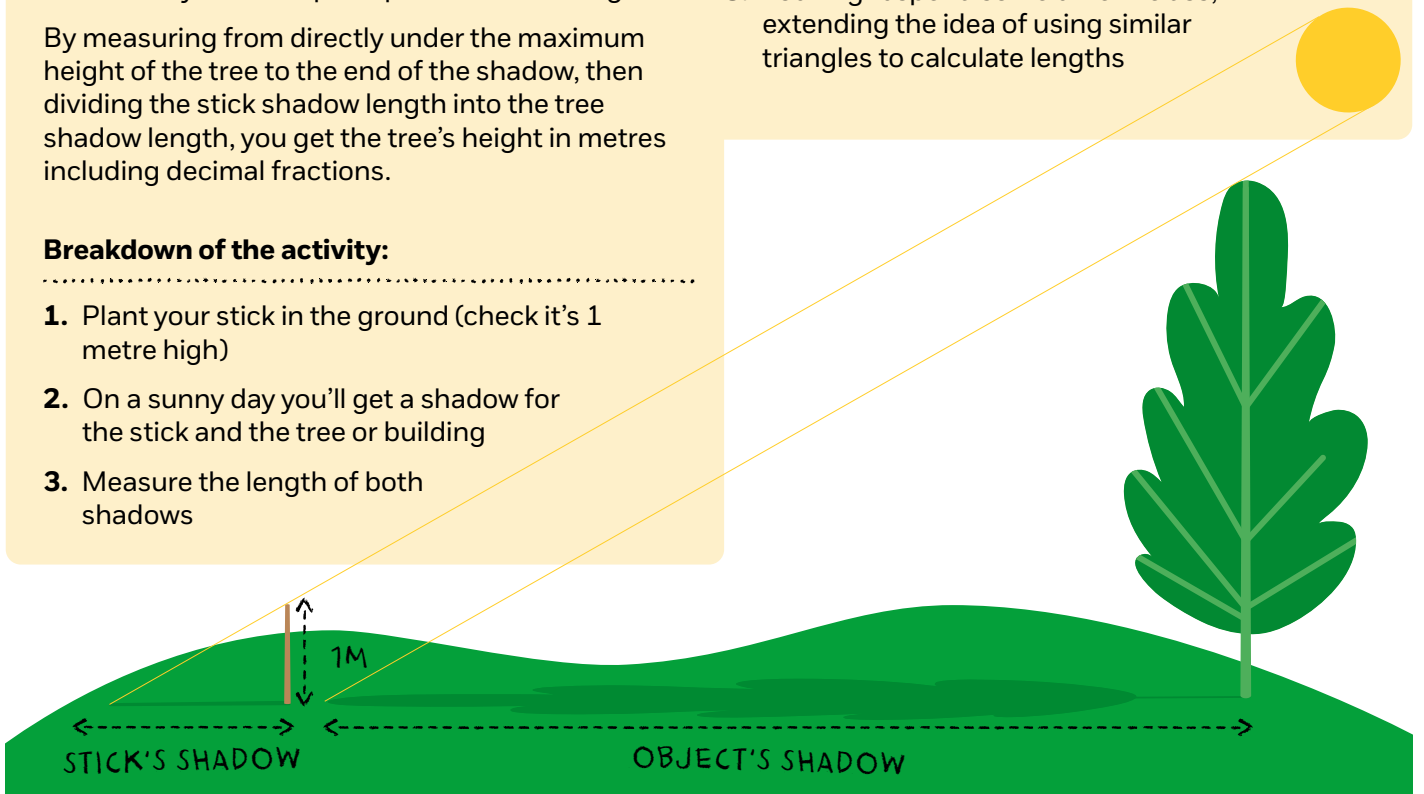
This activity uses the principle of similar triangles.

By measuring from directly under the maximum height of the tree to the end of the shadow, then dividing the stick shadow length into the tree shadow length, you get the tree's height in metres including decimal fractions.

### Breakdown of the activity:

1. Plant your stick in the ground (check it's 1 metre high)
2. On a sunny day you'll get a shadow for the stick and the tree or building
3. Measure the length of both shadows

4. Be careful to measure the tree shadow from right under the highest point, to the end of the shadow
5. Divide the stick shadows length into the building or tree shadow length
6. You'll have a measurement of the height of the tree or building, in metres and fractions of metres
7. If you repeat the exercise a month later, the sun will be at a different angle, but the result should still be exactly the same
8. You might spend some time in class, extending the idea of using similar triangles to calculate lengths



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