

## MATHS Y7 LONG TERM PLAN 2019 – 20

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	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13
C y c l e 1	W/C 02/09	W/C 09/09	W/C 16/09	W/C 23/09	W/C 30/09	W/C 07/10	W/C 14/10	W/C 21/10	W/C 28/10	W/C 04/11	W/C 11/11	W/C 18/11	W/C 25/11
		Inequalities  <b>Arithmetic Test 1</b>	Beginnings of algebra/inverses	Compound perimeter	Related facts converting between metric units		<b>Assessment &amp; feedback</b>		<b>Arithmetic Test 2</b>	HCF/LCM including from Venn diagrams Contextual HCF/LCM	Use algebra for missing lengths <b>Arithmetic T3</b>	Substitution	Substituting Fractions
	Place value: Ordering positive, negative, using =, <, >, ≥, ≤, ≠ Mode & median	Place value: Round to appropriate degrees of accuracy (dp and sf) use approximation to estimate answers and state resulting errors as $a < x \leq b$	Addition & subtraction: Use formal methods Range, inverse	Addition & subtraction: Calculate and solve using perimeter	Mult & divid: Standard methods (decimals), basic area Powers of ten, approximating x and +	Mult & divid: x and + inverse, squares, cubes, powers and real roots, order of operations	Revision, consolidation, exam practice	<b>DIRT</b>	Mult & divid: primes and prime factor decomp, HCF/LCM	Mult & divid: Find and solve problems for area of rectangle, triangle, compound area,	Negatives: Add subtract negatives	Negatives: Multiply, divide negatives Order of operations with negatives	Fractions 1: expressing, identify equivalent and compare using inequality symbols
C y c l e 2	W/C 09/12	W/C 16/12	W/C 06/01	W/C 13/01	W/C 20/01	W/C 27/01	W/C 03/02	W/C 10/02	W/C 24/02	W/C 02/03	W/C 09/03	W/C 16/03	W/C 23/03
	Reciprocals	Algebraic Fractions <b>Arithmetic Test 4</b>	Algebraic Fractions	Probabilities and percentages from two-way tables	Inverse Mean		<b>Arithmetic Test 5</b>		Area and volume. Worded problems	Substitution involving indices	Expand double brackets	Factorise and solve a single bracket quadratic.	Geometric Sequences.
	Fractions 1: covert between mixed, improper Simplify (using HCF vocab) Convert between fractions and decimals	Fractions 1: Add & subtract fract (using LCM vocab)	Fractions 1: Find fraction of amount Multiply and divide fractions	Stats 1: Data cycle, tally charts, two way tables	Stats 1: MMMR, outliers, draw and interpret bar charts, pictograms & line graphs MEAN	Revision, consolidation, exam practice	<b>Assessment &amp; feedback</b>	<b>DIRT</b>	Algebra 1: Introduction and forming expressions Interpret notation	Algebra 1: Substituting (area of trapezium, simple line graph, formulae)  <b>Arithmetic Test 6</b>	Algebra 1: Simplifying, expanding single brackets	Algebra 1: Factorising	Algebra 1: Generate sequence term-to-term or position to term Find nth term
C y c l e 3	W/C 30/03	W/C 20/04	W/C 27/04	W/C 04/05	W/C 11/05	W/C 18/05	W/C 01/06	W/C 08/06	W/C 15/06	W/C 22/06	W/C 29/06	W/C 06/07	W/C 13/07
	<b>Arithmetic Test 7</b>	Calculator Method-using multipliers	Compound Repeated percentage increase/decrease	Forming and solving with perimeter, area and angles	Constructing Triangles	Forming and solving equations	Forming and solving equations	<b>Arithmetic Test 9</b>	Assessment & feedback	Assessment & feedback	Forming and solving equations	Forming and solving equations	

Percentages: Interpret, express as a % of another, compare quantities, basic FDP	Percentages: Solve problems, increase decrease	Percentages: reverse %	Solving equations: solving linear, simplify and solve, solve complex (including indices)	Geometry: Describe and sketch special lines, angles and polygons Use protractor	Geometry: Angle rules basic <b>Arithmetic Test 8</b>	Geometry: Angle rules parallel lines	Revision, consolidation, exam practice				Geometry: Angles in triangles & quadrilaterals	Geometry: Angles in polygons <b>Arithmetic Test 10</b>	
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## MATHS Y8 LONG TERM PLAN 2019 – 20

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13
<b>Cycle 1</b>	<b>W/C 02/09</b>	<b>W/C 09/09</b>	<b>W/C 16/09</b>	<b>W/C 23/09</b>	<b>W/C 30/09</b>	<b>W/C 07/10</b>	<b>W/C 14/10</b>	<b>W/C 21/10</b>	<b>W/C 04/11</b>	<b>W/C 11/11</b>	<b>W/C 18/11</b>	<b>W/C 25/11</b>	<b>W/C 02/12</b>
		reverse fractions <b>Arithmetic Test 1</b>			Mixed worded GCSE exam questions.	Leaving answers in terms of Pi. Imperial (miles/km) <b>Arithmetic Test 2</b>	Assessment & feedback	<b>Arithmetic Test 2</b>	Including compound shapes with circles.	3-D Pythagoras' Area of a triangle using Pythagoras'	fractional and negative indices	4 operations with standard form.	
	Fractions recap & extend: all operations fractions	Fractions recap & extend: all operations fractions	Percentages: simple interest compound interest reverse % problems solving	Percentages: simple interest compound interest reverse % problems solving	Percentages: simple interest compound interest reverse % problems solving	Geometry: area circles, area trapezium, converting between area units, circumference	Revision, consolidation, exam practice	DIRT	Geometry: area circles, area trapezium, converting between area units, circumference	Geometry: Pythagoras' Theorem <b>Arithmetic Test3</b>	Algebra: recap of index laws,	Algebra: standard form	Algebra 2: Recap basic skills Collecting like terms Forming an expression from words Expand & Factorise single
<b>Cycle 2</b>	<b>W/C 09/12</b>	<b>W/C 16/12</b>	<b>W/C 06/01</b>	<b>W/C 13/01</b>	<b>W/C 20/01</b>	<b>W/C 27/01</b>	<b>W/C 03/02</b>	<b>W/C 10/02</b>	<b>W/C 24/02</b>	<b>W/C 02/03</b>	<b>W/C 09/03</b>	<b>W/C 16/03</b>	<b>W/C 23/03</b>
		<b>Arithmetic Test 4</b>		Factorising Quadratics and Expanding cubics			<b>Arithmetic Test 5</b>			<b>Arithmetic Test 6</b>	Direct and indirect proportion	Area and volume scale factors	
	Algebra 2: Recap solving	Algebra 2: Inequalities	Algebra 2: Algebra with area Rearranging	Algebra 2: Expanding & Factorising	Revision week	Assessment & feedback	Ratio Basics and Sharing -simplifying -sharing ratios	DIRT	Multiplicative relationships -ratios as fractions -work rate	Compound Units -best buys -recipes	Exchange rates	Similar Shapes	Problem solving with ratio and area.

C y c l e 3	W/C 30/03	W/C 20/04	W/C 27/04	W/C 04/05	W/C 11/05	W/C 18/05	W/C 01/06	W/C 08/06	W/C 15/06	W/C 22/06	W/C 29/06	W/C 06/07	W/C 13/07
	Arithmetic Test 7	Quadratic graphs Perpendicular lines	Significance of gradient e.g. DST, rates of change	Median from a grouped table	Quartiles from a list of data and IQR. Comparing data sets.	Compare pie charts.	AND/OR rule	Arithmetic Test 9	Assessment & feedback Set theory notation		Combined transformation Negative enlargement.	Arithmetic Test 10	
	Algebra 3: Plotting Linear graphs	Algebra 3: Finding the gradient Parallel	Algebra 3: Rearranging	Stats: 2 Averages including frequency tables Frequency polygons	Stats: 2 Stem & Leaf Scatter graphs	Stats:2 Pie Charts  Arithmetic Test 8	Probability: -Scale -Mutually exclusive - theoretical probability -sample space	Revision, consolidation, exam practice Assessment & feedback	Probability: -Relative frequency -Venn diagrams	Geometry: Transformations	Geometry: Transformations	Geometry: Loci Constructions -angle bisector -perpendicular bisector -loci of a point	



## MATHS Y9 Foundation

### LONG TERM PLAN 2019-20

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13
C y c l e 1	W/C 02/09	W/C 09/09	W/C 16/09	W/C 23/09	W/C 30/09	W/C 07/10	W/C 14/10	W/C 21/10	W/C 04/11	W/C 11/11	W/C 18/11	W/C 25/11	W/C 02/12
	Unit 1a: Integers and Place Value - Identify value of a digit - Order positive and negative integers and decimals - All 4 operations including with negatives	-Multiply and divide with powers of 10  Arith Test 1	- BIDMAS - Round to powers of 10 - Check by using inverse operations Unit 1b: Decimals -Add and subtract decimals	-Multiply and divide with decimals. -Using one calculation to work out another.	Rounding to decimal places, significant figures. Estimation with significant figures.	Revision Cycle 1 Assessment	Unit 1b: Indices, powers and roots. - Recall squares and their roots to 10x10 - Recall cubes and their roots to 5x5 - Index notation - BIDMAS with powers	- Index Laws; Multiply and Divide - Use calculators for positive and negative, brackets, powers and roots, all operations  Arith Test 2	Unit 1d: Factors, multiples and primes. - List factors and multiples - Know primes - Prime factor decomposition - Find LCM and HCF, including Venn Diagrams.	Unit 2a: Algebra the basics. - Write an expression - Collect like terms - Multiply expressions  Arith Test 3	- Simplify by cancelling - Use index notation when multiplying and dividing algebraic terms - Index notation in algebra	Unit 2b: Expanding and Factorising expressions -Expand single brackets and double brackets -Factorise into single brackets -Factorise quadratics.	Unit 2c: Expressions and substitution into formulae - Write expressions - Derive a formula - Substitute positive values into expressions
C y c l e 2	W/C 09/12	W/C 16/12	W/C 06/01	W/C 13/01	W/C 20/01	W/C 27/01	W/C 03/02	W/C 10/02	W/C 24/02	W/C 02/03	W/C 09/03	W/C 16/03	W/C 23/03

	-Substitute negative values into expressions -Substitute into harder expressions	<b>Unit 3a: Tables</b> - Data collection in tables for grouped, discrete and continuous. -All 4 types of averages from a list -Averages from a frequency table (discrete only)  <b>Arith Test 4</b>	-Draw and interpret two-way tables -Find probabilities from two-way tables. -Draw and interpret frequency trees	<b>Unit 3b: Charts and Graphs</b> -Plot and read coordinates - Pictograms - Bar charts -Bar-line charts - Line graphs	- Draw and interpret stem and leaf diagrams including back-to-back - Plot and interpret bar charts for grouped data.	<b>Unit 3c: Pie Charts</b> -Draw and interpret pie charts -compare two pie charts  <b>Arith Test 5</b>	<b>Revision Cycle 2 Assessment</b>  <b>Arith Test 5</b>	<b>Unit 3d: Scatter Graphs</b> -Draw scatter graphs -Estimate using the line of best fit -Understand correlation. <b>Unit 4a: Fractions</b> -Simplify, compare and order fractions.	-converting between improper and mixed fractions -fraction of an amount -add and subtract including mixed fractions	-Multiply and divide including mixed fractions.  <b>Arith Test 6</b>	<b>Unit 4b: Fractions, decimals and percentages</b> -Convert between FDP -Order FDP -Convert recurring decimals to fractions and vice versa	<b>Unit 4c: Percentages</b> -Express an amount as a % -Find a percentage of an amount (non-calc and multiplier method) -Percentage increase/decrease (non-calc)	-Percentage increase/decrease (calculator) -Reversepercentages -simple interest -compound interest and depreciation
<b>Cycle 3</b>	<b>W/C 30/03</b>	<b>W/C 20/04</b>	<b>W/C 27/04</b>	<b>W/C 04/05</b>	<b>W/C 11/05</b>	<b>W/C 18/05</b>	<b>W/C 01/06</b>	<b>W/C 08/06</b>	<b>W/C 15/06</b>	<b>W/C 22/06</b>	<b>W/C 29/06</b>	<b>W/C 06/07</b>	<b>W/C 13/07</b>
	-Real-life percentage problems.  <b>Arith Test 7</b>	<b>Unit 5a: Equations</b> -Solving 1 step, 2 step and 3 step equations including with brackets. -Solving equations with unknowns on both sides. -Solving with fractional parts.	-Substitution including application and into formulae -Forming and solving with angles and perimeter	<b>Unit 5b: Inequalities</b> -Representing inequalities on a number line -Solving one sided inequalities -Solving two-sided inequalities	<b>Unit 5c: Sequences</b> -Finding missing terms in a sequence (linear, geometric) -Finding the nth term of a linear sequence -Pattern sequences	-Determining whether a value is in a sequence or not -Basic Quadratic sequences  <b>Arith Test 8</b>	<b>Unit 6: Properties of shapes, parallel lines and angle facts.</b> -Estimate and measuring angles -Basic angle theories (straight line, around a point, vertically opposite) -Angles in triangles and quadrilaterals.	-Properties of shapes -Properties of triangles and quadrilaterals -Parallel and perpendicular lines  <b>Arith Test 9</b>	<b>Revision Cycle 3 Assessment</b>	-Angles in parallel lines -Multi-step problems with angles in parallel lines -Angles in regular and irregular polygons -exterior and interior angles.	<b>Unit 7: Averages.</b> -Types of Data -Recap of averages but includes reverse mean and problem-solving -Averages from frequency table	-Averages from grouped data (modal, median and mean).  <b>Arith Test 9</b>	



### MATHS Y9 HIGHER – LONG TERM PLAN 2019-20

Extension (Set 1) topics

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13
<b>Cycle 1</b>	W/C 02/09	W/C 09/09	W/C 16/09	W/C 23/09	W/C 30/09	W/C 07/10	W/C 14/10	W/C 21/10	W/C 04/11	W/C 11/11	W/C 18/11	W/C 25/11	W/C 02/12

	<p><b>Unit 1a:</b></p> <p><b>Number</b></p> <ul style="list-style-type: none"> <li>-Add, subtract, multiply and divide integers and decimals</li> <li>-Use a calculation to solve a related calculation</li> <li>-Product rule for counting</li> <li>-Round numbers to the nearest 10, 100, 1000, integer</li> <li>-Round to a given number of significant figures</li> </ul>	<ul style="list-style-type: none"> <li>-Estimate calculations with integers and decimals by rounding to 1 significant figure</li> </ul> <p><b>Unit 1b:</b></p> <ul style="list-style-type: none"> <li>-Understand and use index notation, esp powers of 10, inc. negative powers</li> <li>-Understand and be able to recognize squares, cubes and their roots (up to 15 squared and 7 cubed)</li> <li>-Estimate square and cube roots</li> </ul> <p><b>Arith Test 1</b></p>	<ul style="list-style-type: none"> <li>-Apply BIDMAS to calculations</li> <li>-Use a calculator efficiently</li> <li>-Apply index laws (multiplication, division, power of a power)</li> <li>-Find the value of calculations (power 0, power 1, fractional and negative)</li> <li>-Combined index laws</li> <li>-Solve problems involving indices e.g. write as base 3, solve using algebra</li> </ul>	<p><b>Unit 1c:</b></p> <ul style="list-style-type: none"> <li>-Identify and define factors, multiples and prime numbers</li> <li>-Find the prime factor decomposition and write as a product using index notation</li> <li>-Find the LCM and HCF of two or more numbers using prime factors</li> <li>-Solve worded LCM/HCF problems</li> </ul>	<p><b>Unit 1d:</b></p> <ul style="list-style-type: none"> <li>-Convert between standard form and ordinary numbers, including ordering</li> <li>-Multiply and divide in standard form, adjusting answers where necessary</li> <li>-Add and subtract in standard form, adjusting answers where necessary</li> <li>-Solve worded problems using standard form</li> <li>-Simplify surds</li> </ul>	<p style="text-align: center;"><b>Revision</b></p> <p style="text-align: center;"><b>Cycle 1 Assessment</b></p>	<ul style="list-style-type: none"> <li>-Multiply, divide, add and subtract surds</li> <li>-Expand single and double brackets with surds</li> </ul> <p><b>Unit 2a</b></p> <p><b>Algebra</b></p> <ul style="list-style-type: none"> <li>-Know the difference between a term, expression, equation, formula and identity</li> <li>-Collect like terms</li> <li>-Substitute positive and negative numbers into formulae</li> <li>-Simplify expressions by cancelling</li> </ul>	<ul style="list-style-type: none"> <li>-Simplify expressions using index laws e.g. <math>(4ab^2)^3</math></li> <li>-Expand single brackets and two single brackets</li> <li>-Expand double brackets inc. <math>(2x + 3y)(3x - y)</math>, <math>(3x + 2)^2</math></li> <li>-Factorise quadratic expressions in the form <math>ax^2 + bx + c</math></li> <li>-Factorise quadratic expressions by finding a factor first; difference of two squares</li> </ul> <p><b>Arith Test 2</b></p>	<p><b>Unit 2b</b></p> <p><b>Equations</b></p> <ul style="list-style-type: none"> <li>-Solve 1, 2 and 3 step equations</li> <li>-Solve equations with unknowns on both sides inc negatives</li> <li>-Solve equations with brackets inc negatives</li> <li>-Solve equations with fractional co-efficients</li> <li>-Form and solve equations from word problems</li> </ul>	<ul style="list-style-type: none"> <li>-Change the subject of 1 and 2 step formulae</li> <li>-Change the subject of complex formulae inc powers and roots</li> <li>-Change the subject where subject is on both sides (factorizing)</li> <li>-Simple proofs and use of <math>\equiv</math> in "show that" style questions, know the difference between an equation and an identity.</li> <li>-Use iteration to find approx solutions</li> </ul> <p><b>Arith Test 3</b></p>	<p><b>Unit 2c</b></p> <p><b>Sequences</b></p> <ul style="list-style-type: none"> <li>-Recognise sequences: odd, even, triangular, square, cube, Fibonacci</li> <li>-Generate sequences from diagrams and from position-to-term and term-to-term rule</li> <li>-Find the nth term of an arithmetic sequence</li> <li>-Determine whether a given number is a term in a sequence, find the first term above or below a given number</li> </ul>	<ul style="list-style-type: none"> <li>-Find a term in any sequence given the position by substitution</li> <li>-Find the nth term of quadratic sequences</li> <li>-Distinguish between arithmetic and geometric sequences, describe sequences</li> <li>-Recognise and use simple geometric progressions</li> <li>-Continue geometric progression, find term-to-term rule</li> <li>-Solve problems</li> </ul>	<p><b>Unit 3a</b></p> <p><b>Averages and range</b></p> <ul style="list-style-type: none"> <li>-Design and use two way tables</li> <li>-Types of data (discrete, continuous, qualitative, quantitative)</li> <li>-Averages from a list (mean, median, mode, range, quartiles, IQR)</li> <li>-Select an appropriate average (advantages and disadvantages)</li> <li>-Draw stem and leaf diagrams inc back-to-back</li> </ul>
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	<b>W/C 09/12</b>	<b>W/C 16/12</b>	<b>W/C 06/01</b>	<b>W/C 13/01</b>	<b>W/C 20/01</b>	<b>W/C 27/01</b>	<b>W/C 03/02</b>	<b>W/C 10/02</b>	<b>W/C 24/02</b>	<b>W/C 02/03</b>	<b>W/C 09/03</b>	<b>W/C 16/03</b>	<b>W/C 23/03</b>
<b>Cycle 2</b>	<ul style="list-style-type: none"> <li>-Interpret stem-and-leaf diagrams</li> <li>-Averages from a frequency table</li> <li>-Averages from a grouped frequency table; understand why mean and median are estimates)</li> <li>-Reverse and combined mean</li> </ul> <p><b>Unit 3b:</b></p> <p><b>Representing Data</b></p> <ul style="list-style-type: none"> <li>-Construct and interpret bar charts, dual bar charts, composite bar charts and line graphs</li> </ul>	<ul style="list-style-type: none"> <li>-Draw, interpret and compare pie charts</li> <li>-Draw and interpret frequency polygons</li> <li>-Draw histograms of equal class widths</li> <li>-Interpret histograms of equal class widths (calculate frequency, estimate median)</li> <li>-Construct and interpret time-series graphs, comment on trends</li> </ul> <p><b>Arith Test 4</b></p>	<ul style="list-style-type: none"> <li>-Compare the mean and range of two distributions, or median or mode</li> </ul> <p><b>Unit 3c:</b></p> <p><b>Scatter graphs</b></p> <ul style="list-style-type: none"> <li>-Draw and interpret scatter graphs</li> <li>-Describe the relationship between two variables, describe correlation, identify outliers</li> <li>-Draw line of best fit and use to predict values</li> </ul>	<p><b>Unit 4a</b></p> <p><b>Fractions</b></p> <ul style="list-style-type: none"> <li>-Express a number as a fraction of another, find fractions of amounts</li> <li>-Convert between fractions, decimals and %</li> <li>-Reciprocal of an integer, fraction or decimal</li> <li>-Simplify a fraction inc algebraic</li> <li>-Find equivalent fractions, compare the size of fractions, find the middle fraction</li> </ul>	<ul style="list-style-type: none"> <li>-Convert between mixed and improper fractions -Add and subtract fractions (inc integers and mixed numbers)</li> <li>-Multiply and divide fractions (inc integers and mixed numbers)</li> <li>-Convert between fractions and recurring decimals</li> <li>-Order recurring decimals</li> </ul>	<p><b>Unit 4b</b></p> <p><b>Percentages</b></p> <ul style="list-style-type: none"> <li>-Express a number as a % of another, work out simple % of amounts</li> <li>-Percentage increase and decrease (non-calculator)</li> <li>-Using a multiplier for percentage increase and decrease</li> <li>-Repeated % increase and decrease</li> <li>-Calculate % change</li> </ul>	<ul style="list-style-type: none"> <li>-Reverse percentages</li> <li>-Simple interest</li> <li>-Compound interest</li> <li>-Calculate the time and percentage rate in simple and compound interest</li> <li>-Real life worded problems</li> </ul> <p><b>Arith Test 5</b></p>	<p style="text-align: center;"><b>Revision</b></p> <p style="text-align: center;"><b>Cycle 2 Assessment</b></p>	<p><b>Unit 4c:</b></p> <p><b>Ratio and Proportion</b></p> <ul style="list-style-type: none"> <li>-Simplify ratios</li> <li>-Unit ratios and comparing ratios</li> <li>-Share in a ratio</li> <li>-Find the missing part of a ratio</li> <li>-Problem solving with ratio</li> </ul>	<ul style="list-style-type: none"> <li>-Ratios and fractions</li> <li>-Recipes</li> <li>-Scales</li> <li>-Best value</li> <li>-Currency conversion</li> <li>-Direct proportion</li> </ul> <p><b>Arith Test 6</b></p>	<p><b>Unit 5a:</b></p> <p><b>Polygons and Angles</b></p> <ul style="list-style-type: none"> <li>-Basic angle facts (right angle, straight line, around a point)</li> <li>-Angles in a triangle inc algebra</li> <li>-Angles in a quadrilateral inc algebra</li> <li>-Angles in parallel lines basic</li> <li>-Angles in parallel lines complex inc algebra</li> </ul>	<ul style="list-style-type: none"> <li>-Exterior angles in polygons</li> <li>-Interior angles in polygons</li> <li>-Challenging angles in polygons</li> </ul> <p><b>Unit 5b:</b></p> <p><b>Pythagoras and Trigonometry</b></p> <ul style="list-style-type: none"> <li>-Find the hypotenuse</li> <li>-Find the shorter side inc surd form</li> </ul>	<ul style="list-style-type: none"> <li>-Applied Pythag</li> <li>-Length of line segment</li> <li>-Trig – find missing lengths</li> <li>-Trig – find missing angles</li> <li>-Angles of elevation and depression</li> </ul>



	<p><b>Unit 8: Perimeter, Area and Volume.</b></p> <ul style="list-style-type: none"> <li>-Converting metric units of lengths, mass and capacity</li> <li>-Find the perimeter of 2-D shapes and compound shapes</li> <li>-Find the area of shapes on a grid.</li> </ul>	<ul style="list-style-type: none"> <li>-Find the area of a rectangle and triangle.</li> <li>-Find the area of a trapezium and parallelogram (included shaded regions).</li> <li>-Find the area and perimeter of compound shapes.</li> </ul>	<ul style="list-style-type: none"> <li>-3-D shape properties.</li> <li>-Nets of 3-D shapes.</li> <li>-Surface area of cuboids, triangular prisms and 3-D shape prisms.</li> </ul>	<ul style="list-style-type: none"> <li>-Volume of cuboid and triangular prisms.</li> <li>-Volume of cylinder and other prisms.</li> <li>-Volume of all prisms.</li> </ul>	<ul style="list-style-type: none"> <li>-Volume of compound shapes.</li> </ul>	<p><b>Revision Cycle 1 Assessment</b></p>	<p><b>Unit 9a: Real-life graphs</b></p> <ul style="list-style-type: none"> <li>-Plotting coordinates</li> <li>-Midpoint of coordinates and 3-D.</li> <li>-Drawing and interpreting conversion diagrams.</li> </ul>	<ul style="list-style-type: none"> <li>-Distance Time Speed formula.</li> <li>-Drawing and interpreting distance-time graphs.</li> </ul>	<p><b>Unit 9b: Straight-line Graphs.</b></p> <ul style="list-style-type: none"> <li>-Plotting linear graphs with positive and negative gradients.</li> <li>-Rearranging with linear graphs.</li> </ul>	<ul style="list-style-type: none"> <li>-Finding the equation of a line from a graph</li> <li>-Identifying parallel lines.</li> </ul>	<p><b>Unit 10: Transformations</b></p> <ul style="list-style-type: none"> <li>-Reflecting shapes and describing.</li> <li>-Rotating shapes and describing.</li> <li>-Translating 2-D shapes.</li> </ul>	<ul style="list-style-type: none"> <li>-Describing translations.</li> <li>-Enlargement on a grid and from a point</li> <li>-Describing Enlargements</li> <li>-Describing Transformations.</li> </ul>	<p><b>Unit 11a: Ratio</b></p> <ul style="list-style-type: none"> <li>-Writing ratios and simplifying.</li> <li>-Sharing ratios (including problem-solving)</li> </ul>
<b>Cycle 2</b>	<p><b>W/C 09/12</b></p> <ul style="list-style-type: none"> <li>-Ratios as fractions</li> <li>-Comparing ratios</li> <li>-Recipes</li> <li>-Best Value</li> <li>-Scales</li> </ul>	<p><b>W/C 16/12</b></p> <p><b>Unit 11b: Proportion</b></p> <ul style="list-style-type: none"> <li>-Direct Proportion including graphs</li> <li>-Inverse proportion</li> </ul>	<p><b>W/C 06/01</b></p> <ul style="list-style-type: none"> <li>-Inverse proportion graphs</li> </ul> <p><b>Unit 12: Pythagoras' Theorem and Trigonometry</b></p> <ul style="list-style-type: none"> <li>-Finding the hypotenuse and shorter side</li> <li>-Worded Pythagoras'</li> </ul>	<p><b>W/C 13/01</b></p> <ul style="list-style-type: none"> <li>-Length of line segment</li> <li>-3-D Pythagoras' (high ability)</li> <li>-Trigonometry -labelling the sides and finding missing angles.</li> </ul>	<p><b>W/C 20/01</b></p> <ul style="list-style-type: none"> <li>-Finding missing lengths.</li> <li>-Trigonometry mixed problems, angles of elevation and depression.</li> <li>-Trigonometry and Pythagoras' mixed problems</li> </ul>	<p><b>W/C 27/01</b></p> <p><b>Unit 13: Probability</b></p> <ul style="list-style-type: none"> <li>-probability scale.</li> <li>-listing events</li> <li>-sample space diagrams</li> <li>-probability tables (1-p)</li> </ul>	<p><b>W/C 03/02</b></p> <p><b>Revision Cycle 2 Assessment</b></p>	<p><b>W/C 10/02</b></p> <ul style="list-style-type: none"> <li>-Relative frequency</li> <li>-Independent events</li> <li>-Probability tree diagrams (independent and dependent)</li> </ul>	<p><b>W/C 24/02</b></p> <ul style="list-style-type: none"> <li>-Venn diagrams using set theory notation.</li> </ul>	<p><b>W/C 02/03</b></p> <p><b>Unit 14: Multiplicative reasoning</b></p> <ul style="list-style-type: none"> <li>-Distance Time Speed (recap if needed)</li> <li>-Mass, density and volume.</li> <li>-express an amount as a percentage and percentage change</li> </ul>	<p><b>W/C 09/03</b></p> <ul style="list-style-type: none"> <li>-percentage of an amounts (multiplier calculator method)</li> <li>-Percentage increase/decrease (multiplier method)</li> <li>-reverse percentages</li> <li>-compound interest</li> </ul>	<p><b>W/C 16/03</b></p> <ul style="list-style-type: none"> <li>-compound depreciation</li> <li>-exchange rates</li> <li>-best value</li> </ul>	<p><b>W/C 23/03</b></p> <p><b>Unit 15a: Plans and Elevations</b></p> <ul style="list-style-type: none"> <li>-isometric drawings</li> <li>-plans and elevations</li> <li>-measuring and constructing angles.</li> </ul>
	<p><b>W/C 30/03</b></p> <p><b>Unit 15b: Constructions and Loci.</b></p> <ul style="list-style-type: none"> <li>-Constructing triangles.</li> <li>-Angle bisectors</li> <li>-Perpendicular bisectors.</li> <li>-Constructing other angles.</li> </ul>	<p><b>W/C 20/04</b></p> <ul style="list-style-type: none"> <li>-Loci</li> <li>-Bearings</li> </ul>	<p><b>W/C 27/04</b></p> <p><b>Unit 16: Quadratic equations (expanding and factorising)</b></p> <ul style="list-style-type: none"> <li>-Expand brackets (recap folder) or mixed lesson</li> <li>-Factorising expressions</li> </ul>	<p><b>W/C 04/05</b></p> <ul style="list-style-type: none"> <li>-Solving quadratics by factorising.</li> <li>-Linear graphs and rearranging.</li> <li>-Quadratic graphs</li> </ul>	<p><b>W/C 11/05</b></p> <ul style="list-style-type: none"> <li>-Quadratic graphs finding solutions</li> </ul> <p><b>Unit 17: Perimeter, Area and Volume 2.</b></p> <ul style="list-style-type: none"> <li>-perimeter of compound shapes (recap)</li> <li>-Area of trapezium</li> <li>-Area of compound</li> </ul>	<p><b>W/C 18/05</b></p> <ul style="list-style-type: none"> <li>-Parts of a circle, area and circumference of a circle</li> <li>-Area and circumference of parts of a circle (semi/quarter)</li> </ul>	<p><b>W/C 01/06</b></p> <ul style="list-style-type: none"> <li>-Area of sector and arc length</li> <li>-SA of cuboid/triangular prism</li> <li>-SA of cylinder, cones, spheres and pyramids.</li> </ul>	<p><b>W/C 08/06</b></p> <p><b>Revision Cycle 3 Assessment</b></p>	<p><b>W/C 15/06</b></p> <p><b>Revision Cycle 3 Assessment</b></p>	<p><b>W/C 22/06</b></p> <ul style="list-style-type: none"> <li>-Volume of all prisms</li> <li>-Volume of sphere</li> <li>-Volume of cone and pyramids.</li> <li>-Volume of composite solids.</li> </ul>	<p><b>W/C 29/06</b></p> <p><b>Unit 18a: Fractions</b></p> <ul style="list-style-type: none"> <li>-Add and subtract</li> <li>-Multiply and divide including mixed fractions.</li> <li>-Reciprocal</li> </ul>	<p><b>W/C 06/07</b></p> <p><b>Unit 18b: Indices</b></p> <ul style="list-style-type: none"> <li>-Index Laws (multiplication, division and brackets)</li> <li>-Fractional negative indices.</li> </ul>	<p><b>W/C 13/07</b></p>



# MATHS Y10 HIGHER – LONG TERM PLAN 2019-20

Extension (Set 1) topics

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13
C y c l e 1	W/C 02/09	W/C 09/09	W/C 16/09	W/C 23/09	W/C 30/09	W/C 07/10	W/C 14/10	W/C 21/10	W/C 04/11	W/C 11/11	W/C 18/11	W/C 25/11	W/C 02/12
	<p><b>Unit 5b</b></p> <p><b>Pythagoras:</b></p> <ul style="list-style-type: none"> <li>-Find the hypotenuse</li> <li>-Shorter side (Inc surd form)</li> <li>-Length of a line segment</li> <li>-Worded application of pythag</li> <li>-Multi-step problems</li> </ul>	<p><b>-3D Pythag</b></p> <p><b>Trigonometry:</b></p> <ul style="list-style-type: none"> <li>-Find missing lengths</li> <li>-Find missing angles</li> <li>-Angles of elevation and depression</li> <li>-Mixed lengths and angles (inc multi-step problems)</li> </ul>	<p><b>-Exact values</b></p> <p><b>-3D Trig</b></p> <p><b>Unit 6a:</b></p> <p><b>Basic graphs:</b></p> <ul style="list-style-type: none"> <li>-Draw straight line graphs</li> <li>-Draw real life graphs</li> <li>-Distance-time graphs</li> <li>-Velocity-time graphs</li> </ul>	<p><b>-Horizontal and vertical lines</b></p> <p><b>Unit 6b:</b></p> <p><b>Linear graphs:</b></p> <ul style="list-style-type: none"> <li>-Gradient and y-intercept</li> <li>-Plot and sketch graphs in the form <math>y = mx+c</math></li> <li>-Find the eqn of a line from coordinates</li> <li>-Straight line graphs in the form <math>ax + by = c</math></li> <li>-Parallel and perpendicular lines</li> </ul>	<p><b>Unit 6c:</b></p> <p><b>Other graphs:</b></p> <ul style="list-style-type: none"> <li>-Plot quadratic graphs</li> <li>-Solve quadratic equations using graphs</li> <li>-Cubic graphs</li> <li>-Reciprocal and exponential graphs</li> <li>-Circle graphs</li> </ul>	<p><b>Revision</b></p> <p><b>Cycle 1 Assessment</b></p>	<p><b>-Recognising graphs and contextual problems</b></p> <p><b>Unit 7a</b></p> <p><b>Area and perimeter</b></p> <ul style="list-style-type: none"> <li>-Recap area of a rectangle triangle, parallelogram, trapezium</li> <li>-Recap perimeter of above shapes</li> <li>-Area and perimeter of compound shapes</li> <li>-Problem solving with area and perimeter</li> </ul>	<p><b>Circles:</b></p> <ul style="list-style-type: none"> <li>-Area of a circle</li> <li>-Circumference</li> <li>-Arc length</li> <li>-Area of sector</li> <li>-Compound area and circumference</li> <li>-Circle problems</li> </ul>	<p><b>Unit 7b</b></p> <p><b>3D forms</b></p> <ul style="list-style-type: none"> <li>-SA of prisms</li> <li>-SA of cylinder</li> <li>-Volume of prisms</li> <li>-Volume of a cylinder</li> <li>-Volume of pyramids</li> </ul>	<ul style="list-style-type: none"> <li>-SA of pyramid</li> <li>-Volume of spheres</li> <li>-Volume of cones</li> <li>-SA of spheres</li> <li>-SA of cones</li> </ul>	<p><b>-Frustums</b></p> <ul style="list-style-type: none"> <li>-Compound shapes</li> <li><b>Unit 7c</b></li> <li><b>Accuracy and Bounds</b></li> <li>-Upper and lower bounds</li> <li>-Problem solving with bounds</li> <li>-Truncation</li> </ul>	<p><b>Unit 8a</b></p> <p><b>Transformations</b></p> <ul style="list-style-type: none"> <li>-Reflection and describing reflection</li> <li>-Translation and describing translation</li> <li>-Rotation and describing rotation</li> <li>-Enlarge and describe enlargements (positive and fractional)</li> </ul>	<p><b>Unit 8b</b></p> <p><b>Construction</b></p> <ul style="list-style-type: none"> <li>-Perpendicular bisector, from a point to a line, from a point on a line</li> <li>-Angle bisector, construct a 45, 60 and 90 degree angle</li> <li>-Construct ASA, SAS and SSS triangles</li> </ul>
C y c l e 2	W/C 09/12	W/C 16/12	W/C 06/01	W/C 13/01	W/C 20/01	W/C 27/01	W/C 03/02	W/C 10/02	W/C 24/02	W/C 02/03	W/C 09/03	W/C 16/03	W/C 23/03
	<ul style="list-style-type: none"> <li>-Draw front, side and plan elevations of a 3D shape; draw a sketch given the elevation</li> <li>-Draw and measure bearings</li> <li>-Bearings; lengths and real-life problems using maps and scales</li> </ul>	<ul style="list-style-type: none"> <li>-Locus of a point, line, angle</li> <li>-Apply knowledge of loci to worded problems including shading regions</li> <li><b>Unit 9a:</b></li> <li><b>Quadratics</b></li> <li>-Factorise and solve quadratic equations in the form <math>ax^2 + bx + c = 0</math> including rearranging</li> </ul>	<p><b>Simultaneous Equations</b></p> <ul style="list-style-type: none"> <li>-Solve linear eqns by elimination where neither, one or both need multiplying</li> <li>-Solve eqns by substitution inc. rearranging first</li> <li>-Set up and solve from worded problems</li> <li>-Solve quadratic sim. eqns with and without rearranging</li> <li>Inc integer/fractional/decimal solutions</li> </ul>	<p><b>Unit 9b:</b></p> <p><b>Inequalities</b></p> <ul style="list-style-type: none"> <li>-Draw and interpret inequalities on number lines, inc. finding integer values that satisfy</li> <li>-Solve simple inequalities</li> <li>-Solve two linear inequalities</li> <li><b>Solve quadratic inequalities</b></li> </ul>	<p><b>Unit 10:</b></p> <p><b>Probabilities</b></p> <ul style="list-style-type: none"> <li>-Calculate probabilities</li> <li>-Probabilities add to 1, probability tables</li> <li>-Listing outcomes, sample space</li> <li>-Product rule for counting</li> <li>-Relative and expected frequency</li> </ul>	<ul style="list-style-type: none"> <li>-Frequency trees</li> <li>-Two way tables</li> <li>-Independent events inc successive events</li> <li>-Tree diagrams for independent event</li> <li>-Conditional probability with tree diagrams</li> </ul>	<ul style="list-style-type: none"> <li>-Set theory notation</li> <li>-Venn diagrams</li> <li>-Conditional probability using Venn diagrams</li> <li><b>REVISION</b></li> </ul>	<p><b>Revision</b></p> <p><b>Cycle 2 Assessment</b></p>	<p><b>Unit 11:</b></p> <p><b>Multiplicative Reasoning</b></p> <ul style="list-style-type: none"> <li>-Growth and decay</li> <li>-Converting units of length, area and volume</li> <li>-Speed, distance, time</li> <li>-Density</li> <li>-Pressure</li> <li>-Proportion</li> </ul>	<ul style="list-style-type: none"> <li>-Recipes</li> <li>-Best value</li> <li>-Direct proportion from a graph and worded problems</li> <li>-Algebraic direct proportion</li> <li>-Worded inverse proportion</li> <li>-Algebraic inverse proportion</li> </ul>	<p><b>Unit 12:</b></p> <p><b>Similarity and Congruence</b></p> <ul style="list-style-type: none"> <li>-Similar triangles/similar polygons</li> <li>-Areas of similar shapes</li> <li>-Volumes of similar shapes</li> <li>-Find missing length, area and volume in similar 3D solids</li> <li><b>Congruence - use SSS, SAS, ASA and RHS to prove congruence</b></li> <li><b>Solve angle problems using</b></li> </ul>	<p><b>Unit 13a:</b></p> <p><b>Graphs of Trig Functions</b></p> <ul style="list-style-type: none"> <li><b>Draw graphs of sin, cos and tan</b></li> <li><b>Use trig functions to work out angles</b></li> <li><b>Transformation of trig graphs</b></li> <li><b>Exact trig values</b></li> </ul>	<p><b>Unit 13b:</b></p> <p><b>Further Trigonometry</b></p> <ul style="list-style-type: none"> <li>-Area of a triangle <math>\frac{1}{2} ab\sin C</math></li> <li>-Sine rule to find angles and lengths</li> <li>-Cosine rule to find angles and lengths</li> <li>-3D Pythag, inc finding the diagonal length of a cuboid</li> <li><b>3D Trig, inc finding the angle between a line and a plane</b></li> </ul>



















