**Geometry 4** **Year 10 Foundation**

**Key Knowledge/Prior Learning KS2/3 and Retrieval and Suggested Starters**

- Angles in a triangle.
- Pythagoras theorem & it's application in right angled triangles.

**Retrieval and Suggested Starters**

- Practising the fluency of the above skills.
- Interleaving & problem-solving questions involving the above topics.

**KS4 National Curriculum – what students will be practicing**

- Know the Trigonometric ratios of sin, cos, tan.
- Be able to calculate a missing side in a right-angled triangle when given a side and an angle.
- Be able to calculate a missing angle in a right-angled triangle given two sides.

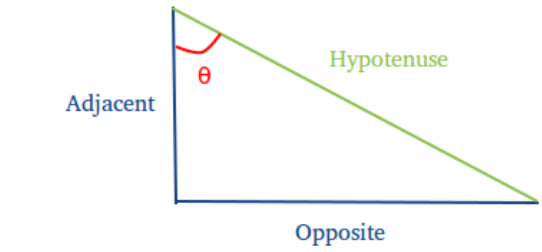
**Specific Ambitious Knowledge**

- Solve problems where two calculations are needed and where trigonometry is combined with Pythagoras.
- Know exact values for sin/cos of 0,30,45,60,90 degree angles.
- Know exact values of tan for 0, 30, 45 and 60 degree angles.

**Key Vocabulary/Literacy Opportunities**

- Trigonometry
- Sin
- Cos
- Tan
- Opposite
- Adjacent
- Hypotenuse
- Angle

**Key Formulae/Knowledge:**




S OH C AH T OA

$\text{Sine}(\theta) = \frac{\text{opp}}{\text{hyp}}$ $\text{Cosine}(\theta) = \frac{\text{adj}}{\text{hyp}}$ $\text{Tangent}(\theta) = \frac{\text{opp}}{\text{adj}}$

| | sin | cos | tan |
|---|---|---|---|
| 0° | 0 | 1 | 0 |
| 30° | $\frac{1}{2}$ | $\frac{\sqrt{3}}{2}$ | $\frac{1}{\sqrt{3}}$ |
| 45° | $\frac{1}{\sqrt{2}}$ | $\frac{1}{\sqrt{2}}$ | 1 |
| 60° | $\frac{\sqrt{3}}{2}$ | $\frac{1}{2}$ | $\sqrt{3}$ |
| 90° | 1 | 0 | NOT DEFINED |

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| **Cross Curricular Links** |
|---|
| • Links to other areas of the maths curriculum such as algebra, Pythagoras.<br>• |

| **Student' Thinking** |
|---|
| • Can you show how to find those exact values?<br>• Why is it useful to know these exact values?<br>• Can you apply these to a 3d situation?<br>• Why can you not have tan 90? |

| **Projects/Enrichment/Investigations** |
|---|

| | | |
|---|---|---|
| Compare Areas | Semi-detached | Ladder and Cube |
| Inscribed in a Circle | Far Horizon | |
| | The Spider and the Fly | |
| | Where to Land | |

(Some of these will combine Pythagoras)