

		Topic Key: Entry Core Extension	Home learning
2nd Sept	Whole numbers	<p>Recap on addition and subtraction</p> <p>Use non-calculator methods for multiplication of whole numbers (up to a 3 digit number by a 2 digit number)</p> <p>Use non-calculator methods for (short) division of whole numbers by a single digit number</p> <p>Use non-calculator methods for (long) division of whole numbers (up to a 3 digit number by a 2 digit number)</p> <p>Use relationships between known number facts to derive others including inverse operations</p> <p>Complete number puzzles such as magic squares and Sudoku involving the four operations and whole numbers</p> <p>Use the four operations with whole numbers to answer questions in purely mathematical contexts</p>	
9th Sept	Types of number	<p>Identify odd, even, prime, multiples and factors</p> <p>Identify the factors of two and three digit numbers using simple tests for divisibility</p> <p>Identify common multiples and factors and use them to solve problems</p> <p>Use knowledge of multiples, factors to find the least common multiple and highest common factor of two or more numbers when solving real life problems</p> <p>Identify prime numbers and use them to solve problems</p>	HT1 911
16th Sept		<p>Use two way tables and Venn diagrams to sort by given criteria and categorise numbers according to their properties e.g. fractions, decimals, percentages, factors, primes or the 'multiples of 8' and 'multiples of 6'</p> <p>Use a suitable method to write a number as a product of its prime factors (in index form)</p> <p>Use prime factors and Venn diagrams to determine the LCM and HCF of numbers in real life situations</p> <p>Apply knowledge, skills and understanding of multiples, factors and prime numbers to solve number problems set in purely mathematical contexts; for example, those involving odd & even numbers, magic squares, number puzzles, number grids, etc.</p>	HT1 912
23rd Sept	Fractions	<p>Identify fractions diagrammatically and compare fractions</p> <p>Simplify fractions</p> <p>Find a fraction of a quantity</p> <p>Calculate fractional changes</p> <p>Investigate, compare and write equivalent fractions</p> <p>Express one number as a fraction of another</p> <p>Convert between improper fractions and mixed numbers and vice versa</p> <p>Add and subtract fractions with the same denominator and with different denominators</p>	HT1 913
30th Sept		<p>Multiply proper and improper fractions</p> <p>Divide fractions</p> <p>Manipulate fractions in purely mathematical contexts</p> <p>Convert a percentage to a fraction in simplest form</p>	HT1 914

		Topic Key: Entry Core Extension	Home learning
		Convert a fraction to a percentage	
		Simplify algebraic fractions	
7th Oct	Skills check	Skills Check	HT1 915
14th Oct	Constructions	Measure accurately the distance between two points using a ruler and a variety of units. Draw vertical, horizontal, parallel and perpendicular lines.	HT1 916
		Identify solid figures e.g. cube, prism, pyramid etc..	
		Identify types of angles, clockwise and anticlockwise turns. Use a protractor to measure angles correct to $\pm 2^\circ$.	
		Use the properties of special types of triangle and quadrilateral to classify triangles and quadrilaterals by their geometric properties including using Venn diagrams, correct terminology and notation.	
		Use and draw 2-D representations of 3-D shapes on isometric paper.	
		Draw plans and elevations of any 3-D solid.	
		Recognise and draw nets.	
		Bisect a given line or given angle and construct the perpendicular from a point to a line	
21st Oct		Identify the lines of symmetry for a 2-D shape and complete a symmetrical design given a line of reflection.	HT1 917
		Identify planes of symmetry for 3-D shapes.	
		Rotate 2-D shapes and identify the order of rotational symmetry.	
		Construct triangles to scale using compass and protractor (SAS, ASA) and using straight edge and compasses (SSS).	
		Construct angles of 60, 30, 90 and 45 degrees	
		Do constructions including quadrilaterals and circles using a ruler and a compass.	
		Identify congruent shapes (NB. Knowledge of SSS, SAS, ASA and RHS is not required at intermediate tier)	
Do constructions including quadrilaterals and circles using a ruler and a compass.			
		Write proofs for congruent triangles	
May Half Term			
4th Nov	Decimals	Use non-calculator methods for multiplication and division of decimal numbers by 10, 100 or 1000	HT1 918
		Use non-calculator methods to multiply decimals	
		Use non-calculator methods for division of decimal numbers by a whole number	
		Convert fractions to decimals	
		Solve problems involving decimals in the context of money, petrol prices and measures	
		Round to the nearest 10, 100 and 1000	
		Round decimal numbers to the nearest whole number or given amount of decimal places	
		Round whole and decimal numbers to a given number of significant figures	

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11th Nov	Rounding and estimating	<p>Use a calculator to carry out calculations. Interpret answers in the context of the problem and round to an appropriate number of decimal places or significant figures</p> <p>Check answers to calculations using inverse operations with and without a calculator</p> <p>Explore the principle of estimation. Round numbers to one significant figure to estimate the answers to multiplication and division problems</p> <p>Without working them out, check whether calculations are correct using significant figures and rounding. Check to see if answers are of the correct size</p> <p>Justify answers using estimation and inverse operations</p>	HT2 9I1	
18th Nov	Graphs and charts	<p>Select, construct and interpret appropriate diagrams e.g. pictograms, vertical line and bar charts of the findings.</p> <p>Criticise and design questions for a questionnaire which are fair and unbiased</p> <p>Categorise discrete and continuous data sets and know the difference between them. Use tallying methods to record discrete data in a frequency table.</p> <p>Select and investigate a simple hypothesis by designing a questionnaire to conduct a survey</p> <p>Construct and Interpret pie and line charts used in real life to make comparisons</p>	HT2 9I2	
25th Nov		<p>Group discrete and continuous data into class intervals of equal widths and using inequality notation.</p> <p>Consider the effect of sample size and other factors that affect reliability</p> <p>Specify the data needs and consider sampling methods. Sampling systematically</p> <p>Construct and interpret vertical line graphs for discrete</p> <p>Construct and interpret grouped frequency diagrams and polygons.</p> <p>Construct and understand line graphs and temperature charts</p> <p>Read, interpret and draw conclusions from scatter diagrams for paired variables recognising that correlation does not imply causality and know the types of correlation</p> <p>Construct scatter diagrams and draw a line of best fit by eye (including through the mean point)</p> <p>Work with real life scenarios and select appropriate diagrams to represent particular data and justify reasons for choice</p>	HT2 9I3	
2nd Dec		Negative numbers	<p>Order directed numbers</p> <p>Use negative numbers in real life situations</p> <p>Add and subtract negative numbers using a number line including where two signs meet</p> <p>Multiply negative numbers</p> <p>Divide with negative numbers</p> <p>Manipulate negative numbers in real life contexts to solve problems</p>	Revision
9th Dec		AP1 Assessment	AP1 Assessment	HT2 9I4
16th		AP1 Evaluate	AP1 Evaluate and review	

		Topic Key: Entry Core Extension	Home learning
Dec	Evaluate and review	AP1 Evaluate and review	
Christmas			
6th Jan	Fractions, decimals and percentages 1	To understand what fractions, decimals and percentages are	HT2 915
		Convert a percentage to a fraction in simplest form	
		Convert a fraction to a percentage	
		Convert a percentage to a decimal and a decimal to a percentage	
		Convert a fraction to a decimal	
		Convert a decimal to a fraction	
		Use knowledge of equivalency to order and compare whole numbers, decimals, fractions and percentages	
		Solve number problems in purely mathematical contexts involving equivalent fractions, decimals and percentages	
		Solve number problems using the equivalence of fractions, decimals and percentages	
		Recognise that recurring decimals are exact fractions, and that some exact fractions are recurring decimals	
		To solve calculations involving a mixture of fractions, decimals and percentages	
13th Jan	Indices, standard form and using a calculator	To know what a squared/cubed number is	HT3 911
		Write and estimate square numbers, cube numbers, square roots, cube roots and reciprocals without a calculator	
		Use the order of operations (BIDMAS) to obtain the answer to a calculation	
		Understand the order in which a calculator does calculations and know how to change the order of operations by using brackets	
		Use a calculator efficiently to evaluate expressions involving +, -, x, ÷, power, root, equals sign, fraction, constant, memory and bracket keys on a scientific calculator	
		Write and evaluate whole numbers using index notation for positive integral indices and for positive unit fractional indices (roots)	
		Investigate and use rules of indices for multiplying and dividing with positive whole number powers to evaluate and simplify expressions	
20th Jan	Indices, standard form and using a calculator	Investigate and use rules of indices for 'power of zero' and negative integral indices to evaluate and simplify expressions	HT3 912
		Use a calculator to investigate and write reciprocals understanding that a number multiplied by its reciprocal equals 1	
		Write ordinary (very large and very small) numbers in standard form	
		Solve real life problems using numbers in standard form with positive and negative powers of ten	
		Solve number problems involving powers, roots and the order of operations	
		Use a calculator to answer problems in a purely mathematical context	
		Use a calculator to solve problems involving standard form	

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27th Jan	Basic of algebra	To use letters to explain algebraic sentences	HT3 913
		Use the conventions of algebra to write and manipulate algebraic terms/expressions	
		Collect like terms	
		Form and simplify expressions involving sums, differences, products and powers resulting from real life situations	
		Substitute positive and negative whole numbers into simple formulae expressed in words	
		Substitute positive and negative whole numbers into simple formulae expressed in symbols	
		Substitute fractions and decimals into simple formulae expressed in words or symbols	
		Expand brackets of the form $a(bx + c)$, where a , b and c are integers	
3rd Feb		Factorise linear expressions using the common factor method	HT3 914
		Factorise non-linear expressions using the common factor method	
		Use substitution, simplifying and sequences in a purely mathematical context	
		Expand pairs of brackets using a suitable method	
		Distinguish between formula for length, area and volume by context	
		Investigate expanding multiple brackets	
10th Feb	Lengths and area (week 1 of 2)	To find/estimate areas by counting squares	HT3 915
		Calculate the area of a square, rectangle, triangle and parallelogram using a formula	
		Calculate the area and perimeter of composite shapes (including where there are unknown sides)	
		Investigate ways to find the area of a trapezium	
		Investigate pi	
		Calculate the area of a circle	
Feb half term			
24th Feb	Lengths and area (week 2 of 2)	Calculate the circumference of a circle	HT3 916
		Calculate the perimeter and area of semicircles	
		Calculate unknown dimensions for 2-D shapes when the area (and other dimensions) are given.	
		Solve real life practical problems involving perimeters, areas, floor/wall tiles and tessellation	
		Calculate perimeter and area in purely mathematical contexts	
		To solve problems involving surface area	
		To estimate lengths and areas in metric units	
		Categorise standard units for length, mass and capacity. Separate Metric and Imperial measures.	
		Read scales (including decimal scales) using a variety of measuring instruments.	
		Solve problems involving the interpretation of scales including those with un-labelled divisions.	
		Identify appropriate metric units according to context and make sensible estimates of measurements in everyday situations.	

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2nd Mar	Units	State conversion facts for metric units used to measure length, mass and capacity.	HT3 917
		Convert from 'smaller' to 'bigger' metric units used to measure length, mass and capacity.	
		Convert from 'bigger' to 'smaller' metric units used to measure length, mass and capacity.	
		Solve problems converting between metric units used to measure area and volume.	
		Convert between Metric and Imperial units (km - miles; cm, m - inches, feet; kg - lb; litres - pints, gallons).	
		Use units of measure to solve contextualised problems	
		Work with units of measure in purely mathematical contexts	
		To find lengths and areas of similar shapes	
9th Mar	Skills check	Skills check	HT4 911
16th Mar	Solving equations	To understand the use of letters in mathematical sentences	HT4 912
		Build equations where the unknown appears only once	
		Build equations where the unknown appears twice	
		Solve equations where the unknown appears only once	
		Solve equations involving brackets	
23rd Mar	Solving equations	Solve equations where the unknown appears twice	HT4 913
		Build and solve equations to find the solution to real life problems	
		Build and solve equations in purely mathematical contexts	
		Group equations, formulae and expressions	
		Solve linear equations with whole number and fractional coefficients	
30th Mar	Rearranging formulae	Use the balance method for solving equations	HT4 914
		Change the subject of the formula where the subject appears in one term	
Easter			
20th Apr	Inequalities	Understand and use the inequality symbols	HT4 915
		Represent inequalities on a number line	
		Form and manipulate simple linear inequalities	
		Solve linear inequalities with whole number and fractional coefficients	
		Solve problems involving forming and solving inequalities	
27th Apr			HT4 916
		Express one number as a fraction of another in simplest terms (with/without a calculator)	
		Express one number as a percentage of another (with/without a calculator)	
		Find a fraction of a quantity (with/without a calculator)	
		Find a percentage of a quantity without a calculator	
		Find the percentage of an amount using a calculator	

		Topic Key: Entry Core Extension	Home learning
		Calculate fractional increase and fractional decrease within context (with/without a calculator)	
4th May	Fractions, decimals and percentages 2	Calculate percentage increase and percentage decrease within context (with/without a calculator)	HT5 911
		Use multipliers to calculate percentage increases and decreases	
		Calculate repeated proportional changes including exponential growth, decay, appreciation and depreciation	
		Calculate the original quantity given the result of a proportional change	
		Solve real life problems involving percentage and fraction calculations	
		Solve number problems in purely mathematical contexts involving fractions and percentages	
11th May	Angles	Use angle facts to determine angles at a point and angles on a straight line	HT5 912
		Know the angle properties of triangles and calculate missing angles in a triangle (scalene only)	
		Calculate missing angles at a vertex using the angle fact for vertically opposite angles	
		Use corresponding and alternate angle facts to calculate missing angles in diagrams involving parallel lines	
		Use interior angle fact for parallel lines to calculate missing angles in diagrams involving parallel lines	
		Use parallel line angle facts to calculate missing angles in quadrilaterals (trapezia, parallelograms and rhombi)	
		Use the fact that the exterior angle of a triangle is equal to the sum of the interior angles at the other two vertices	
		Use angle properties for right-angle, isosceles and equilateral triangles to calculate missing angles	
		Explain and use the angle fact for the interior angle sum of a quadrilateral	
18th May	Sequences		HT5 913
		Describe in words and symbols the rule for the next term of a sequence (term to term rule)	
		Find the nth term for linear sequences (position to term rule)	
		Find the nth term of a sequence where the rule is quadratic	
		Use substitution, simplifying and sequences in a purely mathematical context	
	Generate linear and non-linear sequences from the nth term		
May half term			
1st June	AP2 Assessment	Practice paper and revision lessons	Revision
8th June		AP2 during first lesson of week then rest of lessons to fix and repair, including purple sheet	Revision

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15th June	Surface area and volume		HT6 911
		Calculate the surface area of cubes and cuboids	
		Calculate the volume of cubes and cuboids	
		Calculate the volume of a prism (including cylinders)	
22nd June		Calculate the volume of composite solids	HT6 912
		Find cubes/cuboids with given volumes and surface area	
		Calculate the missing dimensions when the volume is known	
		Solve real life practical problems involving surface area and volume	
29th June	Calculate surface area and volume in purely mathematical contexts	HT6 913	
	Use the vocabulary of ratio to describe the relationships between two or more quantities within a context.		
	Compare equivalent decimals, fractions, percentages and ratios recognising links with fraction notation		
6th July	Follow conventions and use ratio notation to simplify ratios, including those expressed in different units	HT6 914	
	In real life scenarios divide a quantity into two or more parts in a given ratio; answer problems where only one part is known		
	Use the unitary method to solve simple problems involving ratio and direct proportion e.g. recipes, best buys/value for money		
	Answer real life problems involving scaling numbers up or down e.g. converting recipes and converting between metric and imperial units		
13th July	Investigate the ratio between corresponding sides to identify similar 2-D and 3-D shapes	HT6 915	
	Use the ratio between corresponding sides to calculate missing sides in similar shapes in the context of real life problems		
	Apply ratio techniques in purely mathematical contexts		
	Apply ratio techniques to solve number puzzles and problems		