

TEACHER NOTES

Tree Trigonometree!

Measuring the Height of a Tree



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Destination

GOODLEAF
TREE CLIMBING

Contextual Summary

This is a Mathematics/Geometry resource that enables students to practise various methods to find the height of a tree. They will practise their skills of estimation, measuring and basic trigonometry (right angled triangles), as well as having to work together in pairs or teams.

These skills are a core part of the learning requirement for this subject as defined in the National Curriculum for key stage 3 and, in Scotland, the Curriculum for Excellence for S1-S3.

Task Implementation

The sky is the limit for this resource. Before the visit to Goodleaf Tree Climbing, to ensure students are able to engage themselves with the materials described in the resource worksheet, they would benefit from making their "data cards" and "inclinometer" before their visit, so these a

SUBJECT

Mathematics

UNIT

Geometry

OPPORTUNITIES FOR USE

- Pre-Visit
- On-Site Activity
- Post-Visit



20-40 mins

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This resource is intended as an on-site activity that students undertake whilst waiting for their turn at climbing the tree (groups rotate so there there will be some waiting time to fill) or during post-climb time.

Ability Levels

There are three versions of this resource, adapted for low, medium, and high ability students in key stage 3. These versions vary in terms of the complexity of instruction and language used and the number of method approaches required of students.

Teachers of students in upper key stage 2 could use the resource for stretch and challenge. Use of the resources could be adapted further by teachers if required, i.e. for SEN. For example, students could be tasked with answering fewer questions, or perhaps work in teams to find the answers.

Key skills practised in this unit:

- ▶ Basic trigonometry (right angled triangles)
- ▶ Measuring
- ▶ Estimation
- ▶ Recording data
- ▶ Comparing data
- ▶ Working with others to solve problems

Relationship to Curriculum

The above skills are required to be taught and practised as per the Scottish Curriculum for Excellence and the 2014 National Curriculum, for MATHEMATICS/GEOMETRY at key stage 3.



S1 - S3

CURRICULUM / SYLLABUS

- National Curriculum 2014
- Curriculum for Excellence

Applies to Resource Numbers:

| | | | | | |
|---|---|---|---|---|---|
| 1 | 0 | 8 | 0 | 3 | 1 |
| 1 | 0 | 8 | 0 | 3 | 2 |
| 1 | 0 | 8 | 0 | 3 | 3 |

Learning Opportunities

Pre-Visit

The skills should be taught and practised in class prior to the trip so students are aware of the techniques and skills they need to utilise.

During the Visit

Completion of the Mathematics resource/s linked to this document:

Tree Trigonometree!

Resource ID: **108031** (KS3 low ability)

Resource ID: **108032** (KS3 medium ability)

Resource ID: **108033** (KS3 high ability)

Post Visit

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- ✓ Opportunities exist for the student to practise using various estimation, measuring, trigonometry skills in a more stimulating, real-life situation.
- ✓ They will record and compare data and work together to solve problems.

Learning Outcomes

- ✓ Students will be able to measure the height of trees by demonstrating, practising and consolidating various maths skills.
- ✓ They will apply these previously learned skills and techniques to specific tasks using specific methods.

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