

# Maths Long Term Plan Year 7



## Temperance Term

<b>W/C</b>	1	2	3	4	5	6	7	<b>HALF TERM</b>
Topic	<b>Number 1</b>						Proportional Reasoning 1	
Core learning for all sets Core learning for sets 1-2	<b>Place Value</b> Write numbers as words and vice versa. Up to 1 billion. State the value of digits within a number. Up to 1 billion. Order numbers. Positive integers up to 1 billion, small numbers (decimals), both ascending and descending. Place numbers on a numberline. Working with measurement scales.	<b>Baseline Assessment</b>	<b>Four operations</b> Addition and subtraction. Column method, different number of digits. Borrowing. Multiplication. Column or grid method for long multiplication. Positive integers. Decimals if secure. Up to 4-digit numbers by 2-digit numbers. Division. Long and short division, formal methods. Positive integers, decimals if secure. Move pupils away from using "remainders". Inverse operations for checking calculations. Create related arithmetic facts.	<b>Number properties</b> Squares, cubes and roots. Calculate square and cube numbers. Recall square numbers up to 144. Recall cube numbers up to 125. Recall square and cube roots up to 12 and 5 respectively. Higher powers and roots. Simplify using index notation. Calculate positive integer powers higher than 3. Use higher roots. Estimate powers and roots of any given positive number. Multiples. List multiples. Identify common multiples of two or three numbers. Identify the LCM of two or three numbers by listing. Factors. Find all factors of a number by listing. Find HCF of two or three numbers. Recap divisibility tests. Primes. Use factor definition of primes. Find and recall prime numbers under 100. Express a number as a product of primes in index form. Use the HCF and LCM of two numbers using prime factorisation and a Venn diagram. BIDMAS. Positive integers only at this point. Roots and indices should be included. Insert brackets to make a calculation correct.		<b>Fractions</b> Unit fractions. Write unit fractions to describe shaded diagrams. Calculate unit fractions of quantities using written methods. Non-unit proper fractions. Write fractions to describe shaded diagrams. Calculate fractions of quantities using written methods. "Reverse" fractions of quantities. Improper fractions and mixed numbers. Write fractions to describe shaded diagrams. Convert mixed numbers into improper fractions and vice versa.		
Extension/ Challenge: Open middle, goal free, exam questions, "by example", SSDD are good resources but always choose problems based on the current topic.								
Assessment					Progress Check			
<b>W/C</b>	8	9	10	11	12	13	<b>CHRISTMAS</b>	
Topic	<b>Assessment 1</b>	<b>Proportional Reasoning 1</b>						
Core learning for all sets Core learning for sets 1-2	<b>Revision and delivery of assessment</b>	<b>Fractions</b> Equivalent fractions/simplifying fractions. Use multiples to find equivalent fractions. Use LCM to find common denominator for 2 or more fractions. Find factors (HCF) to simplify fractions to their lowest terms. Express one quantity as a fraction of another. Arithmetic with fractions. Add, subtract, multiply and divide fractions (including fractions with different denominators, improper fractions and mixed numbers). Give answers in simplest form.	<b>Ratio</b> Ratios. Write a ratio to describe a shaded diagram. Simplifying ratios. Use common factors (HCF) to fully simplify ratios. Do this for 2-part and 3-part ratios, as well as ratios with different units. Convert a ratio to a form 1:n or n:1. Equivalent ratios. Use multiples to find equivalent ratios. Given an initial ratio, find an equivalent ratio where one part is given. Sharing in a given ratio. Use division and multiplication to do this for 2-part and 3-part ratios.	<b>Proportion</b> Problems involving direct proportion. Use unitary method where possible to solve problems involving the following: best buys, rates of pay, recipes. Ratios, factors and multiples may also be used but the unitary method must be understood. Inverse proportion. Simple examples only, to be solved less formally.				
Extension/ Challenge: Open middle, goal free, exam questions, "by example", SSDD are good resources but always choose problems based on the current topic.								
Assessment	Formal, summative				Progress Check			

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## Justice Term

<b>W/C</b>	14	15	16	17	18	19	<b>HALF TERM</b>	
Topic	Directed Number	Algebra 1						
Core learning for all sets Core learning for sets 1-2	<b>Directed Number</b> Ordering sets of numbers including negatives, positives, decimals and a mixture. Add and subtract with negative numbers. Multiply and divide with negative numbers. Square and cube negative numbers. Use BIDMAS with the inclusion of negative numbers. Insert brackets to make a calculation correct.	<b>Expressions</b> Forming expressions from different situations. The situations should involve addition, subtraction, multiplication, division, indices and combinations of these. Translating algebraic expressions into situations (the reverse of the above skill). Multiplying algebraic variables and terms. Dividing algebraic variables and terms. Simplifying expressions using indices. Addition and subtraction of variables, terms and expressions. Collecting like terms.	<b>Brackets</b> Multiply a single term by a bracket. Do this with increasingly more complicated terms. Multiply two bracketed expressions together and then simplify if possible (include squaring a bracket). Expand two (or more) sets of single brackets that are added to or subtracted from each other and then simplify the result by collecting like terms. Taking out the highest common factor from an expression, re-writing it as a single term multiplying a bracket. Turning an expression back into a double bracket.	<b>Substitution</b> Find the value of an expression by substitution. Substitute negative numbers and fractions (decimals, if confident). Find the value of a variable in a formula by substitution of other variables. Finding the value of the subject (given the other variables). Finding the value of any of the variables (given the others).				
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Assessment		Progress Check			Progress Check			
<b>W/C</b>	21	22	23	24	25	26	<b>EASTER</b>	
Topic	Assessment 2	Geometry 1						
Core learning for all sets Core learning for sets 1-2	Revision and delivery of assessment	<b>2D shapes</b> Identify 2D shapes by names. Identify regular and irregular shapes, polygons and non-polygons. Identify and label the properties of 2D shapes. Equal length lines, parallel lines, symmetry, equal angles, right angles, congruency.	<b>Perimeter</b> Calculate the perimeter of 2D shapes given the lengths of the sides. Find side lengths given the perimeter. Calculate perimeters of composite shapes. Calculate the length of missing sides in rectilinear shapes before calculating perimeter. Work with fractional lengths and perimeters. Work with algebraic expressions and perimeter. Identify, draw and label parts of a circle. Recall definitions of those parts. Recall the formula for the circumference of a circle. Calculate the circumference of a circle. Calculate the radius/diameter of a circle given the circumference. Calculate the perimeters of semi and quarter circles.	<b>Area</b> Recall and apply area formulae for squares, rectangles, triangles, parallelograms/rhombuses and trapeziums. Calculate the area of composite shapes. Calculate the missing lengths given the area. Calculate the area when given fractional lengths. Express areas when given algebraic expressions for length. Recall the area of a circle formula. Calculate the area of a circle. Given the area, calculate the radius/diameter. Calculate the areas of semi and quarter circles.				
Extension/ Challenge: Open middle, goal free, exam questions, "by example", SSDD are good resources but always choose problems based on the current topic.								
Assessment	Formal, summative				Progress Check			



# Maths Long Term Plan Year 7

## Courage Term

<b>W/C</b>	27	28	29	30	31	31	<b>HALF TERM</b>
Topic	Geometry 1		Algebra 2				
Core learning for all sets Core learning for sets 1-2	<b>Surface Area</b> Identify properties and names of 3D shapes. Match nets to shapes. Sketch nets of shapes.  Calculate the surface area of cubes and cuboids. Calculate the surface area of prisms and cylinders Calculate exactly (in terms of pi).		<b>Solving equations</b> Solve 1-step equations by balancing and using inverse operations. Include equations with fractional and/or negative solutions.  Solve 2-step equations by balancing and using inverse operations. Include equations with fractional and/or negative solutions.  Solve equations involving a single bracket. Solve equations with multiple sets of single brackets. Include equations with fractional and/or negative solutions.  Solve equations where the variable appears on both sides. Solve equations with single brackets where the variable appears on both sides.		<b>Rearranging formulae</b> Change the subject of simple equations and formulae containing only two variables. Change the subject when there are more than two variables. Change the subject when everything is a variable. Change the subject when the intended subject appears on both sides of the equation.		
Assessment		Progress Check			Progress Check		
<b>W/C</b>	32	33	34	35	36	37	
Topic	<b>Assessment 3</b>	<b>Algebra 2</b>		<b>Statistics 1</b>			<b>SUMMER</b>
Core learning for all sets Core learning for sets 1-2		<b>Inequalities</b> Writing and interpreting single and double inequalities. Identifying integers that satisfy an inequality.  Solve 1- and 2-step inequalities. Represent the answers on a number line. Interpret inequalities on a number line.		<b>Data collection</b> Distinguish between quantitative and qualitative, discrete and continuous, grouped and ungrouped. Identify categorical data. Distinguish between primary and secondary data.  Interpret and create tally charts and frequency tables.  Complete a partially filled in two-way table. Construct and complete a two-way table from given information. Read frequencies from a two-way table.  Complete a partially filled in frequency tree. Construct and complete a frequency tree from given information. Read frequencies from a frequency tree.	<b>Representing data (univariate)</b> Used for categorical data. Interpret and construct pictograms. Complete partially filled in pictograms.  Bar charts are used for categorical data. Vertical line charts are used for ungrouped discrete data. Construct, complete and interpret bar charts and vertical line graphs from frequency tables. Do the same with dual bar charts and composite bar charts.  Interpret and describe trends in a time series graph. Construct a time series graph with given data.	<b>Representing data (bivariate)</b> Construct scatter graphs from given bivariate data. Describe the relationship between two variables (if any). Identify the type of correlation (if any). Identify data points that do not fit the general pattern.  <u>LoBF and predictions</u> Draw an estimated line of best fit (linear only). Use interpolation and extrapolation to predict.	

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Extension/ Challenge: Open middle, goal free, exam questions, "by example", SSDD are good resources but always choose problems based on the current topic.						
Assessment	KS3 Internal Exams			Progress Check		