



GOODLEAF
TREE CLIMBING

KS3 Mathematics

Geometry

Trigonometree!

NAME: _____

108031

ON-SITE ACTIVITY

Trigonometree!

Estimating the height of a tree

- ▶ WORK IN PAIRS
- ▶ Choose a tree near to the Goodleaf climbing tree
- ▶ Choose one or two of these methods to work out the height of a tree!

STUDENT INTRODUCTION

- ✓ This resource applies simple trigonometry to estimate the height of a tree
- ✓ Record your answers on page 3
- ✗ For safety reasons, do not use the Goodleaf tree for these exercises

✓ First of all, choose a tree!

✓ Walk away from the tree in the direction where the ground

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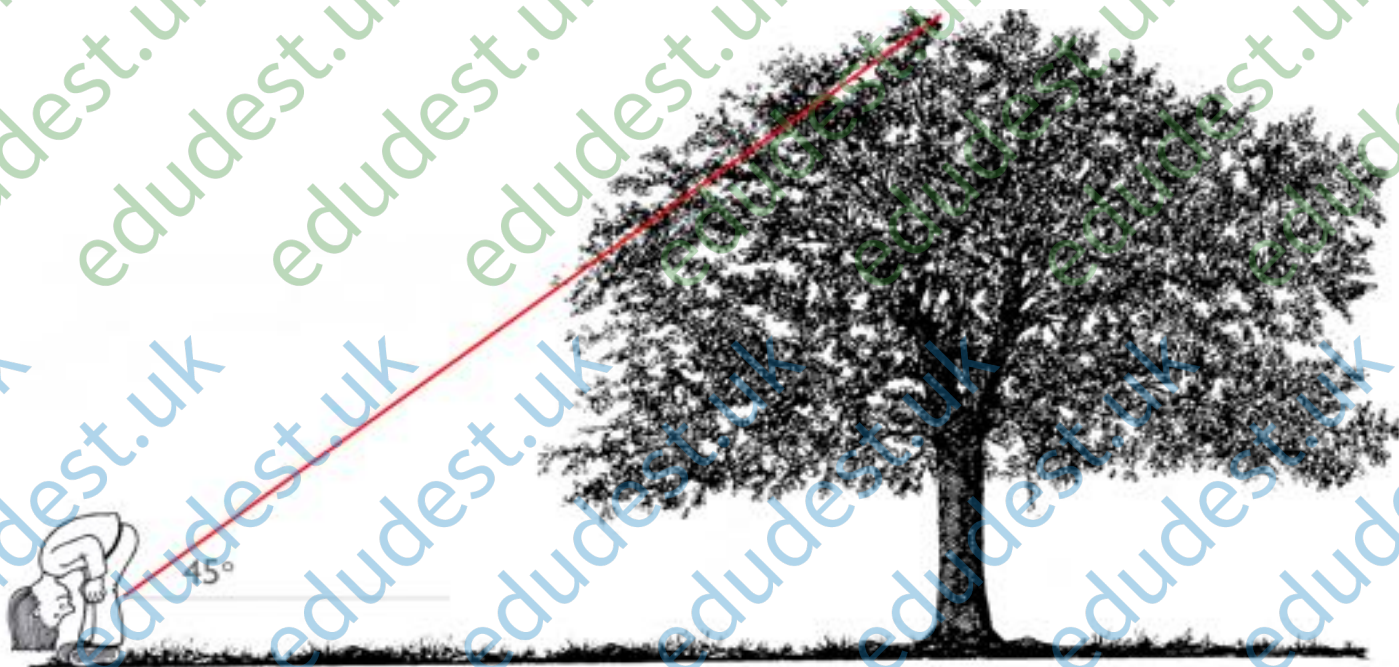
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✓ This is roughly the same as the tree's height!

✓ Now your partner can try.

✓ Take the average and record your findings.



Can you explain why this works?

Did you have any problems with this method?

METHOD 2

The “Stick Trick”

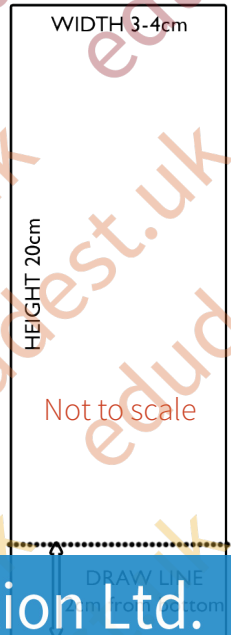
The “Stick Trick” is used by lumberjacks (people who cut down trees for a living) to work out where the trees will fall.

You can use a simple version of the “Stick Trick” which should be easier for first-timers.

First you will need to prepare a card to help you.

You may already have done this in school, but if not, you will need 4 things: a piece of A4 card, a ruler, scissors, and a pen or pencil.

- ✓ Cut a strip of card exactly **20cm tall** and 3-4 cm wide. Measure **2cm from the bottom** and draw a horizontal line across the width of the card.
- ✓ You’re now ready to use your new “Ratio Stick”!
- ✓ Ask your partner to stand by the tree.



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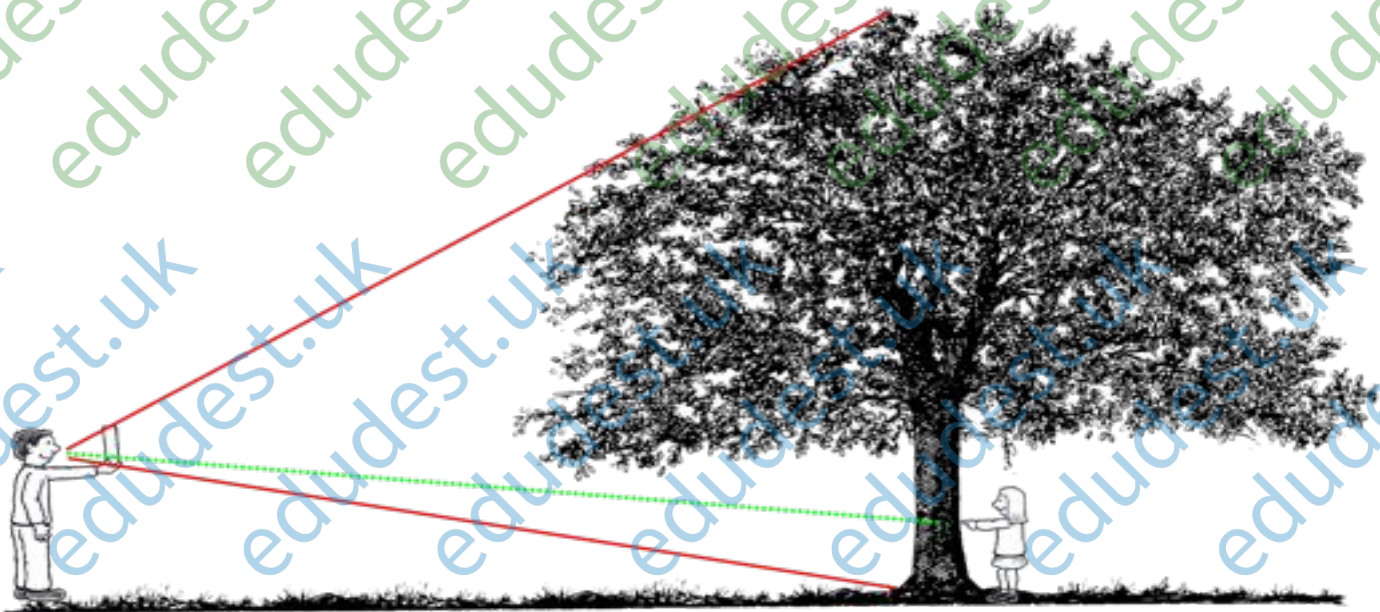
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return to the tree!

- ✓ Measure the distance from your partner’s hand to the ground.
- ✓ Multiply this measurement by 10 to work out the height of the tree!
- ✓ Swap places and do the experiment again to see if you both get the same answer! Note down your average answer.



Can you work out why this method works?

YOUR RESULTS

Method	Tree Height Estimate (metres)
Method One - Simple Trigonometry	
Method Two - The "Stick Trick"	



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If you have time, why not try measuring another tree nearby?

