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Topic	Learning Objectives	Key Vocabulary	Learning Sequence	Linked Learning	Home Learning
Arithmetic and mixed numbers	To be able to simplify fractions and write in their simplest form. To add and subtract fractions including those with mixed numbers, To multiply and divide fractions including those with mixed numbers.	Mixed number Equivalent fraction Simplify, cancel, lowest terms Proper fraction Improper fraction Multiplier	1) Fractions of amounts 2) Multiplying fractions and dividing fractions including mixed numbers 3) Adding and subtracting fractions including mixed numbers 4) Mixed calculations including mixed numbers and worded problems 5) Fractional calculations using a calculator	Equivalent fractions Converting fractions between mixed and improper fractions Using fractions as measurements	One written piece and one retrieval piece on multiplying and dividing fractions and adding and subtracting fractions.
Probability	To develop understanding of basic probability. Calculate simple probabilities from worded information. Understand and use the probability scales.	Event Outcome Impossible, Unlikely, Even chance, Likely, Certain Mutually exclusive Possibility space Experiment	1) The probability scale, representing probabilities as FDPs and probabilities adding to 1. 2) Basic theoretical probability 3) Relative frequency (calculating from tables and the importance of number of trials and reliability) 4) Possibility spaces 5) Combinations, listing outcomes as well as finding possible combinations 6) Constructing frequency trees and finding probabilities from them.	Simplifying fractions Collecting data Samples Representations of collected data	One written piece and one retrieval piece on calculating with probability and frequency trees.

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Negatives with BIDMAS	Work correctly with the order of operations and understand which can be used interchangeably. Calculate accurately with negative numbers. Understand powers and roots and their place in the order of operations. Understand the use of brackets and how they can affect an operation.	Negative number Directed number Operation Inverse Power Index Root	1) Negatives in real life and ordering negatives 2) Powers and index notation limited to squares and cubes involving negatives. Square roots and their associated negatives to be included as standard to improve fluency. 3) Adding and Subtracting negatives 4) Multiplying and Dividing negatives 5) Mixed negative numbers calculations 6) BIDMAS (including powers etc) 7) BIDMAS with negatives, fractions and decimals 8) Non-explicit BIDMAS questions. Correcting an incorrect equation. Justify who is correct and why. 9) Exploration of brackets for multiplicative purposes.	Square numbers Cube numbers Negative numbers Negatives in context Number lines	One written piece and one retrieval piece on calculations with negative numbers and BIDMAS with powers and negatives.

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Topic	Learning Objectives	Key Vocabulary	Learning Sequence	Linked Learning	Home Learning
Basic Algebra with solving	Simplify algebraic expressions including those involving negatives Expand and factorise with algebra Solve equation equations including those with more than one step, including brackets and fractions. Substitution into expressions and formulae Rearrange formulae/make another term the subject	Expression, Term, Formula (formulae), Equation, Function, Variable Input, Output Represent Substitute Evaluate Like terms Simplify / Collect	1) Forming expressions from scenarios. 2) Simplifying expressions through addition and subtraction including examples where there are powers on the terms 3) Simplifying expression with multiplication and division 4) Solving basic equations 5) Solving equations involving fractions 6) Solving equations variable on both sides 7) Solving a mixture of equations 8) Forming and solving equations 9) Substitution into expressions 10) Substitution with fractions and decimals 11) Substitution into formulae 12) Rearranging formulae	Function machines Order of operations Inverse functions Laws of indices Calculating with negatives Scientific formulae	One written piece and one retrieval piece on solving equations and working with formulae.

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Topic	Learning Objectives	Key Vocabulary	Learning Sequence	Linked Learning	Home Learning
4 operations with decimals	Multiply with decimals Divide with decimals Operate with decimals from worded and problem solving scenarios.	Positive Negative Magnitude Decimal	1) Multiplying decimals 2) Dividing decimals 3) Applications with decimals	Multiplication and division of integers Written methods of multiplication and division	One written piece on calculating with decimals
Rounding and estimation	Accurately round numbers to decimal places. Accurately round numbers to a given number of significant figures Estimate with numbers by rounding to an appropriate degree of accuracy.	Round Decimal place Solution Estimate Significant figure	1) Rounding to significant figures only whole numbers 2) Rounding to significant figures with decimals 3) Rounding to significant figures mixed 4) Estimation	Rounding to powers of 10 Rounding to decimal places Place value	One written piece on rounding to significant figures.
Representing Data	To represent data in a variety of ways and be able to understand the data. To be able to accurately draw a pie chart. To understand and read from pie charts.	Sector Angle Frequency Discrete data Stem and leaf Pie chart	1) Frequency tables 2) Two-way tables 3) Pictograms 4) Bar charts 5) Pie charts – drawing 6) Pie charts – interpret 7) Pie charts comparing 8) Drawing stem and leaf diagrams	Samples Bar charts Frequency tables Data collection Angles Proportion	One written piece and one retrieval piece on two way tables and pie charts.

Topic	Learning Objectives	Key Vocabulary	Learning Sequence	Linked Learning	Home Learning
Area and perimeter	Calculate the perimeter of shapes including compound shapes. Calculate the area of shapes including rectangles, parallelograms and trapezium. Understand and work with compound shapes including those involving parts of a circle. Understand properties of different 2D shapes	Perimeter Area Rectangle, Parallelogram Quadrilateral Triangle Trapezium Compound Polygon Units Circumference Radius Diameter	1) Perimeter of compound shapes, including algebraic expressions. 2) Area of rectilinear shapes. 3) Area of triangles. 4) Area of a parallelogram and trapezium 5) Circle properties and circumference 6) Area of a circle 7) Area of compound shapes including all types 8) Problem type questions involving costs. 9) Problems linking the area of different shapes 10) End of topic assessment	Perimeter of basic shapes Area of rectangles Measures Line and angle notation Parallel and perpendicular lines Money	One written piece and one retrieval piece on area of basic shapes and problems involving compound shapes.

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Topic	Learning Objectives	Key Vocabulary	Learning Sequence	Linked Learning	Home Learning
Ratio and proportion	Develop understanding of writing ratio Understand simplifying with ratio and different representations including writing ratios as a fraction. Solving problems with ratio that involve sharing in ratios.	Ratio Proportion Multiplier Unitary method Units	1) Setting up ratio from words and simplifying 2) Sharing in a ratio 3) Ratio when one part is given and other problems 4) Combining ratio – exam style 5) Basic proportion – unitary method	Fractions Simplifying Direct proportion	One written piece and one retrieval piece on sharing in a ratio and ratio problems.
Primes factors multiples with Venn	Understand the relationships between factors multiples and prime numbers. Write a number as a product of its prime factors. Understand prime factorisation and how it can be used to calculate HCF and LCM	Multiple Lowest common multiple (LCM) Factor Highest common factor (HCF) Venn diagram (Square and cube) root Prime number	1) Factors, multiples and primes 2) Prime Factorisation 3) HCF LCM 4) HCF LCM using Venn Diagrams 5) Worded/Functional questions	Multiplication Division Properties of numbers Prime numbers	One written piece and one retrieval piece on prime factorisation and HCF LCM.
Linear sequences	Understand the relationship between patterns and numbers	Fibonacci Sequence Linear Term Ascending Descending	1) Fibonacci sequence 2) Pattern spotting (common sequences inc quadratics. Triangle, cubic and links to them)	Multiplication patterns Properties of numbers	

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Topic	Learning Objectives	Key Vocabulary	Learning Sequence	Linked Learning	Home Learning
Linear graphs	Understand how to work with coordinates including negatives. Plot simple lines on a graph including horizontal, vertical and diagonal lines. Know what a gradient is and represents. Understand points of intersections on graphs.	Plot Equation Linear Coordinate Gradient y-intercept	1) Working with coordinates 2) Horizontal and vertical lines x= y= 3) Understanding what a graph is and plotting basic graphs with table of values 4) Investigating gradient and intercepts (Computer lesson) 5) Identifying gradient and y-intercept from equation 6) Consolidation or test	Substitution Coordinates Plotting Scale	One written piece and one retrieval piece on plotting linear graphs and working with gradients and intercepts.

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Topic	Learning Objectives	Key Vocabulary	Learning Sequence	Linked Learning	Home Learning
Transformations	Understand the ways in which we can transform a shape Understand the impact a transformation has on a shapes properties Complete transformations on graphs Be able to describe transformations.	Origin Quadrant Translation, Reflection, Rotation Transformation Object, Image Congruent, congruence Vector	1) Reflection 2) Translation 3) Rotation 4) Enlargement 5) Describing Transformations	2D Shapes Equation of lines Vectors Clockwise and anticlockwise Linear scale factors	One written piece and one retrieval piece on transforming shapes and describing transformations.
Averages	Understand the types of average and what they show about a set of data. Calculate basic averages from a list of values. Calculate averages from frequency tables.	Average Spread Mean Median Mode Range Measure	1) Mode and Range 2) Median 3) Mean 4) Mean from a frequency table 5) Median and range from frequency table	Representing data Ordering numbers including negatives Calculating with decimals Understanding frequency	One written piece and one retrieval piece on averages from listed data and averages from frequency tables.
FDP	Understand a variety of representations of numbers Be able to accurately convert between fractions decimals and percentages Be able to order numbers that are written in different ways.	Positive number Negative number Integer Numerator Denominator Mixed number Improper fraction Percentage Decimal	1) Converting fractions to decimals 2) Converting decimals to fractions 3) Converting between fractions and percentages 4) Equivalence with a calculator 5) Ordering fractions 6) Ordering FDP 7) Worded problems involving equivalence 8) Consolidation or end of unit test	Equivalent fractions Place value Understanding the term percentage	One written piece and one retrieval piece on converting FDP and ordering FDP.

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Topic	Learning Objectives	Key Vocabulary	Learning Sequence	Linked Learning	Home Learning
Expanding and factorising and solving	Be able to work interchangeably with expanded and factorised form of linear expressions. Be able to solve equations written in a variety of representations	Product Expand Variable Term Coefficient Common factor Factorise Power Indices Solve	1) Basic laws of indices (multiply, divide and brackets) 2) Expanding single brackets including powers 3) Expanding and simplifying 4) Factorising into a single bracket 5) Factorising more complex expressions 6) Solving 2 step equations including brackets 7) Solving including fractions 8) Algebra test	Factors and multiples Laws of indices Simplifying algebra Functions Inverse operations Operating with brackets Order of operations	One written piece and one retrieval piece on expanding and factorising and solving more complex equations.

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Topic	Learning Objectives	Key Vocabulary	Learning Sequence	Linked Learning	Home Learning
Angles	Develop an understanding of measuring and drawing angles To be able to calculate with angles on parallel lines To be able to recall calculate and use angle facts within polygons Understand the terms interior and exterior	Triangle Quadrilateral Vertically opposite Parallel Alternate angles Corresponding angles Co-interior angles Polygon Interior Exterior	1) Drawing and measuring angles with correct notation 2) Recap basic angles facts (straight line, point and vertically opposite) 3) Angles and triangles 4) Angles and triangles with algebra 5) Exploring angles in special quadrilaterals 6) Calculating angles in quadrilaterals including algebra 7) Angles and parallel lines 8) Angles and parallel lines 2 9) Angles and parallel lines 3 10) Interior angles and polygons 11) Exterior angles and polygons 12) Angle and regular polygons	Basic angle facts Properties of 2D shapes Angle and line notation	One written piece and one retrieval piece on angles in shapes and parallel lines and angles in polygons.

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Topic	Learning Objectives	Key Vocabulary	Learning Sequence	Linked Learning	Home Learning
Percentages	Calculate with basic percentages Be able to increase or decrease by a percentage amount To calculate a percentage change To work with reverse percentages To understand financial and real life percentages	Percent Multiplier Increase, decrease	1) Basic percentage of amounts mental methods 2) Multiplier for percentage of amounts 3) Increase decrease mental methods 4) Increase decrease multiplier 5) Expressing one quantity as a percentage of another 6) Finding percentage change 7) Real life percentages e.g. shopping and discounts 8) Financial percentages	**Academic text:** 1. Resources\Academic texts, maths Converting FDP Finance Tax Interest	One written piece and one retrieval piece on calculating percentage increase/decrease and calculating percentage change.
Volume	Understand properties of 3D shapes Calculate the volume of prisms including cylinders Be able to work with volume in problem solving contexts	(Right) prism Volume Capacity Compound Parallelogram	1) Volume of prisms including cylinders and compound shapes 2) Volume of prisms including cylinders and compound shapes 3) Finding missing values when given the volume 4) Problems and GCSE questions	Area of 2D shapes Properties of shapes Understanding units	One written piece on volume of prisms.
Coordinate geometry	Develop an understanding of shapes on a coordinate grid	Plot Co-ordinate Axis, axes	1) Constructing shapes on a coordinate grid when given 2 or more points 2) Exploring geometry	Plotting coordinates Understanding scale	One written piece on coordinate geometry,

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