Maths Long Term Plan Year 8

Temperance Term

W/C	1	2	3	4	5	6	7	
Topic	Number 2						Assessment 1	HALF TERM
Core learning for all sets / Core learning for sets 1-2	**Place value and rounding** Write decimal numbers as words and vice versa. State the value of digits in decimal numbers. Order decimal numbers (ascending and descending). Round to the nearest 10, 100, 1000 etc. Round to the nearest integer. Round to decimal places and significant figures. Truncating.		**Calculations and estimations** Column method for addition and subtraction of decimal numbers. Multiply and divide decimals by 10, 100, 1000 etc. Column method/grid method for long multiplication of decimals. Long and short division of decimals, formal methods. Use formal division method to convert fractions to decimals. Convert recurring decimals into fractions. Use inverse operations to check calculations. Create related facts regarding a calculation. Estimae answers to calculations using 1sf. Identification of over- and underestimates. Identify upper and lower bounds for a rounded value. Express simple error intervals with inequality notation. Consider hot to create the largest or smallest: sum, product, difference, quotient from two pairs of numbers. Use upper and lower bounds to calculate maximum and minimum possible values.		**Standard form** Recall and calculate square, cube and higher powers of 10. Identify the pattern with powers of 10. Evaluate power of 0 and negative powers of 10 (within the context of the pattern). Convert standard form numbers into ordinary form. Write large and small numbers in standard form. Briefly revise index laws using powers of 10. Multiplication of numbers in standard form using the commutative law. Division of numbers in standard form. Adjust answer to be in standard form if not already. Add and subtract numbers in standard form by converting, calculating, and converting back. Add and subtract numbers in standard form by adjusting the numbers to the same power first.		Revision and delivery of assessment	
	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				Formal, summative	

W/C	8	9	10	11	12	13	
Topic	Algebra 3						CHRISTMAS
Core learning for all sets / Core learning for sets 1-2	**Rules and functions** Continue sequences and patterns using observation. Continue a numerical sequence using common differences and describe those common differences as a term-to-term rule. Find missing terms in the middle of a sequence. Turn a position-to-term rule into an input/output function. Use a position-to-term rule (nth term) to generate a sequence. Will a given number be in a given sequence? Use characteristics of the sequence to assess this. Work with function machines and flowcharts. Find outputs for given sequential inputs. Find inputs for given outputs. Find the appropriate inverse function for any given function. Find a composite function for two given functions and use function notation.		**Linear sequences** Find the nth term of an ascending arithmetic sequence. Find the nth term of a descending arithmetic sequence. Include diagrammatic patterns. Using nth terms to generate a sequence. Using nth terms to find a specific term of a sequence. Using the nth term to assess whether a number is in a given sequence. Include diagrammatic patterns. Finding the nth term of a fractional sequence where the numerator and the denominator of the nth term are linear. Using a fractional nth term to generate terms and sequences. Using nth term and function skills to create a table of coordinates for a linear function. Plotting linear functions on four-quadrant axes using tables for coordinates.		**Non-linear sequences** Identify and recall the sequence of square, cube and triangular numbers. Relate these sequences to their diagrammatic representations. Recognise, describe, and continue a Fibonacci-type sequence given the first terms. Recognise, describe, and continue sequences where the power is n and the base is 2, 3, 4, 5 or 10. Identify the nth term of these simple sequences. Identify quadratic sequences by their common second difference. Find the nth term of simple quadratic sequences such as n^2 + 5 or 3n^2.		
	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			Progress Check		

Maths Long Term Plan Year 8

Justice Term

W/C	14	15	16	17	18	19	
Topic	Geometry 2					Assessment 2	
Core learning for all sets Core learning for sets 1-2	**Constructions** Accurately measure and draw line segments. Accurately measure and draw angles. Accurately draw ASA and SAS triangles. Construct a circle with a given radius or diameter. Construct SSS triangles. Construct a perpendicular line bisector. Construct a perpendicular from a point to a line. Construct a perpendicular at any point on a line. Construct angle bisectors. Interpret scales to calculate distances on maps. Draw diagrams correct to a given scale. Understand compass points. Measure and record bearings.		**Angle Properties** Types of angles. Angles on a point. Angles on a straight line. Vertically opposite angles. Find missing angles. Use algebra for this where possible. Angles in parallel lines: Corresponding angles. Alternate angles. Allied (or co-interior) angles. Find missing angles. Use algebra where possible. Angle sum for triangles. Angle rules for different types of triangle. Finding missing angles in triangles. Angle sum for quadrilaterals. Angle rules for special quadrilaterals. Missing angles. Angles in polygons up to 10 sides. General rule for angle sums. Interior and exterior angles.	**Pythagoras' theorem** Refresh knowledge of integer powers and roots. Focus on squares and square roots. Calculate the hypotenuse of a right-angled triangle given the other two sides. Calculate the shorter side of a right-angled triangle given the other two sides. Calculate any missing sides of a right-angled triangle. Use Pythagoras' theorem with compound shapes. Find the height of an isosceles or equilateral triangle.	Revision and delivery of assessment	**HALF TERM**
	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				Formal, summative	

W/C	21	22	23	24	25	26	
Topic	Geometry 2	Algebra 4					
Core learning for all sets Core learning for sets 1-2	**See above**	**Coordinates and plotting** Draw, label and scale axes properly. Identify the origin, x-axis and y-axis. Understand how to write coordinates Plot any coordinate. Complete a shape on axes by identifying missing coordinate. Identify midpoint coordinates. Given the midpoint find the other end. Find any proportional point along a line.	**Linear graphs** Equations for vertical and horizontal lines. Y = x and y = -x Recap knowledge of input/output functions. Calculate outputs for two-step functions. Create a table of values for an equation and then plot the equation on the axes. Plot linear, quadratic and cubic equations. Recognise and understand their shapes. Plot, recognise and understand exponential and reciprocal graphs. Identify/calculate gradients. Draw lines of given gradients. Identify y-intercepts. Find the equation of a line using gradient and y-intercept. Draw a line using gradient and y-intercept. Identify parallel lines from their equations.		**Using graphs** Find approximate solutions to linear equations using intersecting lines on a graph. Find approximate solutions for linear simultaneous equations. Find approximate solutions for linear and non-linear simultaneous equations.	**EASTER**
	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**			**Progress Check**		

Maths Long Term Plan Year 8

Courage Term

W/C	27	28	29	30	31	31	
Topic	Algebra 4	Proportional Reasoning 2					HALF TERM
Core learning for all sets Core learning for sets 1-2	See above	FDP Equivalence Revise place value skills. Identifying the value of digits in numbers. Ordering numbers. Powers of 10. Recall basic F to D/ D to F conversions. Converting decimals to fractions and simplifying where possible. Convert decimals greater than 1 to improper fractions and mixed numbers. Convert fractions to terminating decimals using equivalent fractions with denominators of 10, 100, 1000, etc. Convert fractions to terminating decimals using division skills. Convert fractions into recurring decimals using division skills. Revise definition of percentage. Recall basic P to F/F to P conversion Convert percentages to fractions and simplify where possible. Convert decimals to percentages and vice versa (including quantities larger than 1). Express one quantity as a percentage of another. Percentages of amounts (non-calculator) by finding 10%, 5%, 1% etc. first. Percentage increase/decrease (non-calculator) with the above method followed by adding or subtracting.		Percentages as operators Identify the decimal multiplier given a percentage. Calculate the percentage of an amount using the decimal multiplier (calculator allowed). Calculate percentage increase/decrease using a decimal multiplier. Pupils should be doing this in ONE multiplication in the calculator. Calculate the original value given the value after a percentage increase/decrease. Given two values find the percentage increase/decrease that has occurred.	Repeated proportional change Calculate simple interest both with and without a calculator. Calculate compound interest without a calculator (limited to 3 or 4 years). Calculate compound interest with one multiplication on a calculator.		
	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			Progress Check		

W/C	32	33	34	35	36	37	
Topic	Proportional Reasoning 2	Statistics 2					SUMMER
Core learning for all sets Core learning for sets 1-2	See above	Set notation and Venn diagrams Organise information into sets using set notation. Identify members of sets given descriptions. Describe sets given the elements. Create Venn diagrams from given information. Identify parts of a Venn diagram such as intersections, unions and complements. Enumerate sets and then create a Venn diagram from given information. Identify and understand mutual exclusivity in the context of Venn diagrams and sets.		Single events What is probability? Expressing probability. Probability scales. Calculating probabilities from Venn diagrams. Enumerate sets, create a Venn diagram and then calculate probabilities. Use complementary probabilities. Calculate the probabilities based on flipping coins, rolling dice and spinning spinners. Use theoretical probability of equally likely outcomes to calculate these probabilities. Calculate expected frequencies of the above events. Carry out experiments with dice and/or coins and calculate relative frequencies. Calculating probabilities based on survey/experimental data. Find probabilities from bar charts or pictograms.	Combined events Listing outcomes systematically with and without repeats being allowed. Sample space diagrams Frequency trees Complete two-way tables. Create and complete two-way tables from given information. Calculate probabilities from two-way tables. Calculate the number of outcomes for two events. Calculate the number of outcomes for more than two events.		
	Extension/ Challenge: Open middle, goal free, exam questions, "by example", SSDD are good resources but always choose problems based on the current topic.						

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Assessment	KS3 Internal Exams			Progress Check		