

MATHEMATICS

Year 7

TERM 1 content and skills	TERM 2 content and skills	TERM 3 content and skills	EXTENDED CURRICULUM (trips/visits/after school activities)
<p>Number: Number skills including order of operations, place value and negative numbers. Investigating and discovering special properties of certain numbers</p> <p>Algebra: Expressions and manipulating algebra including using letters to represent numbers and simplifying expressions</p> <p>Geometry: Angles and angle facts at a variety of levels from looking at angles along a straight line to angles in polygons of various sizes. Accurately drawing shapes using a ruler and a protractor</p> <p>An emphasis for this term will also be developing reasoning and mathematical communication</p>	<p>Number: Calculations including different methods of multiplication or division and rounding.</p> <p>Algebra: Forming equations, looking at ways to solve them including using a number machine and writing the problem as a sentence.</p> <p>Data Handling: Analysing data using averages and measures of how spread out the data is. At some levels this will include finding averages from data presented in frequency tables or graphs.</p> <p>Geometry: Area and perimeter of shapes, ranging from rectangles to compound shapes and then circles.</p>	<p>Number: Fractions, decimals and percentages. Ratio and Proportion.</p> <p>Algebra: Sequences including spotting patterns; filling in gaps and finding the rule to generate the sequence. Plotting coordinates onto a graph and plotting ones which follow a set rule with a view to looking at how this links in with straight line graphs.</p> <p>Data Handling: Starting to investigate probability ranging from words to describe likelihood, working out numerical probabilities and drawing diagrams to display all possible outcomes.</p> <p>Geometry: Reflective and rotational symmetry, similarity, and a selection of the different transformations depending on the level of the pupil – from translations, reflections, rotations and enlargements</p>	<p>UKMT – Junior Maths Challenge takes place in April. World Maths Day in March leads to an online competition which some groups may take part in during their Maths lessons. All students can follow this up at home; students should ask their teacher for their login near the time.</p>
<p>Assessment: End of term test in the penultimate week of term on the material covered this term.</p>	<p>Assessment: End of term test in the penultimate week of term on the material covered this term.</p>	<p>Assessment: End of term test in the penultimate week of term on the material covered this term.</p>	

Year 8

<p>Number: Number skills including order of operations, place value, negative numbers, decimal numbers and indices. Investigating and discovering special properties of certain numbers. Algebra: Expressions and manipulating algebra including using letters to</p>	<p>Number: Calculations including different methods of multiplication or division and rounding. Developing skills at using a calculator.</p> <p>Algebra: Forming equations, looking at ways to solve them including using a number machine and writing the problem as a sentence. Solving</p>	<p>Number: Fractions, decimals and percentages.</p> <p>Algebra: Sequences including spotting patterns; filling in gaps, finding the rule to generate the sequence and finding the nth term. Plotting coordinates onto a graph</p>	<p>UKMT – Junior Maths Challenge takes place in April. World Maths Day in March</p>
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<p>represent numbers and simplifying expressions. Geometry: Angles and angle facts at a variety of levels from looking at angles along a straight line to angles in polygons of various sizes. Accurately drawing shapes using a ruler and a protractor. Pythagoras' theorem. Data Handling: Representing data using tables, charts and graphs. Understanding correlation.</p>	<p>equations as well as inequalities. Geometry: Area and perimeter of shapes, ranging from rectangles to compound shapes and then circles. Volume and surface area of 3D shapes. Data Handling: Analysing data using averages and measures of how spread out the data is. At some levels this will include finding averages from data presented in frequency tables or graphs.</p>	<p>and plotting ones which follow a set rule with a view to looking at how this links in with straight line graphs. Ratio and Proportion: Looking at the differences between ratio and proportion, then linking this in to skills done previously with percentages. Percentages of amounts. Simple and compound interest. Creating and using scale drawings. Geometry: Reflective and rotational symmetry, similarity, and a selection of the different transformations depending on the level of the pupil – from translations, reflections, rotations and enlargements. Properties of 2D and 3D shapes will also be considered. Use of vectors. Data Handling: Starting to investigate probability ranging from words to describe likelihood, working out numerical probabilities and drawing diagrams to display all possible outcomes.</p>	<p>leads to an online competition which some groups may take part in during their Maths lessons.</p>
<p>Assessment: End of term test in the penultimate week of term on the material covered this term.</p>	<p>Assessment: End of term test in the penultimate week of term on the material covered this term.</p>	<p>Assessment: End of term test in the penultimate week of term on the material covered this term.</p>	
<p>Year 9</p>			
<p>Number: Number skills including order of operations, place value, negative numbers, decimal numbers, indices and standard form. Investigating and discovering special properties of certain numbers. Algebra: Expressions, including linear and quadratic, and manipulating algebra including using letters to represent numbers. Geometry: Angles and angle facts at a variety of levels from looking at angles along a straight line to</p>	<p>Number: Calculations including different methods of multiplication or division and rounding. Developing skills at using a calculator. Compound measures and upper and lower bounds. Algebra: Forming equations, looking at ways to solve them including using a number machine and writing the problem as a sentence. Solving equations as well as inequalities. Solving linear simultaneous equations. Geometry: Area and perimeter of shapes, ranging from</p>	<p>Number: Fractions, decimals and percentages, including recurring decimals. Algebra: Sequences including spotting patterns; filling in gaps, finding the rule to generate the sequence and finding the nth term. Plotting coordinates onto a graph and plotting ones which follow a set rule with a view to looking at how this links in with straight line graphs. Further work with straight line graphs, including mid points of</p>	<p>UKMT – Junior Maths Challenge takes place in April. World Maths Day in March leads to an online competition which some</p>

<p>angles in polygons of various sizes. Accurately drawing shapes using a ruler and a protractor. Pythagoras' theorem. Trigonometry for right-angled triangles. Data Handling: Representing data using tables, charts and graphs. Understanding correlation. Methods of sampling.</p>	<p>rectangles to compound shapes and then circles. Volume and surface area of 3D shapes. Data handling: Analysing data using averages and measures of how spread out the data is. At some levels this will include finding averages from data presented in frequency tables or graphs.</p>	<p>line segments, linear inequalities and perpendicular gradients. Ratio and Proportion: Looking at the differences between ratio and proportion, then linking this in to skills done previously with percentages. Percentages of amounts. Simple and compound interest. Creating and using scale drawings. Iterative processes. Geometry: Reflective and rotational symmetry, similarity including congruency, and a selection of the different transformations depending on the level of the pupil – from translations, reflections, rotations and enlargements. Properties of 2D and 3D shapes will also be considered. Use of vectors. Data handling: Continuing to investigate probability ranging from words to describe likelihood, working out numerical probabilities and drawing diagrams to display all possible outcomes.</p>	<p>groups may take part in during their Maths lessons.</p>
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<p>Year 10</p>			
<p>Number: Number skills including order of operations, place value, negative numbers, decimal numbers, indices, surds and standard form. Investigating and discovering special properties of certain numbers. Algebra: Expressions, including linear and quadratic, and manipulating algebra including using letters to represent numbers. Manipulation of more complex expressions, in particular fractions. Geometry: Angles and angle facts at a variety of levels from looking at angles along</p>	<p>Number: Calculations including different methods of multiplication or division and rounding. Developing skills at using a calculator. Compound measures and upper and lower bounds. Using the product rule for counting. Algebra: Forming equations, looking at ways to solve them including using a number machine and writing the problem as a sentence. Solving equations as well as inequalities. Solving linear simultaneous equations and for some groups more advanced simultaneous equations.</p>	<p>Number: Fractions, decimals and percentages, including recurring decimals. Algebra: Sequences including spotting patterns; filling in gaps, finding the rule to generate the sequence and finding the nth term. Plotting coordinates onto a graph and plotting ones which follow a set rule with a view to looking at how this links in with straight line graphs. Further work with straight line graphs, including mid points of line segments, linear inequalities,</p>	

<p>a straight line to angles in polygons of various sizes and circle theorems. Accurately drawing shapes using a ruler and a protractor. Pythagoras' theorem. Trigonometry for both right-angled and, at some levels, non-right-angled triangles. Data Handling: Representing data using tables, charts and graphs. Understanding correlation. Methods of sampling. Use of quartiles and representing data using boxplots and cumulative frequency diagrams.</p>	<p>Drawing more complicated graphs, e.g. the reciprocal and exponential functions. Using iteration to find solutions to equations. Geometry: Area and perimeter of shapes, ranging from rectangles to compound shapes and then circles, including arcs, sectors and segments. Volume and surface area of 3D shapes. Data handling: Analysing data using averages and measures of how spread out the data is. At some levels this will include finding averages from data presented in frequency tables or graphs and presenting data in histograms.</p>	<p>perpendicular gradients and kinematics graphs. At some levels transformations of graphs is introduced. Ratio and Proportion: Looking at the differences between ratio and proportion, then linking this in to skills done previously with percentages. Percentages of amounts. Simple and compound interest. Creating and using scale drawings. Iterative processes. Direct and inverse proportion. Geometry: Reflective and rotational symmetry, similarity including congruency, and a selection of the different transformations depending on the level of the pupil – from translations, reflections, rotations and enlargements. Properties of 2D and 3D shapes will also be considered. Use of vectors. Combinations of transformations of shapes, including the use of matrices for such transformations. Data handling: Continuing to investigate probability ranging from words to describe likelihood, working out numerical probabilities and drawing diagrams to display all possible outcomes. Conditional probability.</p>	
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<p>Year 11</p>			
<p>Number: Number skills including order of operations, place value, negative numbers, decimal numbers, indices, surds (including compound surds) and standard form. Investigating and discovering special properties of certain numbers. Algebra:</p>	<p>Number: Calculations including different methods of multiplication or division and rounding. Developing skills at using a calculator. Compound measures and upper and lower bounds. Using the product rule for counting.</p>	<p>Before students go on study leave, the summer term will be spent revising.</p>	

<p>Expressions, including linear and quadratic, and manipulating algebra including using letters to represent numbers. Manipulation of more complex expressions, in particular fractions. Identities and proof. Factor theorem. Composite functions. Geometry: Angles and angle facts at a variety of levels from looking at angles along a straight line to angles in polygons of various sizes and circle theorems. Accurately drawing shapes using a ruler and a protractor. Pythagoras' theorem including in 3D for some groups. Trigonometry for both right-angled and, at some levels, in 3D and for non-right-angled triangles. More advanced students will also investigate the trigonometric functions in more depth and meet differentiation and some of its applications. Data Handling: Representing data using tables, charts and graphs. Understanding correlation. Methods of sampling. Use of quartiles and representing data using boxplots and cumulative frequency diagrams.</p>	<p>Algebra: Forming equations, looking at ways to solve them including using a number machine and writing the problem as a sentence. Solving equations as well as inequalities, for some groups solving quadratic inequalities. Solving linear simultaneous equations and for some groups more advanced simultaneous equations. Drawing more complicated graphs, e.g. the reciprocal and exponential functions. Using iteration to find solutions to equations. Inverse functions. Geometry: Area and perimeter of shapes, ranging from rectangles to compound shapes and then circles, including arcs, sectors and segments. Volume and surface area of 3D shapes. Data handling: Analysing data using averages and measures of how spread out the data is. At some levels this will include finding averages from data presented in frequency tables or graphs and presenting data in histograms.</p>		
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