

**MODULE 1 Basic Number Review**

**TIME ALLOCATION:** 5 sessions

What students already know	Fluency in Literacy
<ul style="list-style-type: none"> <li>▪ Order positive and negative numbers, including the use of a number line.</li> <li>▪ Use of mathematical operations, including inequalities</li> </ul>	<p><b>Inverse, sum, difference, quotient, product</b> are all commonly used to represent operations tested in paper 1, use frequently and interchangeably.</p>
LEARNING OBJECTIVES	RESOURCES/ACTIVITIES/ICT
<p><b>Progression through module</b></p> <p>Apply the four operations, including formal written methods, to integers – both positive and negative</p> <p>Understand and use place value (e.g. when working with very large or very small numbers, and when calculating with decimals</p> <p>Recognise and use relationships between operations including inverse operations (e.g. cancellation to simplify calculations and expressions)</p> <p>Estimate answers and check calculations using approximation and estimation, including answers obtained using technology</p> <p>Use the concepts and vocabulary of prime numbers, factors (divisors), multiples, common factors, common multiples, highest common factor, lowest common multiple, prime factorisation, including using product notation, and the unique factorisation theorem</p> <p>Apply systematic listing strategies and the use of the product rule for counting</p>	<p><b>ICT:</b>  <a href="http://www.mymaths.co.uk">www.mymaths.co.uk</a> for homework activity or revision (Login 'newman' / Password 'divide')</p> <p><a href="http://mathsapp.pixl.org.uk/PMA.swf">http://mathsapp.pixl.org.uk/PMA.swf</a> for examination therapy videos (School Login NW2847 / Login &amp; Password – surname followed by initial)</p> <p><b>MathsWatch clips:</b> 1,2,3,17,18,19,20,21,22,23,28,30,31,32,79,80,84</p> <p><b>RESOURCES:</b>  <b>Higher AQA Mathematics for GCSE AQA</b>                      Chapter 1</p> <p><b>Recommended resources</b>  <a href="http://map.mathshell.org/lessons.php?collection=8&amp;unit=7315">http://map.mathshell.org/lessons.php?collection=8&amp;unit=7315</a>  <a href="https://www.mathsisfun.com/metric-numbers.html">https://www.mathsisfun.com/metric-numbers.html</a>  <a href="http://www.mathsisfun.com/number-line.html">http://www.mathsisfun.com/number-line.html</a>  <a href="http://nrich.maths.org/5864">http://nrich.maths.org/5864</a>  <a href="http://nrich.maths.org/5947">http://nrich.maths.org/5947</a>  <a href="http://www.hbmeyer.de/eratosiv.htm">http://www.hbmeyer.de/eratosiv.htm</a>  <a href="http://www.transum.org/Software/SW/Starter_of_the_day/starter_January28.ASP">http://www.transum.org/Software/SW/Starter_of_the_day/starter_January28.ASP</a>  <a href="http://www.mathsisfun.com/prime-factorization.html">http://www.mathsisfun.com/prime-factorization.html</a>  <a href="http://www.transum.org/software/SW/Starter_of_the_day/Students/HCF_LCM.asp?Level=3">http://www.transum.org/software/SW/Starter_of_the_day/Students/HCF_LCM.asp?Level=3</a>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNLTFjVVRxWng5VmM/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNLTFjVVRxWng5VmM/view?usp=sharing</a></p>
<p><b>The more able should be challenged to...</b></p> <ul style="list-style-type: none"> <li>▪ Evaluate the results of estimates obtained, understanding when over estimates have been obtained or under estimates, and why.</li> <li>▪ Questions are set in context (knowledge of terms used in household finance, for example profit, loss, cost price, selling price, debit, credit and balance, income tax, VAT, interest rate)</li> <li>▪ Ensure fluency in prime factor decomposition including product of prime factors written in index form</li> <li>▪ Note- prime factor trees does not work all the time where you have three values included, so use Venn diagrams as a consistent approach to aid fluency in use of statistical diagrams at the same time.</li> <li>▪ Venn Diagrams to be introduced early in the course to allow familiarity when applying probability (including conditional) rules and ought to be included in planning here.</li> </ul>	<p><b>Recommended Curriculum resources</b>  <a href="#">Recommended curricular assessment materials</a></p>

**MODULE 2 Basic Angles Review**

**TIME ALLOCATION:** 3 sessions

What students already know	Fluency in Literacy
<ul style="list-style-type: none"> <li>Apply the four operations</li> <li>Accurately reading from scales</li> </ul>	<p>The use of the formal language of <b>co-interior</b>, <b>alternate and corresponding</b> measures of turn applies to parallel constructions. Ensure correct spelling of the commonly misused words such as <b>parallel and isosceles</b></p>
LEARNING OBJECTIVES	RESOURCES/ACTIVITIES/ICT
<p>Progression through module</p> <p>Use conventional terms and notations: points, lines, vertices, edges, planes, parallel lines, perpendicular lines, right angles, polygons, regular polygons and polygons with reflection and/or rotation symmetries.</p> <p>Use the standard conventions for labelling and referring to the sides and angles of triangles</p> <p>Draw diagrams from written descriptions</p> <p>Apply the properties of: angles at a point</p> <p>Angles around a point on a straight line vertically opposite angles</p> <p>Understand and use alternate and corresponding angles on parallel lines</p>	<p><b>ICT:</b></p> <p><a href="http://www.mymaths.co.uk">www.mymaths.co.uk</a> for homework activity or revision (Login 'newman'/ Password 'divide')</p> <p><a href="http://mathsapp.pixl.org.uk/PMA.swf">http://mathsapp.pixl.org.uk/PMA.swf</a> for examination therapy videos (School Login NW2847 / Login &amp; Password – surname followed by initial)</p> <p><b>MathsWatch clips:</b> 10, 46, 45, 121, 122, 123</p> <p><b>RESOURCES:</b> Higher AQA Mathematics for GCSE AQA Chapter 9 <b>Recommended resources</b></p> <p><a href="https://drive.google.com/file/d/0B0qT3H4nV3mNWTJtR2Fia3cxTuk/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNWTJtR2Fia3cxTuk/view?usp=sharing</a></p> <p><a href="https://drive.google.com/file/d/0B0qT3H4nV3mNWKf1amxzSG1VTzQ/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNWKf1amxzSG1VTzQ/view?usp=sharing</a></p> <p><a href="https://drive.google.com/file/d/0B0qT3H4nV3mNNUpleVo2MWRyTGM/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNNUpleVo2MWRyTGM/view?usp=sharing</a></p> <p><a href="https://drive.google.com/file/d/0B0qT3H4nV3mNS29RVnVfm2RjChC/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNS29RVnVfm2RjChC/view?usp=sharing</a></p> <p><a href="https://drive.google.com/file/d/0B0qT3H4nV3mNbE5iSk96ZegtQzQ/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNbE5iSk96ZegtQzQ/view?usp=sharing</a></p> <p><a href="https://drive.google.com/file/d/0B0qT3H4nV3mNR1BnaENJXzRtNUU/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNR1BnaENJXzRtNUU/view?usp=sharing</a></p> <p><a href="https://drive.google.com/file/d/0B0qT3H4nV3mNV2NveDNSX0xCMkE/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNV2NveDNSX0xCMkE/view?usp=sharing</a></p> <p><a href="https://drive.google.com/file/d/0B0qT3H4nV3mNd2cweEFaaVFkLU/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNd2cweEFaaVFkLU/view?usp=sharing</a></p> <p><a href="https://drive.google.com/file/d/0B0qT3H4nV3mNVmV3X0ZIY1BKsMs/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNVmV3X0ZIY1BKsMs/view?usp=sharing</a></p> <p><a href="https://drive.google.com/file/d/0B0qT3H4nV3mNX2tKRWVleXBrVmM/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNX2tKRWVleXBrVmM/view?usp=sharing</a></p> <p><a href="https://drive.google.com/file/d/0B0qT3H4nV3mNV3hcZTY4bzdMUTA/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNV3hcZTY4bzdMUTA/view?usp=sharing</a></p> <p><a href="https://drive.google.com/file/d/0B0qT3H4nV3mNV0FtSud4dnFHUm8/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNV0FtSud4dnFHUm8/view?usp=sharing</a></p> <p><a href="https://drive.google.com/file/d/0B0qT3H4nV3mNSUZUk1TnRYaXc/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNSUZUk1TnRYaXc/view?usp=sharing</a></p> <p><a href="https://drive.google.com/file/d/0B0qT3H4nV3mNMGp6eV9PZlwekk/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNMGp6eV9PZlwekk/view?usp=sharing</a></p>
<p><b>The More Able should be challenged to...</b></p> <ul style="list-style-type: none"> <li>Colloquial terms such as Z angles are not acceptable and should not be used. Reasoning must include for example , angle ABC is corresponding to angle DFG therefore they are equal, minimally acceptable answers are that you can annotate diagrams and link two angles by using key language such as corresponding, alternate and supplementary, and assume equality or the sum of 180 degrees.</li> <li>Be flexible with the use of algebraic notation in order to ensure they grasp a conceptual understanding of unknowns</li> <li>Co-interior angles can be explored</li> <li>Laying up to 3 questions on top of one another to break down complex problems into much simpler routines</li> <li>Use of algebraic unknowns to be common place instead of absolute values</li> </ul>	<p><b>Recommended Curriculum resources</b></p> <p><b>Recommended curricular assessment materials</b></p>

**MODULE 3 Scale Diagrams and Bearings**

**TIME ALLOCATION:** 5 sessions

What students already know	Fluency in Literacy
<ul style="list-style-type: none"> <li>▪ Can use standard units of measurement</li> <li>▪ Can read from a 360 degree protractor</li> <li>▪ Can understand ratio notation and unitary ratio</li> </ul>	<p><b>Scale factor, similarity, proportion, conversion and direct proportion</b> all share the commonality that they provide a scalar product to enlarge or reduce an illustration in proportion. It is worthwhile allowing students to add to a word bank that allows them to understanding the underpinning theme of rates of change throughout the GCSE.</p>
LEARNING OBJECTIVES	RESOURCES/ACTIVITIES/ICT
<p><b>Progression through module</b></p> <p>Use scale factors, scale diagrams and maps</p> <p>Work with and convert standard units of measurement</p> <p>Measure line segments and angles in geometric figures, including interpreting maps and scale drawings and use of bearings</p>	<p><b>ICT:</b>  <a href="http://www.mymaths.co.uk">www.mymaths.co.uk</a> for homework activity or revision (Login 'newman'/ Password 'divide')</p> <p><a href="http://mathsapp.pixl.org.uk/PMA.swf">http://mathsapp.pixl.org.uk/PMA.swf</a> for examination therapy videos (School Login NW2847 / Login &amp; Password – surname followed by initial)</p> <p><b>MathsWatch clips:</b> 112, 113, 124, 148, 156</p>
<p><b>The more able should be challenged to...</b></p> <ul style="list-style-type: none"> <li>▪ Include the transposition from eight point compass points to three figure bearings and why we need them in Mathematics as opposed to Geography and cartographers.</li> <li>▪ Many bearings are placed within Cartesian graphs or parts of a global map. Ensure students are accustomed to using their measurement within context.</li> <li>▪ Be familiar with abstract multi layered bearing questions that approach questions much similar to module 2.</li> <li>▪ Be familiar with the use of the cosine rule for the most able.</li> </ul>	<p><b>RESOURCES:</b>  <b>Higher AQA Mathematics for GCSE AQA</b>            Chapter 22</p> <p><b>Recommended resources</b>  <a href="http://www.suffolkmaths.co.uk/pages/Maths%20Projects/Projects/Location/Bearings.ppt">http://www.suffolkmaths.co.uk/pages/Maths%20Projects/Projects/Location/Bearings.ppt</a>  <a href="http://www.transum.org/Software/SW/Starter_of_the_day/starter_May25.ASP">http://www.transum.org/Software/SW/Starter_of_the_day/starter_May25.ASP</a>  <a href="https://www.mangahigh.com/en-gb/math_games/shape/angles/bearings">https://www.mangahigh.com/en-gb/math_games/shape/angles/bearings</a>  <a href="http://www.transum.org/Software/SW/Starter_of_the_day/starter_April19.ASP">http://www.transum.org/Software/SW/Starter_of_the_day/starter_April19.ASP</a>  <a href="http://www.transum.org/software/Online_Exercise/ScaleDrawing/">http://www.transum.org/software/Online_Exercise/ScaleDrawing/</a>  <a href="http://www.cimt.plymouth.ac.uk/projects/mepres/book8/bk8_11.pdf">http://www.cimt.plymouth.ac.uk/projects/mepres/book8/bk8_11.pdf</a></p> <p><b>Recommended Curriculum resources</b></p> <p><b>Recommended curricular assessment materials</b></p>

## MODULE 4 Basic Algebra Review

TIME ALLOCATION: 5 sessions

What students already know	Fluency in Literacy
<ul style="list-style-type: none"> <li>▪ Order positive and negative numbers, including the use of a number line.</li> <li>▪ Use of mathematical operations, including inequalities</li> </ul>	The procedures to <b>simplify, solve and substitute</b> into <b>expressions, equations and formulae</b> .
LEARNING OBJECTIVES	RESOURCES/ACTIVITIES/ICT
<p>Progression through module</p> <ul style="list-style-type: none"> <li>• <math>ab</math> in place of <math>a \times b</math></li> </ul> <p>Use and interpret algebraic notation, including:</p> <ul style="list-style-type: none"> <li>• <math>3y</math> in place of <math>y + y + y</math> and <math>3 \times y</math></li> <li>• <math>a^2</math> in place of <math>a \times a</math>, <math>a^3</math> in place of <math>a \times a \times a</math>, <math>a^2b</math> in place of <math>a \times a \times b</math></li> <li>• <math>\frac{a}{b}</math> in place of <math>a \div b</math></li> </ul> <p>Coefficients written as fractions for factorised expressions</p> <p>Use conventional notation for priority of operations, including brackets, powers, roots and reciprocals</p> <p>Understand and use the concepts and vocabulary of expressions, equations, formulae, <u>identities</u>, inequalities, terms and factors</p> <p>Simplify and manipulate algebraic expressions (including those involving surds) by: collecting like terms multiplying a single term over a bracket and taking out common factors</p>	<p>ICT:</p> <p><a href="http://www.mymaths.co.uk">www.mymaths.co.uk</a> for homework activity or revision (Login 'newman'/ Password 'divide')</p> <p><a href="http://mathsapp.pixl.org.uk/PMA.swf">http://mathsapp.pixl.org.uk/PMA.swf</a> for examination therapy videos (School Login NW2847 / Login &amp; Password – surname followed by initial)</p> <p>MathsWatch clips: 7, 33, 34, 35, 36, 93, 94, 95</p>
<p><b>The more able should be challenged to...</b></p> <ul style="list-style-type: none"> <li>▪ It is expected that answers will be given in their simplest form without an explicit instruction to do so</li> <li>▪ Vocabulary will be implicitly and explicitly assessed by using multi-choice questions to understand the differences in literacy for identities, formulae, equations, terms, expression and factors.</li> <li>▪ Consider algebraic fractions early to embed key routines in terms of expanding to then cancel common terms.</li> <li>▪ Consider the binomial expansion identifying triangular numbers within coefficients.</li> <li>▪ Expanding 3 brackets should be as common as the expectation to multiply two brackets. Pay careful attention to the order of the polynomial as well as the constant when expanding <math>(a+b)^3</math></li> </ul>	<p><b>RESOURCES:</b></p> <p><b>Higher AQA Mathematics for GCSE AQA</b> Chapter 7</p> <p><b>Recommended resources</b></p> <p><a href="http://www.nationalstemcentre.org.uk/elibrary/resource/7383/algebra-makes-sense">http://www.nationalstemcentre.org.uk/elibrary/resource/7383/algebra-makes-sense</a>  <a href="http://www.emaths.co.uk/index.php?option=com_zoo&amp;task=item&amp;item_id=3576&amp;Itemid=509">http://www.emaths.co.uk/index.php?option=com_zoo&amp;task=item&amp;item_id=3576&amp;Itemid=509</a>  <a href="http://www.colmanweb.co.uk/maths/algebra/other.htm">http://www.colmanweb.co.uk/maths/algebra/other.htm</a>  <a href="https://www.tes.co.uk/teaching-resource/ks4-maths-revision-factorising-quiz-game-6096908">https://www.tes.co.uk/teaching-resource/ks4-maths-revision-factorising-quiz-game-6096908</a>  <a href="http://www.transum.org/Software/SW/Starter_of_the_day/Starter_October29.asp?Level=1">http://www.transum.org/Software/SW/Starter_of_the_day/Starter_October29.asp?Level=1</a>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNUU9LTGtYjV0Rkk/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNUU9LTGtYjV0Rkk/view?usp=sharing</a>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNcUhsCjZadVlFYzg/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNcUhsCjZadVlFYzg/view?usp=sharing</a></p> <p><b>Recommended Curriculum resources</b></p> <p><b>Recommended curricular assessment materials</b></p>

**MODULE 5 Fractions**

**TIME ALLOCATION:** 5 sessions

What students already know	Fluency in Literacy
<p>Ordering numbers including fractions and decimals.                      Converting mixed fraction to improper fractions and vice versa. Solving problems involving adding and subtraction of fractions. Be able to find the common denominator of common fractions such as <math>\frac{1}{2}</math> and <math>\frac{1}{3}</math>                      Calculate exactly amounts with fractions.                      Solve fractions in contextualised situations.</p>	<p><b>Mixed Fraction-</b> rational numbers in the form <math>N \frac{a}{b}</math>  <b>Improper Fraction</b> - rational numbers in the form <math>\frac{a}{b}</math> where <math>a &gt; b</math>  <b>Common denominator</b>, essentially used to sum or subtract between two fractional values.</p>
LEARNING OBJECTIVES	RESOURCES/ACTIVITIES/ICT
<p><b>Progression through module</b></p> <p>Order positive and negative fractions</p> <p>Apply the four operations, including formal written methods, to simple fractions (proper and improper) and mixed numbers - both positive and negative</p> <p>Calculate exactly with fractions</p>	<p><b>ICT:</b>  <a href="http://www.mymaths.co.uk">www.mymaths.co.uk</a> for homework activity or revision                      (Login 'newman'/ Password 'divide')</p> <p><a href="http://mathsapp.pixl.org.uk/PMA.swf">http://mathsapp.pixl.org.uk/PMA.swf</a> for examination therapy videos                      (School Login NW2847 / Login &amp; Password – surname followed by initial)</p> <p><b>MathsWatch clips:</b> 24, 25, 26, 27, 73, 74, 76, 85, 70</p>
<p><b>The more able should be challenged to...</b></p> <ul style="list-style-type: none"> <li>Apply spatial reasoning when considering how to add, subtract, multiply and divide, and relate the use of a reciprocal function to division to incorporate inverse operations.</li> <li>Always consider the use of exact solutions alongside working with percentages in context (such as best buys)</li> <li>Keep using algebraic fractions to embed further connections to use of variables within fractional questions.</li> </ul>	<p><b>Higher AQA Mathematics for GCSE AQA</b>                      Chapter 5  <b>Recommended resources</b>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNcWk0OHITcTfjRfK/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNcWk0OHITcTfjRfK/view?usp=sharing</a>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNWWQxV3RFMUJfU2c/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNWWQxV3RFMUJfU2c/view?usp=sharing</a>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNT3NJSUdQaG1SSVU/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNT3NJSUdQaG1SSVU/view?usp=sharing</a>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNU1hiMV9SOVhMZmc/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNU1hiMV9SOVhMZmc/view?usp=sharing</a>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNZzI5QVdBekhGczg/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNZzI5QVdBekhGczg/view?usp=sharing</a>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNOGVKRMjVY0c2Mmc/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNOGVKRMjVY0c2Mmc/view?usp=sharing</a>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNNUHyTi13ZjBXUvK/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNNUHyTi13ZjBXUvK/view?usp=sharing</a>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNS1dFakNDZVZ1VDg/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNS1dFakNDZVZ1VDg/view?usp=sharing</a>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNRkdLSH4U002T3M/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNRkdLSH4U002T3M/view?usp=sharing</a>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNRHBHOEtVZnF0ckU/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNRHBHOEtVZnF0ckU/view?usp=sharing</a>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNVjRjU3NaS2hNbzA/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNVjRjU3NaS2hNbzA/view?usp=sharing</a>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNUWIEQ2hvcMvNslE/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNUWIEQ2hvcMvNslE/view?usp=sharing</a>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNTkNBvjGLUFjRWc/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNTkNBvjGLUFjRWc/view?usp=sharing</a>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNSUxKM3lVOVl3Ujg/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNSUxKM3lVOVl3Ujg/view?usp=sharing</a>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNV09mdGxHLTzPRUE/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNV09mdGxHLTzPRUE/view?usp=sharing</a>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNwK5JTFZ4dmhKROk/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNwK5JTFZ4dmhKROk/view?usp=sharing</a>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNVWZXBvHROTlBNk0/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNVWZXBvHROTlBNk0/view?usp=sharing</a>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNNVNVyVGlwcFpaMVU/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNNVNVyVGlwcFpaMVU/view?usp=sharing</a>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNeVNhLXBvThpKSUU/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNeVNhLXBvThpKSUU/view?usp=sharing</a>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNNIzR1BjeTFSZTg/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNNIzR1BjeTFSZTg/view?usp=sharing</a>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNN0xxZW5XS2o1MHM/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNN0xxZW5XS2o1MHM/view?usp=sharing</a>  <a href="http://nrich.maths.org/6564">http://nrich.maths.org/6564</a>  <a href="http://www.math-play.com/Fractions-Jeopardy/fractions-jeopardy.html">http://www.math-play.com/Fractions-Jeopardy/fractions-jeopardy.html</a>  <a href="http://www.math-drills.com/fractions.shtml">http://www.math-drills.com/fractions.shtml</a>  <a href="http://www.cimt.plymouth.ac.uk/projects/mepres/book9/bk9i4/bk9_4i3.html">http://www.cimt.plymouth.ac.uk/projects/mepres/book9/bk9i4/bk9_4i3.html</a></p> <p><b>Recommended Curriculum resources</b></p> <p><b>Recommended curricular assessment materials</b></p>

**MODULE 6 Basic Decimals Review**

**TIME ALLOCATION:** 5 sessions

What students already know	Fluency in Literacy
<ul style="list-style-type: none"> <li>▪ Understand place value</li> <li>▪ Compare decimals in order of size</li> <li>▪ Fractional equivalents of halves, quarters, eighths, twentieths and tenths.</li> </ul>	<p><b>Recurring</b> decimals which have an equivalent denominator with a prime factor of 3 or 7 or prime thereafter</p> <p><b>Terminating</b> decimals which have an equivalent denominator with a prime factor of 2 or 5</p>
LEARNING OBJECTIVES	RESOURCES/ACTIVITIES/ICT
<p><b>Progression through module</b></p> <p>Order positive and negative decimals</p> <p>Apply the four operations, including formal written methods, to decimals – both positive and negative</p> <p>Understand and use place value (e.g. when calculating with decimals)</p> <p>Work interchangeably with terminating decimals and their corresponding fractions (such as 3.5 and 7/2 or 0.375 and 3/8) including ordering</p> <p>Change recurring decimals into their corresponding fractions and vice versa</p>	<p><b>ICT:</b></p> <p><a href="http://www.mymaths.co.uk">www.mymaths.co.uk</a> for homework activity or revision (Login 'newman'/ Password 'divide')</p> <p><a href="http://mathsapp.pixl.org.uk/PMA.swf">http://mathsapp.pixl.org.uk/PMA.swf</a> for examination therapy videos (School Login NW2847 / Login &amp; Password – surname followed by initial)</p> <p><b>MathsWatch clips:</b> 177, 189, 132, 66, 65, 68, 77, 92, 32, 90, 92</p> <p><b>RESOURCES:</b></p> <p><b>Higher AQA Mathematics for GCSE AQA</b> Chapter 6</p> <p><b>Recommended resources</b></p> <p><a href="http://www.transum.org/software/SW/Starter_of_the_day/Students/Inequalities.asp?Level=4">http://www.transum.org/software/SW/Starter_of_the_day/Students/Inequalities.asp?Level=4</a></p> <p><a href="http://www.transum.org/Software/SW/Starter_of_the_day/starter_January3.ASP">http://www.transum.org/Software/SW/Starter_of_the_day/starter_January3.ASP</a></p> <p><a href="https://www.mathsisfun.com/numbers/ordering-game.php">https://www.mathsisfun.com/numbers/ordering-game.php</a></p> <p><a href="http://www.transum.org/software/SW/Starter_of_the_day/Students/Recurring.asp">http://www.transum.org/software/SW/Starter_of_the_day/Students/Recurring.asp</a></p> <p><a href="http://nrich.maths.org/10326">http://nrich.maths.org/10326</a></p> <p><a href="http://www.math-drills.com/decimal.shtml">http://www.math-drills.com/decimal.shtml</a></p> <p><a href="https://www.tes.co.uk/teaching-resource/convert-fraction-deci-and-perc-differentiated-6191963">https://www.tes.co.uk/teaching-resource/convert-fraction-deci-and-perc-differentiated-6191963</a></p> <p><a href="https://www.mathsisfun.com/worksheets/decimals.php">https://www.mathsisfun.com/worksheets/decimals.php</a></p> <p><a href="https://www.tes.co.uk/teaching-resource/real-life-calculations-with-decimals-6315267">https://www.tes.co.uk/teaching-resource/real-life-calculations-with-decimals-6315267</a></p> <p><b>Recommended Curriculum resources</b></p> <p><b>Recommended curricular assessment materials</b></p>
<p><b>The more able should be challenged to...</b></p> <ul style="list-style-type: none"> <li>▪ Including questions set in context (knowledge of terms used in household finance, for example profit, loss, cost price, selling price, debit, credit and balance, income tax, VAT, interest rate). Using decimals is interchangeable with teaching percentages, finance, measurement and time, which appears throughout the GCSE.</li> <li>▪ The fluency of this exercise is often found within multi-choice questions at the beginning of the paper- ensure the teaching style matches the same approach to assessment.</li> <li>▪ Use of recurring decimals to fractions when appropriate for timely intervention and challenge.</li> </ul>	

**MODULE 7 Coordinates**

**TIME ALLOCATION:** 5 sessions

What students already know	Fluency in Literacy
<ul style="list-style-type: none"> <li>▪ Generate terms in a sequence using a rule</li> <li>▪ Be able to give points on a grid in the first quadrant</li> <li>▪ Manipulate and solve equations</li> </ul>	<p>Many new terms are included in this module which includes how to extract and populate coordinates onto a Cartesian grid. <b>Plotting, substituting, using perpendiculars and quadrants</b> and finding <b>gradients</b> is a large amount of new knowledge to retain quickly. Ensure your displays/planning matches the support needed to embed new language. <b>Negative reciprocals</b> can be used to denote the procedure to find perpendicular lines .</p>
LEARNING OBJECTIVES	RESOURCES/ACTIVITIES/ICT
<p><b>Progression through module</b></p> <p>Work with co-ordinates in all four quadrants</p> <p>Solve geometrical problems on co-ordinate axes</p> <p>Plot graphs of equations that correspond to straight line graphs in the co-ordinate plane</p> <p>Use the form <math>y = mx + c</math> to identify parallel lines and perpendicular lines</p> <p>Find the equation of the line through two given points, or through one point with a given gradient</p> <p>Identify and interpret gradients and intercepts of linear functions graphically and algebraically</p>	<p><b>ICT:</b>  <a href="http://www.mymaths.co.uk">www.mymaths.co.uk</a> for homework activity or revision (Login 'newman'/ Password 'divide')</p> <p><a href="http://mathsapp.pixl.org.uk/PMA.swf">http://mathsapp.pixl.org.uk/PMA.swf</a> for examination therapy videos (School Login NW2847 / Login &amp; Password – surname followed by initial)</p> <p><b>MathsWatch clips:</b> 37, 95, 96, 97, 99, 133</p> <p><b>RESOURCES:</b>  <b>Higher AQA Mathematics for GCSE AQA</b>                      Chapter 29  <b>Recommended resources</b>  <a href="http://www.mathsisfun.com/equation_of_line.html">http://www.mathsisfun.com/equation_of_line.html</a>  <a href="http://www.nationalstemcentre.org.uk/elibrary/resource/5605/straight-line-graphs-mystery">http://www.nationalstemcentre.org.uk/elibrary/resource/5605/straight-line-graphs-mystery</a>  <a href="http://www.teachitmaths.co.uk/new-registration?CurrMenu=1316&amp;resource=22240">http://www.teachitmaths.co.uk/new-registration?CurrMenu=1316&amp;resource=22240</a>  <a href="http://nrich.maths.org/763">http://nrich.maths.org/763</a>  <a href="https://www.tes.co.uk/teaching-resource/real-life-straight-line-graphs-game-6038551">https://www.tes.co.uk/teaching-resource/real-life-straight-line-graphs-game-6038551</a>  <a href="http://www.teachitmaths.co.uk/new-registration?CurrMenu=1316&amp;resource=16564">http://www.teachitmaths.co.uk/new-registration?CurrMenu=1316&amp;resource=16564</a>  <a href="https://www.tes.co.uk/teaching-resource/find-missing-coordinates-of-the-square-6418017">https://www.tes.co.uk/teaching-resource/find-missing-coordinates-of-the-square-6418017</a>  <a href="http://www.cimt.plymouth.ac.uk/projects/mepres/book9/bk9_5.pdf">http://www.cimt.plymouth.ac.uk/projects/mepres/book9/bk9_5.pdf</a>  <a href="https://www.tes.co.uk/teaching-resource/coordinates-6321032">https://www.tes.co.uk/teaching-resource/coordinates-6321032</a>  <a href="https://www.tes.co.uk/teaching-resource/functions-6370259">https://www.tes.co.uk/teaching-resource/functions-6370259</a></p>
<p><b>The more able should be challenged to...</b></p> <ul style="list-style-type: none"> <li>▪ Understand that the gradient of a line segment determines the rate of change, and that two lines are parallel when the gradient is equal is parallel. Link these into real life contexts such as mobile phone tariffs, charging structures and line graphs over time.</li> <li>▪ Ensure assessment includes the visual mapping of algebraic expressions</li> <li>▪ Consider coordinate geometry to include frequent substitution, solving roots or extrapolation when <math>f(x)=0</math>, gradients and midpoints</li> </ul>	<p><b>Recommended Curriculum resources</b></p> <p><b>Recommended curricular assessment materials</b></p>

**MODULE 8 Collecting and Representing Data**

**TIME ALLOCATION:** 5 sessions

What students already know	Fluency in Literacy
<ul style="list-style-type: none"> <li>▪ Sort out and classify data into groups</li> <li>▪ Use scales accurately</li> <li>▪ Draw and measure angles using a circular protractor</li> </ul>	<p>The distinction between <b>discrete</b> and <b>continuous</b> data will prompt students to understand the unique nuances of how to display <b>frequencies</b> and <b>groups cumulatively</b> or in data sets.</p>
LEARNING OBJECTIVES	RESOURCES/ACTIVITIES/ICT
<p>Progression through module</p> <p>Interpret and construct tables, charts and diagrams including, for categorical data: frequency tables, bar charts, pie charts, pictograms, vertical line charts for ungrouped discrete numerical data tables and line graphs for time series data know their appropriate use</p> <p>Interpret, analyse and compare distributions of data sets from univariate empirical distributions through appropriate graphical representation involving discrete, continuous and grouped data, including boxplots</p> <p>Construct and interpret diagrams for grouped discrete data and continuous data, i.e. histograms with equal and unequal class intervals and cumulative frequency graphs, and know their appropriate use</p>	<p><b>ICT:</b>  <a href="http://www.mymaths.co.uk">www.mymaths.co.uk</a> for homework activity or revision (Login 'newman'/ Password 'divide')</p> <p><a href="http://mathsapp.pixl.org.uk/PMA.swf">http://mathsapp.pixl.org.uk/PMA.swf</a> for examination therapy videos (School Login NW2847 / Login &amp; Password – surname followed by initial)</p> <p><b>MathsWatch clips:</b> 63, 64, 65, 128, 130, 186, 187</p> <p><b>RESOURCES:</b>  <b>Higher AQA Mathematics for GCSE AQA</b>                      Chapter 2  <b>Recommended resources</b>  <a href="http://www.mrbartonmaths.com/resources/standard%20unit%20pdfs/SU%20Stats%20Lessons/S5%20-%20Interpreting%20Bar%20Charts,%20Pie%20Charts%20and%20Box%20and%20Whisker%20Diagrams.pdf">http://www.mrbartonmaths.com/resources/standard%20unit%20pdfs/SU%20Stats%20Lessons/S5%20-%20Interpreting%20Bar%20Charts,%20Pie%20Charts%20and%20Box%20and%20Whisker%20Diagrams.pdf</a>  <a href="http://www.mrbartonmaths.com/resources/standard%20unit%20pdfs/SU%20Stats%20Lessons/S6%20-%20Interpreting%20Frequency%20Diagrams,%20Cumulative%20Frequency%20Curves%20and%20Box%20and%20Whisker%20Diagrams.pdf">http://www.mrbartonmaths.com/resources/standard%20unit%20pdfs/SU%20Stats%20Lessons/S6%20-%20Interpreting%20Frequency%20Diagrams,%20Cumulative%20Frequency%20Curves%20and%20Box%20and%20Whisker%20Diagrams.pdf</a>  <a href="http://www.nuffieldfoundation.org/fsmqs/level-2-data-handling#pay%20rates">http://www.nuffieldfoundation.org/fsmqs/level-2-data-handling#pay%20rates</a>  <a href="http://www.nuffieldfoundation.org/sites/default/files/files/FSMA%20Sports%20Injuries%20student.pdf">http://www.nuffieldfoundation.org/sites/default/files/files/FSMA%20Sports%20Injuries%20student.pdf</a>  <a href="http://www.core-maths.org/resources/statistics/">http://www.core-maths.org/resources/statistics/</a>  <a href="https://www.tes.co.uk/teaching-resource/music-industry-trends-6328358">https://www.tes.co.uk/teaching-resource/music-industry-trends-6328358</a>  <a href="https://www.mathsisfun.com/data/pie-charts.html">https://www.mathsisfun.com/data/pie-charts.html</a>  <a href="http://www.transum.org/software/SW/Starter_of_the_day/Students/Pie_Charts.asp">http://www.transum.org/software/SW/Starter_of_the_day/Students/Pie_Charts.asp</a>  <a href="http://www.teachitmaths.co.uk/?CurrMenu=1316&amp;resource=16986">http://www.teachitmaths.co.uk/?CurrMenu=1316&amp;resource=16986</a></p> <p><b>Recommended Curriculum resources</b></p> <p><b>Recommended curricular assessment materials</b></p>
<p><b>The more able should be challenged to...</b></p> <ul style="list-style-type: none"> <li>▪ know and understand the terms primary data, secondary data, discrete data and continuous data and when to select either in different contexts</li> <li>▪ including discussion on how you choose suitable statistical diagrams</li> <li>▪ Concentrate on improving the awareness of how illustration can enrich the information that data provides you with. Graphs that show frequency, proportion and distribution come in a wide variety of forms, and each have their unique uses.</li> <li>▪ Determine through proportionality in Histograms where the median lays, and percentage or proportion above estimated data points (i.e how many people watched TV above 12 hours a week?)</li> </ul>	

**MODULE 9 Sequences**

**TIME ALLOCATION:** 5 sessions

What students already know	Fluency in Literacy
<ul style="list-style-type: none"> <li>▪ Recognise multiples, square and cube numbers</li> <li>▪ Plot and describe patterns</li> </ul>	<p>Sequences are named by the behaviour they display. Link your proper nouns carefully and ensure students have a full repertoire of <b>Recursive, infinite, converge, diverge, oscillate, arithmetic, geometric, position to term and term to term</b> sequences</p>
LEARNING OBJECTIVES	RESOURCES/ACTIVITIES/ICT
<p><b>Progression through module</b></p> <p>Generate terms of a sequence from either a term-to-term or a position-to-term rule</p> <p>Recognise and use: sequences of triangular, square and cube numbers</p> <p>Simple arithmetic progression</p> <p>Fibonacci type sequences</p> <p>Quadratic sequences and simple geometric progressions (<math>r</math> to the power <math>n</math> where <math>n</math> is an integer and <math>r</math> is a rational number <math>&gt; 0</math>)</p> <p>Deduce expressions to calculate the <math>n</math>th term of linear and quadratic sequences</p>	<p><b>ICT:</b></p> <p><a href="http://www.mymaths.co.uk">www.mymaths.co.uk</a> for homework activity or revision (Login 'newman'/ Password 'divide')</p> <p><a href="http://mathsapp.pixl.org.uk/PMA.swf">http://mathsapp.pixl.org.uk/PMA.swf</a> for examination therapy videos (School Login NW2847 / Login &amp; Password – surname followed by initial)</p> <p>MathsWatch clips 213, 163, 141, 104, 103, 102, 101</p> <p><b>RESOURCES:</b></p> <p><b>Higher AQA Mathematics for GCSE AQA</b> Chapter 18</p> <p><b>Recommended resources</b></p> <p><a href="https://www.tes.co.uk/teaching-resource/nth-term-of-quadratic-sequences--powerpoint-6113092">https://www.tes.co.uk/teaching-resource/nth-term-of-quadratic-sequences--powerpoint-6113092</a></p> <p><a href="http://www.mrbartonmaths.com/resources/standard%20unit%20pdfs/SU%20Number%20lessons/N13%20-%20Analysing%20Sequences.pdf">http://www.mrbartonmaths.com/resources/standard%20unit%20pdfs/SU%20Number%20lessons/N13%20-%20Analysing%20Sequences.pdf</a></p> <p><a href="https://www.tes.co.uk/teaching-resource/extending-sequences-4-in-a-line-11055022">https://www.tes.co.uk/teaching-resource/extending-sequences-4-in-a-line-11055022</a></p> <p><a href="http://nrich.maths.org/2086">http://nrich.maths.org/2086</a></p> <p><a href="http://nrich.maths.org/475">http://nrich.maths.org/475</a></p> <p><a href="http://www.nationalstemcentre.org.uk/elibrary/resource/7870/sequences">http://www.nationalstemcentre.org.uk/elibrary/resource/7870/sequences</a></p> <p><a href="https://www.tes.co.uk/teaching-resource/nth-term-sequence-match-up-6030155">https://www.tes.co.uk/teaching-resource/nth-term-sequence-match-up-6030155</a></p> <p><a href="http://www.mathsisfun.com/algebra/sequences-series.html">http://www.mathsisfun.com/algebra/sequences-series.html</a></p> <p><a href="http://www.educationquizzes.com/gcse/maths/sequences-f/">http://www.educationquizzes.com/gcse/maths/sequences-f/</a></p> <p><a href="https://www.tes.co.uk/teaching-resource/starter--square-triangular-and-cube-numbers-6149981">https://www.tes.co.uk/teaching-resource/starter--square-triangular-and-cube-numbers-6149981</a></p> <p><a href="http://nrich.maths.org/4836">http://nrich.maths.org/4836</a></p> <p><a href="https://www.tes.co.uk/teaching-resource/sequences-an-patterns-6101452">https://www.tes.co.uk/teaching-resource/sequences-an-patterns-6101452</a></p> <p><b>Recommended Curriculum resources</b></p> <p><b>Recommended curricular assessment materials</b></p>
<p><b>The more able should be challenged to...</b></p> <ul style="list-style-type: none"> <li>▪ Consider growth and decay functions</li> <li>▪ Consider the behaviour of limits and divergence of exponential functions as a form of a sequence</li> <li>▪ Substitute into sequences which use variable powers</li> <li>▪ Evaluate sequences and behaviour from diagrams and patterns. Introduce the idea of needing ever expanding tables in a restaurant to sit all of your friends and neighbours and work colleagues- looking at the concept of <math>a+n</math>, and the use of each variable and constant.</li> </ul> <p>Each term of a Fibonacci sequence is formed by adding the previous two terms. 1, 1, 2, 3, 5, 8, 13, 21, .....</p> <p>A Fibonacci sequence starts <math>a, b, a + b, \dots</math></p> <p>(a) Use algebra to show that the 6th term of this Fibonacci sequence is <math>3a + 5b</math></p> <p>.....</p>	

**MODULE 10 Basic Percentages Review**

**TIME ALLOCATION:** 3 sessions

What students already know	Fluency in Literacy
<ul style="list-style-type: none"> <li>▪ Can divide by 100</li> <li>▪ Cancel fractions to their simplest form</li> <li>▪ Convert percentages to decimals and vice versa</li> </ul>	<p>Ensure students are familiar with proportional change in context so ue language interchangeably with regard to increasing and decreasing by a percentage such as <b>increase, depreciate, reduce, sale and interest</b></p>
LEARNING OBJECTIVES	RESOURCES/ACTIVITIES/ICT
<p><b>Progression through module</b></p> <p>Define percentage as ‘number of parts per hundred’</p> <p>Interpret percentages and percentage changes as a fraction or decimal and interpret these multiplicatively</p> <p>Express one quantity as a percentage of another</p> <p>Compare two quantities using percentages</p> <p>Work with percentages greater than 100%</p> <p>Interpret fractions and percentages as operators</p>	<p><b>ICT:</b></p> <p><a href="http://www.mymaths.co.uk">www.mymaths.co.uk</a> for homework activity or revision (Login ‘newman’/ Password ‘divide’)</p> <p><a href="http://mathsapp.pixl.org.uk/PMA.swf">http://mathsapp.pixl.org.uk/PMA.swf</a> for examination therapy videos (School Login NW2847 / Login &amp; Password – surname followed by initial)</p> <p>MathsWatch clips: 85, 86, 87, 88, 89, 108, 109, 110, 111</p> <p><b>RESOURCES:</b></p> <p><b>Higher AQA Mathematics for GCSE AQA</b> Chapter 13</p> <p><b>Recommended resources</b></p> <p><a href="http://www.nuffieldfoundation.org/sites/default/files/files/FSMA%20Fractions%20decimals%20percentages%20student.doc">http://www.nuffieldfoundation.org/sites/default/files/files/FSMA%20Fractions%20decimals%20percentages%20student.doc</a></p> <p><a href="https://www.tes.co.uk/teaching-resource/percentage-increase-and-decrease-with-multiplier-6374622">https://www.tes.co.uk/teaching-resource/percentage-increase-and-decrease-with-multiplier-6374622</a></p> <p><a href="https://www.mathsisfun.com/percentage.html">https://www.mathsisfun.com/percentage.html</a></p> <p><a href="http://nrich.maths.org/2739">http://nrich.maths.org/2739</a></p> <p><a href="#">Recommended Curriculum resources</a></p> <p><a href="#">Recommended curricular assessment materials</a></p>
<p><b>The more able should be challenged to...</b></p> <p>Students are to be taught using multipliers strictly throughout the GCSE. Guard against any algorithm to manipulate percentages as this will only cause a barrier to understanding the vital link between percentage change and direct proportion.</p> <p>Reverse percentage change frequently</p> <p>Consider the misconceptions associated between using powers and or coefficients when using compound change</p>	

**MODULE 11 Perimeter and Area**

**TIME ALLOCATION:** 5 sessions

What students already know	Fluency in Literacy
<ul style="list-style-type: none"> <li>▪ Recognise and name common Polygons</li> <li>▪ Convert between basic metric measurement</li> <li>▪ Name parts of a circle</li> <li>▪ Change the subject of a formula</li> <li>▪ Name properties of quadrilaterals</li> <li>▪ Familiar with square and cube numbers</li> </ul>	<p>The parts of a circle and new terminology should be a continuing focus throughout this unit of work to include <b>sector, diameter, semi-circle</b>, as well as consistent language of 3D dimensional aspects such as <b>cross sectional area</b> and <b>breadth</b> (rather than length or width)</p>
LEARNING OBJECTIVES	RESOURCES/ACTIVITIES/ICT
<p><b>Progression through module</b></p> <p>Identify properties of the faces, surfaces, edges and vertices of: cubes, cuboids, prisms, cylinders, pyramids, cones and spheres</p> <p>Calculate the perimeter of a 2D shapes and composite shapes</p> <p>Find the surface area of pyramids and composite shapes</p> <p>Know and apply formulae to calculate area of:</p> <p style="padding-left: 40px;">triangles parallelograms trapezia</p>	<p><b>ICT:</b>  <a href="http://www.mymaths.co.uk">www.mymaths.co.uk</a> for homework activity or revision                      (Login 'newman' / Password 'divide')</p> <p><a href="http://mathsapp.pixl.org.uk/PMA.swf">http://mathsapp.pixl.org.uk/PMA.swf</a> for examination therapy videos                      (School Login NW2847 / Login &amp; Password – surname followed by initial)</p> <p><b>MathsWatch clips:</b> 114/115/116/117/118/53/54/55/56/52</p> <p><b>RESOURCES:</b>  <b>Higher AQA Mathematics for GCSE AQA</b>                      Chapter 10 &amp; 11  <b>Recommended resources</b>  <a href="https://www.tes.co.uk/teaching-resource/area-and-perimeter-follow-me-cards-game-6030377">https://www.tes.co.uk/teaching-resource/area-and-perimeter-follow-me-cards-game-6030377</a>  <a href="https://www.tes.co.uk/teaching-resource/areas-of-flags-6327719">https://www.tes.co.uk/teaching-resource/areas-of-flags-6327719</a>  <a href="https://www.tes.co.uk/teaching-resource/area-of-triangle-and-parallelogram-cut-and-stick-6207722">https://www.tes.co.uk/teaching-resource/area-of-triangle-and-parallelogram-cut-and-stick-6207722</a>  <a href="https://www.tes.co.uk/teaching-resource/faces-edges-and-vertices-6311094">https://www.tes.co.uk/teaching-resource/faces-edges-and-vertices-6311094</a>  <a href="http://www.transum.org/Software/SW/Starter_of_the_day/Students/Surface_Area.asp">http://www.transum.org/Software/SW/Starter_of_the_day/Students/Surface_Area.asp</a>  <a href="https://www.tes.co.uk/teaching-resource/activity-for-3d-shapes-and-surface-area-dominoes-6007150">https://www.tes.co.uk/teaching-resource/activity-for-3d-shapes-and-surface-area-dominoes-6007150</a>  <a href="https://www.mathsisfun.com/geometry/vertices-faces-edges.html">https://www.mathsisfun.com/geometry/vertices-faces-edges.html</a>  <a href="https://www.tes.co.uk/teaching-resource/visual-proof-of-the-area-of-a-trapezium-6159638">https://www.tes.co.uk/teaching-resource/visual-proof-of-the-area-of-a-trapezium-6159638</a>  <a href="http://www.cimt.plymouth.ac.uk/projects/mepres/book7/bk7_9.pdf">http://www.cimt.plymouth.ac.uk/projects/mepres/book7/bk7_9.pdf</a>  <a href="https://www.tes.co.uk/teaching-resource/surface-area-of-pyramids-and-cones-6371741">https://www.tes.co.uk/teaching-resource/surface-area-of-pyramids-and-cones-6371741</a>  <a href="http://www.mathworksheets4kids.com/surface-area.html">http://www.mathworksheets4kids.com/surface-area.html</a></p> <p><b>Recommended Curriculum resources</b></p> <p><b>Recommended curricular assessment materials</b></p>
<p><b>The more able should be challenged to...</b></p> <p>Use compound shapes regularly, and where area has been taken away, as well as added. Such questions as the garden pond are frequent in the exam, and attract a high number of students not associating when to multiply, subtract, or add area</p> <p>Emphasise that premature rounding deviates from obtaining a precise answer</p> <p>Answers should be left in Pi unless asked to show rounding skills as part of A01</p> <p>Derive formulae for 3D polyhedra</p>	

**MODULE 12 Real Life Graphs**

**TIME ALLOCATION:** 5 sessions

What students already know	Fluency in Literacy
<ul style="list-style-type: none"> <li>▪ Distinguish between inverse and direct proportion</li> <li>▪ Understand and work with compound area</li> <li>▪ Calculate gradients</li> </ul>	<p>The <b>rate of change</b> should be acknowledged as the gradient of a compound function including <b>Speed, time and acceleration</b></p>
LEARNING OBJECTIVES	RESOURCES/ACTIVITIES/ICT
<p><b>Progression through module</b></p> <p>Plot and interpret graphs (including reciprocal graphs and exponential graphs and graphs of non-standard functions in real contexts,</p> <p>Find approximate solutions to problems such as simple kinematic problems involving distance, speed and acceleration</p> <p>Interpret the gradient of a straight-line graph as a rate of change</p>	<p><b>ICT:</b>  <a href="http://www.mymaths.co.uk">www.mymaths.co.uk</a> for homework activity or revision (Login 'newman'/ Password 'divide')</p> <p><a href="http://mathsapp.pixl.org.uk/PMA.swf">http://mathsapp.pixl.org.uk/PMA.swf</a> for examination therapy videos (School Login NW2847 / Login &amp; Password – surname followed by initial)</p> <p><b>MathsWatch clips: 107/143/153/216</b></p>
<p><b>The more able should be challenged to...</b>            The gradient is important to note as measure of change, and rate of growth, inflation or proportional change. Students will have to calculate the gradient as a measure of change, and this should be incorporated as much as is possible to find speed, gradient, or rate of flow.</p> <p>Consider coordinate geometry where possible to solve problems simply from coordinates without given visual representations of functions- remember to rehearse the formula for acquiring the gradient</p>	<p><b>RESOURCES:</b>  <b>Higher AQA Mathematics for GCSE AQA</b>            Chapter 30  <b>Recommended resources</b>  <a href="http://www.cimt.plymouth.ac.uk/projects/mepres/book7/bk7i3/bk7_3i6.htm">http://www.cimt.plymouth.ac.uk/projects/mepres/book7/bk7i3/bk7_3i6.htm</a>  <a href="http://www.transum.org/software/SW/Starter_of_the_day/Students/Reading_Graphs_and_Charts.asp?Level=5">http://www.transum.org/software/SW/Starter_of_the_day/Students/Reading_Graphs_and_Charts.asp?Level=5</a>  <a href="http://www.transum.org/software/SW/Starter_of_the_day/Students/Reading_Graphs_and_Charts.asp?Level=4">http://www.transum.org/software/SW/Starter_of_the_day/Students/Reading_Graphs_and_Charts.asp?Level=4</a>  <a href="https://www.tes.co.uk/teaching-resource/real-life-graphs-6454908">https://www.tes.co.uk/teaching-resource/real-life-graphs-6454908</a>  <a href="https://www.tes.co.uk/teaching-resource/real-life-straight-line-graphs-game-6038551">https://www.tes.co.uk/teaching-resource/real-life-straight-line-graphs-game-6038551</a>  <a href="http://nrich.maths.org/4803">http://nrich.maths.org/4803</a>  <a href="http://www.nuffieldfoundation.org/sites/default/files/files/FSMA%20Currency%20conversion%20student.pdf">http://www.nuffieldfoundation.org/sites/default/files/files/FSMA%20Currency%20conversion%20student.pdf</a>  <a href="http://www.teachitmaths.co.uk/?CurrMenu=1316&amp;resource=16946">http://www.teachitmaths.co.uk/?CurrMenu=1316&amp;resource=16946</a>  <a href="http://www.teachitmaths.co.uk/?CurrMenu=1316&amp;resource=17088">http://www.teachitmaths.co.uk/?CurrMenu=1316&amp;resource=17088</a>  <a href="https://www.tes.co.uk/teaching-resource/real-life-graphs-6454908">https://www.tes.co.uk/teaching-resource/real-life-graphs-6454908</a>  <a href="https://www.tes.co.uk/teaching-resource/real-life-graphs-matching-activity-11046319">https://www.tes.co.uk/teaching-resource/real-life-graphs-matching-activity-11046319</a>  <a href="http://www.teachitmaths.co.uk/?CurrMenu=1316&amp;resource=16971">http://www.teachitmaths.co.uk/?CurrMenu=1316&amp;resource=16971</a></p> <p><b>Recommended Curriculum resources</b></p> <p><b>Recommended curricular assessment materials</b></p>

**MODULE 13 Circumference and Area**

**TIME ALLOCATION:** 5 sessions

What students already know	Fluency in Literacy
<ul style="list-style-type: none"> <li>▪ Recognise and name common Polygons</li> <li>▪ Convert between basic metric measurement</li> <li>▪ Name parts of a circle</li> <li>▪ Change the subject of a formula</li> <li>▪ Name properties of quadrilaterals</li> <li>▪ Familiar with area of 2D shapes</li> </ul>	<p>Specific parts of a circle include <b>arc, segment, sector, circumference, diameter, radius, pi</b></p>
LEARNING OBJECTIVES	RESOURCES/ACTIVITIES/ICT
<p>Progression through module</p> <p>Identify and apply circle definitions and properties, including: centre, radius, chord, diameter, circumference, tangent, arc, sector and segment</p> <p>Know and use the formulae:</p> <p>Circumference of a circle <math>=2\pi r=\pi d</math>            Area of a circle <math>=\pi r^2</math></p> <p>Calculate the perimeters of 2D shapes including circles and composite shapes</p> <p>Calculate areas of circles and composite shapes</p> <p>Calculate surface area of spheres, cones and composite solids</p> <p>Calculate arc lengths, angles and areas of sectors of circles</p>	<p><b>ICT:</b></p> <p><a href="http://www.mymaths.co.uk">www.mymaths.co.uk</a> for homework activity or revision            (Login 'newman' / Password 'divide')</p> <p><a href="http://mathsapp.pixl.org.uk/PMA.swf">http://mathsapp.pixl.org.uk/PMA.swf</a> for examination therapy videos            (School Login NW2847 / Login &amp; Password – surname followed by initial)</p> <p>MathsWatch clips: 116/118/167/117</p> <p><b>RESOURCES:</b>  <b>Higher AQA Mathematics for GCSE AQA</b>            Chapter 11</p> <p><b>Recommended resources</b></p> <p><a href="https://www.tes.co.uk/teaching-resource/gcse-arcs-sectors-and-segments--activities-6229444">https://www.tes.co.uk/teaching-resource/gcse-arcs-sectors-and-segments--activities-6229444</a>  <a href="http://www.mathsisfun.com/geometry/circle.html">http://www.mathsisfun.com/geometry/circle.html</a>  <a href="https://www.tes.co.uk/teaching-resource/circumference-and-perimeter--treasure-hunt-6319085">https://www.tes.co.uk/teaching-resource/circumference-and-perimeter--treasure-hunt-6319085</a>  <a href="https://www.tes.co.uk/teaching-resource/ice-cream-investigation--a-a-cones-and-spheres-6343339">https://www.tes.co.uk/teaching-resource/ice-cream-investigation--a-a-cones-and-spheres-6343339</a>  <a href="https://www.tes.co.uk/teaching-resource/tarsia--sectors-and-arc-lengths-degrees-6115943">https://www.tes.co.uk/teaching-resource/tarsia--sectors-and-arc-lengths-degrees-6115943</a>  <a href="https://www.tes.co.uk/teaching-resource/arcs-and-sectors--pizza-maths-11056118">https://www.tes.co.uk/teaching-resource/arcs-and-sectors--pizza-maths-11056118</a>  <a href="https://www.tes.co.uk/teaching-resource/area-and-circumference-of-circles-worksheet-6159176">https://www.tes.co.uk/teaching-resource/area-and-circumference-of-circles-worksheet-6159176</a>  <a href="http://www.math-drills.com/measurement.shtml#circles">http://www.math-drills.com/measurement.shtml#circles</a>  <a href="https://www.youtube.com/watch?v=YokKp3pwVFc">https://www.youtube.com/watch?v=YokKp3pwVFc</a>  <a href="https://www.youtube.com/watch?v=xuPI_8o_j7k">https://www.youtube.com/watch?v=xuPI_8o_j7k</a></p> <p><b>Recommended Curriculum resources</b></p> <p><b>Recommended curricular assessment materials</b></p>
<p>The more able should be challenged to...</p> <p>Solutions in terms of <math>\pi</math> may be asked for. Please ensure you practice giving solutions in both forms.</p> <p>Use plenty of problem solving alternative forms of area and perimeter including arcs and curves within logos</p> <p>Always embed new learning within compound shapes for the most able to acquire formulae whilst embedding in problem solving questions</p>	

## MODULE 14 Ratio and Proportion

TIME ALLOCATION: 8 sessions

What students already know	Fluency in Literacy
<ul style="list-style-type: none"> <li>▪ Simplify fractions</li> <li>▪ Find fractions of a quantity</li> <li>▪ Find an original amount, given a fraction.</li> </ul>	Develop the language of ration to include <b>scaling, unitary, proportion, direct, and rate of change</b>
LEARNING OBJECTIVES	RESOURCES/ACTIVITIES/ICT
<p><b>Progression through module</b> Identify and work with fractions in ratio problems</p> <p>Express one quantity as a fraction of another, where the fraction is less than 1 or greater than 1</p> <p>Use ratio notation, including reduction to simplest form</p> <p>Divide a given quantity into two parts in a given part:part or part:whole ratio</p> <p>Express the division of a quantity into two parts as a ratio</p> <p>Apply ratio to real contexts and problems (such as those involving conversion, comparison, scaling, mixing and concentrations)</p> <p>Express a multiplicative relationship between two quantities as a ratio or fraction</p> <p>Understand and use proportion as equality of ratios</p> <p>Relate ratios to fractions and to linear functions</p>	<p><b>ICT:</b> <a href="http://www.mymaths.co.uk">www.mymaths.co.uk</a> for homework activity or revision (Login 'newman'/ Password 'divide')</p> <p><a href="http://mathsapp.pixl.org.uk/PMA.swf">http://mathsapp.pixl.org.uk/PMA.swf</a> for examination therapy videos (School Login NW2847 / Login &amp; Password – surname followed by initial)</p> <p><b>MathsWatch clips:</b> 107/105/38/39/41/42</p> <p><b>RESOURCES:</b> <b>Higher AQA Mathematics for GCSE AQA</b> Chapter 27 &amp; 28</p> <p><b>Recommended resources</b> <a href="http://www.teachingideas.co.uk/maths/contents_ratiproportion.htm">http://www.teachingideas.co.uk/maths/contents_ratiproportion.htm</a> <a href="http://www.teachingideas.co.uk/maths/contents_ratiproportion.htm">http://www.teachingideas.co.uk/maths/contents_ratiproportion.htm</a> <a href="http://www.transum.org/software/SW/Starter_of_the_day/Students/Express_a_Fraction.asp?Level=1">http://www.transum.org/software/SW/Starter_of_the_day/Students/Express_a_Fraction.asp?Level=1</a> <a href="http://nrich.maths.org/6870">http://nrich.maths.org/6870</a> <a href="http://nrich.maths.org/875">http://nrich.maths.org/875</a> <a href="https://www.tes.co.uk/teaching-resource/ratio-puzzle-6192070">https://www.tes.co.uk/teaching-resource/ratio-puzzle-6192070</a> <a href="http://www.mrbartonmaths.com/number.htm">http://www.mrbartonmaths.com/number.htm</a> <a href="http://www.mrbartonmaths.com/jigsaw.htm">http://www.mrbartonmaths.com/jigsaw.htm</a> <a href="http://www.teachingideas.co.uk/maths/contents_ratiproportion.htm">http://www.teachingideas.co.uk/maths/contents_ratiproportion.htm</a> <a href="https://www.tes.co.uk/teaching-resource/baking-bad--season-1--ratio-and-proportion-6365493">https://www.tes.co.uk/teaching-resource/baking-bad--season-1--ratio-and-proportion-6365493</a> <a href="http://www.worksheetmath.com/Number/Ratio/">http://www.worksheetmath.com/Number/Ratio/</a> <a href="https://learnzillion.com/lessons/611-graph-ratios-using-a-table">https://learnzillion.com/lessons/611-graph-ratios-using-a-table</a> <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNUTBYRFNZUWJwnc/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNUTBYRFNZUWJwnc/view?usp=sharing</a> <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNMUFhYmN0MC1oMkk/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNMUFhYmN0MC1oMkk/view?usp=sharing</a> <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNni01c3Boek9ELUU/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNni01c3Boek9ELUU/view?usp=sharing</a></p> <p><b>Recommended Curriculum resources</b></p> <p><b>Recommended curricular assessment materials</b></p>
<p><b>The more able should be challenged to...</b> This unit should include continuing emphasis on best buy or better value questions, looking at using unitary ratio as a way of considering including better value or best buy problems.</p> <p>Use multi layered ratio problems which involve arbitrary sharing but also another layer which uses their volume or length as an indicator or ratio</p>	

## HIGHER

## Year 9 Pathway A-C GCSE Programme

### MODULE 15 Equations

TIME ALLOCATION: 5 sessions

What students already know	Fluency in Literacy
<ul style="list-style-type: none"><li>▪ Use conventional notation to form equations</li><li>▪ Write an equation to solve a problem mathematically</li><li>▪ Recognise and apply inverse operations</li><li>▪ Factorise quadratic expressions</li></ul>	Standard communication to include fluency around the use of <b>formulae, linear, simultaneous, approximating and solutions</b>
LEARNING OBJECTIVES	RESOURCES/ACTIVITIES/ICT
<p><b>Progression through module</b></p> <p>Substitute numerical values into formulae and expressions, including scientific formulae</p> <p>Solve linear equations in one unknown algebraically including those with the unknown on both sides of the equation</p>	<p><b>ICT:</b></p> <p><a href="http://www.mymaths.co.uk">www.mymaths.co.uk</a> for homework activity or revision (Login 'newman' / Password 'divide')</p> <p><a href="http://mathsapp.pixl.org.uk/PMA.swf">http://mathsapp.pixl.org.uk/PMA.swf</a> for examination therapy videos (School Login NW2847 / Login &amp; Password – surname followed by initial)</p> <p>MathsWatch clips: 95/135/</p>
<p><b>The more able should be challenged to...</b></p> <p>Formulae chosen at random will be placed into the written paper, and will include the use of brackets. Allow students to become familiar with a range of formulae, with multiple variables and operations and functions in science, kinematics, and business.</p> <p>Begin to now use powers to either complete the square or at least consider using inverses to find two solutions for quadratics- start now to get the more able to think about alternative strategies such as factorising in order to solve.</p>	<p><b>RESOURCES:</b></p> <p><b>Higher AQA Mathematics for GCSE AQA</b> Chapter 17</p> <p><b>Recommended resources</b></p> <p><a href="https://drive.google.com/file/d/0B0qT3H4nV3mNaDhCR1cxU3VwYUE/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNaDhCR1cxU3VwYUE/view?usp=sharing</a></p> <p><a href="https://drive.google.com/file/d/0B0qT3H4nV3mNMIpGeTRuLTZONnc/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNMIpGeTRuLTZONnc/view?usp=sharing</a></p> <p><a href="https://drive.google.com/file/d/0B0qT3H4nV3mNTklidWhhcjBXcmM/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNTklidWhhcjBXcmM/view?usp=sharing</a></p> <p><a href="https://drive.google.com/file/d/0B0qT3H4nV3mNY3lZYm1OQ2s3Tm8/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNY3lZYm1OQ2s3Tm8/view?usp=sharing</a></p> <p><a href="#">Recommended Curriculum resources</a></p> <p><a href="#">Recommended curricular assessment materials</a></p>

**MODULE 16 Basic Probability Review**

**TIME ALLOCATION:** 5 sessions

What students already know	Fluency in Literacy
<ul style="list-style-type: none"> <li>▪ FDP fluency</li> <li>▪ Round decimals using significant figures and decimal places</li> <li>▪ Can calculate with decimals, fractions and percentages</li> </ul>	<p>Review all KS3 language that will include <b>Event, likelihood, impossible, certain, experimental, sample, random, theoretical, frequency tree, range, relative frequency</b></p>
LEARNING OBJECTIVES	RESOURCES/ACTIVITIES/ICT
<p><b>Progression through module</b></p> <p>Record, describe and analyse the frequency of outcomes of probability experiments using tables and frequency trees</p> <p>Apply the property that the probabilities of an exhaustive set of outcomes sum to 1</p> <p>Apply the property that the probabilities of an exhaustive set of mutually exclusive events sum to 1</p> <p>Construct theoretical possibility spaces for single and combined experiments with equally likely outcomes and use these to calculate theoretical probabilities</p>	<p><b>ICT:</b>  <a href="http://www.mymaths.co.uk">www.mymaths.co.uk</a> for homework activity or revision                      (Login 'newman' / Password 'divide')</p> <p><a href="http://mathsapp.pixl.org.uk/PMA.swf">http://mathsapp.pixl.org.uk/PMA.swf</a> for examination therapy videos                      (School Login NW2847 / Login &amp; Password – surname followed by initial)</p> <p>MathsWatch clips: 57/58/59/60/125/126/127</p> <p><b>RESOURCES:</b>  <b>Higher AQA Mathematics for GCSE AQA</b>                      Chapter 20</p> <p><b>Recommended resources</b>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNdTV1bW5wczl4OEE/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNdTV1bW5wczl4OEE/view?usp=sharing</a>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNUm9LazQtYVZESVU/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNUm9LazQtYVZESVU/view?usp=sharing</a>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNaXdzanhKMnNjenc/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNaXdzanhKMnNjenc/view?usp=sharing</a>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNSWVmUFBWTzdYSHM/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNSWVmUFBWTzdYSHM/view?usp=sharing</a>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNdDjflTVWVfZfODA/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNdDjflTVWVfZfODA/view?usp=sharing</a></p> <p><b>Recommended Curriculum resources</b></p> <p><b>Recommended curricular assessment materials</b></p>
<p><b>The more able should be challenged to...</b>                      Probabilities should be written as fractions, decimals or percentages and these should be used interchangeably throughout your teaching and learning.</p> <p>Fractional form of probability does not need to be simplified in GCSE Mathematics</p> <p>Include the use of frequency trees as a sample space diagram and include conditional probability such as 'given' or 'not'</p>	

**MODULE 17 Scatter Diagrams**

**TIME ALLOCATION:** 5 sessions

What students already know	Fluency in Literacy
<ul style="list-style-type: none"> <li>▪ Can apply and use scales</li> <li>▪ Can extrapolate values from a table and graph</li> </ul>	Specific terminology to the 8300 exam includes <b>Outliers, dependent variable, misleading, bivariate and correlation</b>
LEARNING OBJECTIVES	RESOURCES/ACTIVITIES/ICT
<p><b>Progression through module</b></p> <p>Use and interpret scatter graphs of bivariate data</p> <p>Recognise correlation and know that it does not indicate causation</p> <p>Draw estimated lines of best fit</p> <p>Make predictions</p> <p>Interpolate and extrapolate apparent trends whilst knowing the dangers of doing so</p>	<p><b>ICT:</b></p> <p><a href="http://www.mymaths.co.uk">www.mymaths.co.uk</a> for homework activity or revision (Login 'newman'/ Password 'divide')</p> <p><a href="http://mathsapp.pixl.org.uk/PMA.swf">http://mathsapp.pixl.org.uk/PMA.swf</a> for examination therapy videos (School Login NW2847 / Login &amp; Password – surname followed by initial)</p> <p><b>MathsWatch clips: 129/</b></p> <p><b>RESOURCES:</b></p> <p><b>Higher AQA Mathematics for GCSE AQA</b> Chapter 3</p> <p><b>Recommended resources</b></p> <p><a href="https://drive.google.com/file/d/0B0qT3H4nV3mNeTF4SDFTS1JMUVk/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNeTF4SDFTS1JMUVk/view?usp=sharing</a>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNLU5RNDhtd1l0dnc/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNLU5RNDhtd1l0dnc/view?usp=sharing</a>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNRGllMUZUTWdGZ00/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNRGllMUZUTWdGZ00/view?usp=sharing</a>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNa0wybDM4bGpxejA/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNa0wybDM4bGpxejA/view?usp=sharing</a>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNOGZFcdVnbTR1Wlk/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNOGZFcdVnbTR1Wlk/view?usp=sharing</a>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNQ0cteGM2X3hDY28/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNQ0cteGM2X3hDY28/view?usp=sharing</a>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNbkQtbGFVMFdWbEE/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNbkQtbGFVMFdWbEE/view?usp=sharing</a>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNcU1td2VHMTRtams/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNcU1td2VHMTRtams/view?usp=sharing</a>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNZW9HeFZfcDFGd1E/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNZW9HeFZfcDFGd1E/view?usp=sharing</a></p> <p><b>Recommended Curriculum resources</b></p> <p><b>Recommended curricular assessment materials</b></p>
<p><b>The more able should be challenged to...</b></p> <p>Know and understand the terms positive correlation, negative correlation, no correlation, weak correlation and strong correlation and when to incorporate these terms into a sentence which describes a relationship between two data sets.</p> <p>Remember that you cannot extrapolate outside of the collected range with any great confidence</p>	

**MODULE 18 Standard Form**

**TIME ALLOCATION:** 5 sessions

What students already know	Fluency in Literacy
<ul style="list-style-type: none"> <li>▪ Calculate efficiently with decimals</li> <li>▪ Round to significant figures</li> <li>▪ Apply the laws of indices</li> </ul>	<p>A small selection of new terminology includes <b>Convert, index law, standard form, efficient, significant figure</b></p>
LEARNING OBJECTIVES	RESOURCES/ACTIVITIES/ICT
<p><b>Progression through module</b></p> <p>Understand and use place value (e.g. when working with very large or very small numbers)</p> <p>Calculate with and interpret standard form <math>A \times 10^n</math> where <math>1 \leq A &lt; 10</math> and <math>n</math> is an integer</p>	<p><b>ICT:</b></p> <p><a href="http://www.mymaths.co.uk">www.mymaths.co.uk</a> for homework activity or revision (Login 'newman' / Password 'divide')</p> <p><a href="http://mathsapp.pixl.org.uk/PMA.swf">http://mathsapp.pixl.org.uk/PMA.swf</a> for examination therapy videos (School Login NW2847 / Login &amp; Password – surname followed by initial)</p> <p><b>MathsWatch clips:</b> 83/</p> <p><b>RESOURCES:</b></p> <p><b>Higher AQA Mathematics for GCSE AQA</b> Chapter 15</p> <p><b>Recommended resources</b></p> <p><a href="https://drive.google.com/file/d/0B0qT3H4nV3mNcW9rc2RtSDY2Y1k/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNcW9rc2RtSDY2Y1k/view?usp=sharing</a>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNUm1IR0hiLXFqSHM/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNUm1IR0hiLXFqSHM/view?usp=sharing</a>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNSGtHeXJsLURYRDQ/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNSGtHeXJsLURYRDQ/view?usp=sharing</a>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNSWkxclVIWTBJckU/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNSWkxclVIWTBJckU/view?usp=sharing</a>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNdmfFRUlvVzRvaFE/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNdmfFRUlvVzRvaFE/view?usp=sharing</a>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNeHZ3bmNKTIV2czg/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNeHZ3bmNKTIV2czg/view?usp=sharing</a>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNdVV0WFF4bjNZc1k/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNdVV0WFF4bjNZc1k/view?usp=sharing</a>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNc2lXQUJwTmNZWjQ/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNc2lXQUJwTmNZWjQ/view?usp=sharing</a>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNOFZldkg4My1mdjQ/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNOFZldkg4My1mdjQ/view?usp=sharing</a>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNRlhqMDBsaUdEYjA/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNRlhqMDBsaUdEYjA/view?usp=sharing</a>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNUkhFdjE0TlJ5VHc/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNUkhFdjE0TlJ5VHc/view?usp=sharing</a></p> <p><b>Recommended Curriculum resources</b></p> <p><b>Recommended curricular assessment materials</b></p>
<p><b>The more able should be challenged to...</b></p> <ul style="list-style-type: none"> <li>▪ Use questions set in context wherever possible, and be led by the text in doing so.</li> <li>▪ Consider checking the relative size of values by their index (particularly useful with estimating)</li> <li>▪ Allow students to engage in problem solving both with and without a calculator</li> </ul> <p>Understand the different ways in which a calculator expresses standard form as this is also assessed</p>	

**MODULE 19 Transformations**

**TIME ALLOCATION:** 5 sessions

What students already know	Fluency in Literacy
<ul style="list-style-type: none"> <li>▪ Understand directions such as clockwise and anticlockwise, and are familiar with turns that are multiples of 90 degrees.</li> <li>▪ Can give algebraic equations for horizontal, vertical and lines in the form <math>y=ax+b</math></li> </ul>	<p>A breadth of new language here which will need introducing and developing within starter activities such as <b>Vector, coordinate, transformation, reflection, rotation, translation, enlargement, position, object, image, change, mirror line, centre, vertices, direction, corresponding</b></p>
LEARNING OBJECTIVES	RESOURCES/ACTIVITIES/ICT
<p><b>Progression through module</b></p> <p>Identify, describe and construct congruent and similar shapes, including on co-ordinate axes, by considering rotation, reflection, translation and enlargement (including fractional and negative scale factors)</p> <p>Describe translations as 2D vectors</p> <p>Describe the changes and invariance achieved by combinations of rotations, reflections and translations</p>	<p><b>ICT:</b>  <a href="http://www.mymaths.co.uk">www.mymaths.co.uk</a> for homework activity or revision                      (Login 'newman' / Password 'divide')</p> <p><a href="http://mathsapp.pixl.org.uk/PMA.swf">http://mathsapp.pixl.org.uk/PMA.swf</a> for examination therapy videos                      (School Login NW2847 / Login &amp; Password – surname followed by initial)</p> <p>MathsWatch clips: 48/49/50/148</p> <p><b>RESOURCES:</b>  <b>Higher AQA Mathematics for GCSE AQA</b>                      Chapter 33 &amp; 35</p>
<p><b>The more able should be challenged to...</b></p> <p>Evaluate successive column vectors by adding, multiplying and subtracting.</p> <p>Perform transformations without the use of illustration where possible- i.e. the succession or two translations; invariance within enlargement or reflection.</p>	<p><b>Recommended resources</b>  <a href="https://drive.google.com/file/d/0B0qT3H4nV3mNWjhhaUMzNk5qblk/view?usp=sharing">https://drive.google.com/file/d/0B0qT3H4nV3mNWjhhaUMzNk5qblk/view?usp=sharing</a></p> <p><a href="#">Recommended Curriculum resources</a></p> <p><a href="#">Recommended curricular assessment materials</a></p>

**MODULE 20 Construction and Loci**

**TIME ALLOCATION:** 3 sessions

What students already know	Fluency in Literacy
<ul style="list-style-type: none"> <li>▪ Be able to draw and measure angles using a protractor</li> <li>▪ Covert between units of length</li> <li>▪ Name parts of a circle</li> </ul>	<p>A large amount of new terminology which will need transposing onto resources that develop the accuracy and precision in using a compass includes , <b>radius, diameter, degree, accuracy, circumference, radii, chord, semicircle, equilateral, arc, intersect, midpoint, perpendicular, bisect, locus,</b></p>
LEARNING OBJECTIVES	RESOURCES/ACTIVITIES/ICT
<p><b>Progression through module</b></p> <p>Use the standard ruler and compass constructions:</p> <ol style="list-style-type: none"> <li>a. perpendicular bisector of a line segment</li> <li>b. constructing a perpendicular to a given line from / at a given point</li> <li>c. bisecting a given angle</li> </ol> <p>Know that the perpendicular distance from a point to a line is the shortest distance to the line</p> <p>Use these to construct given figures and solve loci problems</p>	<p><b>ICT:</b></p> <p><a href="http://www.mymaths.co.uk">www.mymaths.co.uk</a> for homework activity or revision (Login 'newman'/ Password 'divide')</p> <p><a href="http://mathsapp.pixl.org.uk/PMA.swf">http://mathsapp.pixl.org.uk/PMA.swf</a> for examination therapy videos (School Login NW2847 / Login &amp; Password – surname followed by initial)</p> <p><b>MathsWatch clips: 145/146/147</b></p> <p><b>RESOURCES:</b></p> <p><b>Higher AQA Mathematics for GCSE AQA</b> Chapter 34</p>
<p><b>The more able should be challenged to...</b></p> <p>Including constructing an angle of 60°, 30° equilateral triangles and pentagons and hexagons as a way of understanding the application of loci.</p> <p>Multi-layered problems that would ask of a bisector whilst also considering the perpendicular line to be a proportional distance away from an indicated point may also be assessed. Don't teach in distinct episodes but weave each other together when appropriate to reflect the assessment style.</p>	<p><a href="#">Recommended Curriculum resources</a></p> <p><a href="#">Recommended curricular assessment materials</a></p>