



Topic	Learning Objectives	Key Vocabulary	Learning Sequence	Linked Learning	Home Learning
Number skills	To work interchangeably with FDP Calculate percentages Work with percentage problems	Decimal Percent Improper fraction Mixed number Denominator Numerator Operation Inverse	1) Ordering decimals recap 2) Operating with decimals 3) Converting FDP 4) Ordering FDP 5) Percentage of amounts 6) Percentage increase and decrease 7) Reverse percentages non-calculator 8) Reverse percentages calculator	Multiplication and division of integers Finding equivalent fractions Identify percentage multipliers	One written and one retrieval piece on number skills
Proportion	Understand basic direct proportion and how it can be represented Understand best buy problems	Ratio Proportion Compare, comparison Multiplier Unit	1) Recapping what proportion is and using the unitary method 2) Recipe questions 3) Best buys 4) Exploring different representations of proportion 5) Developing the understanding of the multiplier and as a result the formula (link to graphs using x and y) 6) End of unit assessment	Multiplying integers and decimals Plotting graphs of linear functions Substitution into algebraic expressions	One written and one retrieval piece on proportion



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Rearranging formulae	Be able to change the subject of a variety of formulae	Formula, Formulae Variable Term Coefficient Power Indices Subject	1) Rearranging basic formulae 1 and 2 step 2) Rearranging involving brackets 3) Rearranging formulae involving fractions 4) Rearranging formulae involving indices 5) A mixture of questions involving rearranging formulae 6) Substitution into scientific formulae	Understanding inverse functions, including powers and roots Solving equations Expanding brackets	One written and one retrieval piece on rearranging formulae
Indices and standard form	Use the basic laws of indices Understand powers of 10 Convert to and from standard form Calculate with standard form	Power Root Index, Indices Positive Negative Standard form Inequality	1) Recapping indices including substitution with indices 2) Recap laws of indices 3) Writing numbers with different bases 4) Manipulating rules of indices to simplify a question 5) Problems involving indices 6) Multiplying and dividing by powers of 10 7) Positive powers from standard form 8) Positive powers into standard form 9) Negative powers from standard form 10) Negative powers into standard form	Basic laws of indices Simplifying fractions by identifying common factors Powers of 10 and roots Multiply and divide by powers of 10	One written and one retrieval piece on indices



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Pythagoras	Calculate with Pythagoras' theorem	Hypotenuse Pythagoras' theorem Right angle Square root	1) Recap Pythagoras 2) Recap Pythagoras 3) Worded problems involving Pythagoras 4) Pythagoras involving basic bearings 5) Multi step Pythagoras 6) End of unit assessment	Solving linear equations Area of squares Powers and roots Rearranging formulae	One written and one retrieval piece on Pythagoras
Recurring decimals and fractions	Understand the relationship between fractions decimals and percentages Convert between fractions and decimals	Mixed number Improper fraction Decimal Terminating Recurring Simplify, Cancel	1) investigation around fractions and decimals, identifying recurring and terminating explorative 2) Converting fractions to decimals 3) Converting fractions to recurring decimals 4) GCSE style questions	Equivalent fractions Rounding Division by multiples of 10	One written and one retrieval piece on fractions
Data and exploring averages	Understand and use different representations of data Draw and interpret pie charts	Pie chart Sector Angle Frequency Discrete data Stem and leaf Mean Median Mode Range	1) Drawing stem and leaf diagrams 2) Averages from stem and leaf 3) Two-way tables 4) Drawing pie charts 5) Interpreting pie charts 6) Comparing data exam style where questions require worded answers	Calculating with averages (mean, median and mode) Know the meaning of discrete and continuous data Measuring angles Fractions of amounts	One written and one retrieval piece on averages



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Quadratics	Expand and factorise linear expressions Expand double brackets, where the coefficient of x is 1 Expand double brackets, where the coefficient of x is greater than 1 Factorise quadratics of the form x^2+ax+b Factorise quadratics of the form $x^2\pm ax\pm b$	Product Expand Linear Quadratic Variable Term Coefficient Common factor Factorise Power Indices	1)Recap basic expanding and simplifying 2)Recap basic factorising 3)Expanding double brackets 4)Expanding double brackets with 2x or 3x etc 5)Expanding with more complex double brackets 6)Factorising quadratics (positive) 7)Factorising quadratics (negative) 8)Factorising quadratics both	Manipulate expressions by collecting like terms Know the rules of indices (that $x \times x = x^2$) Calculate with negative numbers Know the grid method for multiplying two-digit numbers Identify factors of a number	One written and one retrieval piece on quadratics
Angles	Find angles in parallel lines by identifying those that are alternate and corresponding Know the sum of the interior angles in polygons Calculate the interior angles of regular polygons Calculate the exterior angles of polygons	Triangle Quadrilateral Vertically opposite Parallel Alternate angles Corresponding angles Regular/irregular polygon Exterior, interior	1)Recap angles in triangles and quadrilaterals 2)Angles in parallel lines 3)Angles in irregular polygons 4)Interior angles in regular polygons 5)Interior and Exterior angles and polygons 6)Problems involving angles and shapes	Know that the angles in a triangle total 180° Know that the angles in a quadrilateral total 360° Know and apply the rules for angles at a point and vertically opposite angles	One written and one retrieval piece on angles



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Linear graphs	Plot equations of the form $y=mx+c$ Plot equations of the form $ax+by=c$ Identify equations of lines from a given graph	Plot Equation Linear Coordinate (Positive/negative) gradient y-intercept Horizontal Vertical Substitute	1)Plotting equations written as $y=mx+c$ 2)Plotting other linear graphs 3)Exploring the gradient 4)Gradients from 2 coordinates 5)Forming equations of a line from a given graph	Use coordinates in all four quadrants Write the equation of a line parallel to the x-axis or the y-axis Substitute positive and negative numbers into formulae Rearranging formulae	One written and one retrieval piece on graphs



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Simultaneous equations	<p>Solve two equations simultaneously, where no variable requires multiplication</p> <p>Solve two equations simultaneously, where one variable requires multiplication</p> <p>Solve simultaneous equations graphically</p>	<p>Simultaneous equation</p> <p>Variable</p> <p>Eliminate</p> <p>Intersect</p> <p>Coefficient</p>	<p>1) Solving simultaneous equations graphically</p> <p>2) Pictorial representations of simultaneous equations and solving them</p> <p>3) Solving basic simultaneous equations, no multiplication by elimination</p> <p>4) Solving basic simultaneous equations</p>	<p>Plot linear graphs</p> <p>Solve linear equations</p> <p>Substitute numbers into formulae</p> <p>Manipulate expressions by multiplying by a single term</p>	One written and one retrieval piece on simultaneous equations
Venn and probability	<p>Complete a two-circled Venn diagram</p> <p>Interpret worded questions to complete a Venn diagram</p>	<p>Set</p> <p>Venn diagram</p> <p>Union</p> <p>Intersection</p>	<p>1) Venn diagrams including multiples</p> <p>2) Introduction to Venn</p> <p>3) Worded problem Venn diagrams</p> <p>4) Consolidation lesson</p>	<p>Multiples, factors, primes</p> <p>Calculate the probability of mutually exclusive events</p> <p>Calculate the probability of non-mutually exclusive events</p>	One written and one retrieval piece on venn
Similar shapes	<p>Find missing side lengths of similar shapes with an integer scale factor</p> <p>Find missing side lengths of similar shapes with a fractional scale factor</p> <p>Identify congruent triangles</p>	<p>Multiplier</p> <p>Congruent</p> <p>Similar</p> <p>Scale factor</p>	<p>1) Similarity – discussing what's and whys</p> <p>2) Finding missing lengths in similar shapes (integer scale factors)</p> <p>3) Finding missing lengths in similar shapes (fractional scale factors)</p> <p>4) Congruent triangles</p>	<p>Multiplying integers and fractions</p> <p>Division of integers and decimals</p> <p>Constructing triangles</p>	One written and one retrieval piece on similar shapes



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Fractions	Calculating fractions of amounts Comparing and ordering fractions Multiplying and dividing proper fractions Multiplying and dividing mixed numbers Adding and subtracting proper fractions Adding and subtracting mixed numbers	Mixed number Equivalent fraction Simplify, cancel Improper fraction Percent Multiplier	1) Fractions of amounts 2) FDP of amounts exam style questions 3) Equivalent fractions and converting fractions between mixed and improper 4) Comparing and ordering fractions 5) Multiplying fractions inc mixed numbers 6) Dividing fractions inc mixed numbers 7) Adding and subtracting fractions inc mixed numbers 8) Adding and subtracting fractions inc mixed numbers 2 9) All operations with fractions 10) Worded problems 11) Using ratios with fractions	Division involving remainders Converting between fractions, decimals and percentages Identifying reciprocals Identifying LCM Finding ratio of amounts	One written and one retrieval piece on fractions



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Column vectors	Be able to draw a vector Add and subtract vectors Identify parallel vectors	Magnitude Direction Pythagoras Hypotenuse	1)Drawing a vector 2)Adding and subtracting 3)Multiplying vectors including Pythagoras 4)Parallel vectors	Identify parallel lines Translate shapes using vectors Arithmetic with negative numbers	One written and one retrieval piece on vectors
Inequalities	Solve linear inequalities Drawing inequalities on a number line Identifying sets of integers that satisfy inequalities	(Linear) inequality Unknown Manipulate Solve Solution set Integer	1)Solving inequalities recap 2)Writing inequalities on and from a number line 3)Finding values of compound inequalities 4)Writing compound inequalities on a number line	Inverse operations Solving linear equations Substituting into expressions	One written and one retrieval piece on inequalities
Transformations	Translate shapes and describe a give translation Reflect shapes and describe a given reflection Rotate shapes and describe a given rotation Enlarge shapes with a positive and fractional scale factors Describe a given enlargement	Origin Quadrant Translation, Reflection, Rotation Transformation Object, Image Congruent, congruence Vector Similar Enlarge Scale factor Centre of enlargement	1)Translation – Drawing 2)Translation – Describing 3)Naming horizontal and vertical lines and $y=x$, $y=-x$ 4)Reflections – Drawing 5)Reflections – Describing 6)Rotation – Drawing 7)Rotation - Describing 8)Combining the 3 transformations 9)Positive enlargements 10)Fractional enlargements 11)Describing enlargements 12)Combining all transformations	Work with coordinates in all four quadrants Carry out a translation using worded directions Identify equations of lines parallel to the axes Find fractions of amounts Identify scale factors of similar shapes	One written and one retrieval piece on transformations



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Quadratic and cubic graphs	Plotting quadratic graphs when x^2 has a positive coefficient Plotting quadratic graphs when x^2 has a negative coefficient Plotting cubic graphs	Function Equation Quadratic Cubic Reciprocal Gradient y-intercept Root Substitution Plot	1)Recap substitution involving powers 2)Plotting quadratic graphs 3)Plotting quadratics graphs with negative x squared 4)Plotting cubic graphs 5)Identifying types of graphs	Arithmetic with negative numbers Substituting positive and negative integers into quadratic and cubic expressions Use coordinates in all four quadrants	One written and one retrieval piece on graphs
Constructions	Be able to bisect angles Be able to bisect a line Interpret and draw basic loci	Arc Line segment Perpendicular Bisect Perpendicular bisector Locus Loci	1)Bisecting angles 2)Bisect a line 3)Perpendicular to and from a line 4)Basic loci	Measure distances to the nearest millimetre Create and interpret scale diagrams Use compasses to draw circles	One written and one retrieval piece on constructions