Guidance for tutors

<table>
<tr><td>Outcome</td><td>SLAV1</td><td>Student can consistently:</td><td>Find the area of simple shapes including triangle, parallelogram and trapezium.</td></tr>
<tr><td>How the topic is examined</td><td colspan="3">

Examined through test paper questions.
Questions are equally likely to appear on calculator and non-calculator papers.
It is rare for a question to test this topic directly with the exception of a trapezium. It is more likely that these shapes will appear within a compound shape or Pythagoras' Theorem.
Students should be expected to know the formulae for all these shapes, they will not be told them in the examination.
Questions could have integer, fractional, decimal and surd valued sides.

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<tr><td>Prior knowledge</td><td colspan="3">

Students should be confident:

Multiplying and dividing without a calculator.
Finding the area of a square and rectangle.

In addition questions involving this topic can have links to:

Pythagoras and trigonometry (SPT1-4)
Area of a compound shape (SLAV3)

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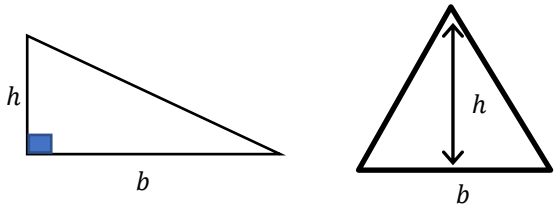
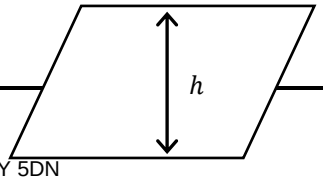
<tr><td>Suggested tuition approaches</td><td colspan="3">
<table>
<tr><th>Shape</th><th>Notes</th></tr>
<tr><td> 
</td><td>$Area = \frac{1}{2} \times base \times vertical\ height$ or $A = \frac{1}{2}bh$ or
$Area = \frac{base \times vertical\ height}{2} = \frac{bh}{2}$
It may be necessary to find the vertical height using Pythagoras' theorem.</td></tr>
<tr><td> 
</td><td>$Area = length \times vertical\ height$ or $A = lh$</td></tr>
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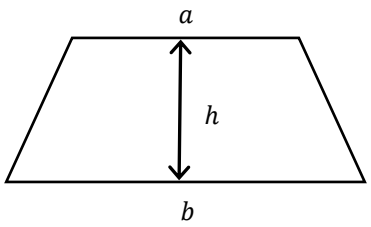
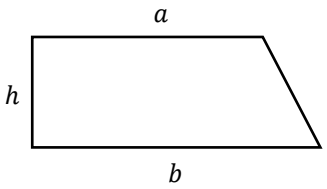
<tr><td> 


</td><td>$Area = \frac{1}{2} \times vertical\ height \times (sum\ of\ lengths\ of\ parallel\ sides)$
Or $Area = \frac{1}{2} \times h \times (a + b)$
Or $Area = \frac{h(a+b)}{2}$
Although students could split it up into rectangles and triangles and find the area of the separate shapes, it is better to use the formulae above.</td></tr>
</table>

Students should know and be able to apply all of these formulae.
Note that in each formula it is the vertical height that is used.
Students should ensure that all the units are the same, if not they will need to convert one to the other.
Show all working and ensure that squared units are on the answer.

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<tr><td>Common errors and misconceptions</td><td>

Students use the sloped lengths sometimes as opposed to the vertical height.
When you have a triangle you must divide by 2 – many forget to do this.
If units are not the same, students need to convert one to the other.
Errors are made when working out the area of shapes without a calculator.
One mark is given for ‘stating the units’ of an answer – many students lose the mark because they forget to or state the wrong units.

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<tr><td>Suggested resources</td><td>

Video tutorial

http://corbettmaths.com/2013/12/21/area-of-a-parallelogram-video-44/ (parallelogram)

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	○ http://corbettmaths.com/2012/08/02/area-of-a-trapezium-video/ (trapezium) ○ http://corbettmaths.com/2013/12/20/area-of-a-triangle-video-49/ (triangle) • Questions ○ http://www.cimt.org.uk/projects/mepres/allgcse/bkb7.pdf (pp 24 – 31) ○ https://corbettmaths.files.wordpress.com/2013/02/area-of-a-parallelogram-pdf.pdf ○ https://corbettmaths.files.wordpress.com/2013/02/area-of-a-trapezium.pdf ○ https://corbettmaths.files.wordpress.com/2013/02/area-of-a-triangle-exercise-49.pdf ○ https://corbettmaths.files.wordpress.com/2013/02/area-of-a-triangle-pdf.pdf • Past GCSE Questions ○ https://keshgcsemaths.files.wordpress.com/2013/11/37_area-of-compound-shapes2.pdf