



KS3 – Year 7

Year 7	Advent 1	Advent 2	Lent 1	Lent 2	Pentecost 1	Pentecost 2
Key content	1. Sequences 2. Algebraic notation and substitution 3. Expressions and equations	4. Place value, ordering and rounding 5. Four operations 6. Averages and Range 7. Rounding and estimating	8. Graphing data 9. Fractions, decimals & percentages	10. Directed number 11. Fractions and percentages of amounts 12. Perimeter and area	13. Speed, distance & time 14. Properties of numbers	15. Add and subtract fractions 16. Angles and polygons
Key concepts and skills	Unit 1: Sequences Describe and continue sequences Predict and check next term(s) Sequences in a table and graphically Linear and non-linear sequences Explain the term-to-term rule Unit 2: Understand and use algebraic notation Single function machines - numbers and algebra Find functions from expressions (single) Substitute into single expressions 2-step function machines - number and algebra Find functions from expressions (2-step) Substitute into 2-step expressions Unit 3: Equality and equivalence Understand the meaning of	Unit 4: Place value Recognise the place value of any number in an integer up to one billion Understand and write integers up to one billion in words and figures Position integers on a number line Round integers to the nearest power of ten Order a list of integers Understand place value for decimals Unit 5: Four operations Add and subtract integers Add and subtract decimals Multiply and divide by 10, 100 and 1000 Multiply integers Divide integers Multiply decimals Divide decimals by integers Order of operations Unit 6: Averages and Range Mode Mean	Unit 8: Graphing data Pictograms Bar charts Dual bar charts Composite bar charts Coordinates in the first quadrant Scatter graphs Correlation Lines of best fit Time series graphs Non-linear relationships Unit 9: Fractions, decimals & percentages Convert between fractions and decimals - tenths and hundredths Convert between fractions and decimals - fifths and quarters Understand the meaning of percentage using a hundred square Use and interpret pie charts Identify and use simple equivalent fractions Understand fractions as division Convert fluently between	Unit 10: Directed number Directed number and number lines Compare and order directed numbers Calculations that cross zero Directed number and zero pairs Add directed numbers Subtract directed numbers Multiply and divide directed numbers Order of operations with directed numbers Use a calculator with directed numbers Unit 11: Fractions and percentages of amounts Fraction of an amount Use a fraction to find the whole Percentage of an amount (non-calculator) Percentage of an amount (calculator) Percentage increase and decrease	Unit 13: Speed, distance and time Convert between milliseconds, seconds, minutes and hours Convert between hours, days, months and years Solve problems with tables and timetables Solve problems with time and the calendar Calculate speed Calculate time and distance Solve problems with speed distance and time Interpret distance time graphs Draw distance time graphs Unit 14: Properties of numbers Find and use multiples Identify factors of numbers and expressions Recognise and identify prime numbers Recognise square and triangular numbers Find common factors of a set of numbers including	Unit 15: Add and subtract fractions Simplify fractions Convert between mixed numbers and improper fractions Add and subtract fractions with the same denominator Add and subtract with fractions and integers Add and subtract fractions where denominators share a simple common multiple Add and subtract fractions with any denominator Add and subtract improper fractions and mixed numbers Unit 16: Angles and polygons Draw and measure line segments and angles Understand and use geometric notation Angles around a point Angles on a straight line



	equality Understand and use fact families, numerically and algebraically Solve one-step linear equations using inverse operations Understand the meaning of equivalence Simplify algebraic expressions by collecting like terms, using the $\equiv$ symbol	Median Range Solving problems with averages and range Unit 7: Rounding and Estimation Round to 1 significant figure Round to 2 or more significant figures Estimate answers to calculations Solve problems with estimation	fractions, decimals and percentages	Unit 12: Perimeter and area Convert metric units of length Perimeter of a polygon Perimeter of a compound shape Area of rectangles and parallelograms Area of a triangle Area of a trapezium Solve problems with perimeter and area	the HCF Find common multiples of a set of numbers including the LCM Write a number as a product of its prime factors	Vertically opposite angles Recognise and name polygons Angles in a triangle Angles in a quadrilateral Solve problems with angles Parallel and perpendicular lines Investigate angles in parallel lines Angles in any polygon Simple proofs
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Year 8	Advent 1	Advent 2	Lent 1	Lent 2	Pentecost 1	Pentecost 2
Key content	1. Ratio and scale 2. Multiplicative change 3. Multiplying and dividing fractions	4. Working in the cartesian plane 5. All operations with fractions 6. Tables and probability	7. Brackets, equations and inequalities 8. Sequences 9. Indices	10. Fractions and percentages 11. Standard index form 12. Number Sense	13. Angles in parallel lines and polygons 14. Area of trapezia and circles 15. Line symmetry and reflection	16. The data handling cycle 17. Measures of location
Key concepts and skills	Unit 1: Ratio and scale Understand the meaning and representation of ratio and ratio notation Solve problems involving ratios of the form 1: n and m: n Divide in a given ratio Express ratios in their simplest integer form Compare ratios and fractions Understand pi as a ratio Unit 2: Multiplicative change Solve problems involving direct proportion Explore conversion graphs Explore relationships between similar shapes Understand scale Draw and interpret scale diagrams Interpret maps using scale factors and ratios Unit 3: Multiplying and dividing fractions Find the product of a pair of any fractions Understand and use the reciprocal Divide any pair of fractions	Unit 4: Working on the cartesian plane Work with coordinates in all four quadrants Identify and draw lines that are parallel to the axes Recognise and use the line $y=x$ Recognise and use lines of the form $y=kx$ Explore graphs with negative gradient ($y=-kx$, $y=a-x$, $x+y=a$) Link graphs to linear sequences Plot graphs of the form $y=mx+c$ Unit 5: Representing data Draw and interpret scatter graphs Understand and describe linear correlation Draw and use line of best fit Identify non-linear relationships Identify different types of data Read and interpret ungrouped frequency tables Read and interpret grouped frequency tables Represent grouped discrete data Represent continuous data grouped into equal classes	Unit 7: Brackets, equations and inequalities Form algebraic expressions Multiply out a single bracket Factorise into a single bracket Expand multiple single brackets and simplify Solve equations, including with brackets Form and solve equations with brackets Understand and solve simple inequalities Form and solve inequalities Solve equations and Identify and use formulae, expressions, identities and equation Unit 9: Sequences Generate sequences given a rule in words Generate sequences given a simple algebraic rule Generate sequences given a complex algebraic rule Find the rule for the nth term of a linear sequence (H) Unit 10: Indices Using the addition and subtraction law for indices Exploring powers of	Unit 10: Fractions and percentages Convert fluently between key fractions decimals and percentages Calculate key fractions, decimals and percentages of an amount with and without a calculator Calculate percentage increase and decrease using a multiplier Express one number as a fraction or a percentage of another with and without a calculator Work with percentage change Find the original amount given the percentage less than 100% (H) Unit 11: Standard index form Writing numbers in standard form Convert number written in standard form to ordinary numbers Compare and order numbers in standard form Add and subtract	Unit 13: Angles in parallel lines and polygons Understand and use basic angle rules and notation Investigate angles between parallel lines and the transversal Identify and calculate with alternate, corresponding and co-interior angles Identify and calculate with sides and angles in special quadrilaterals Understand and use the properties of diagonals of quadrilaterals Understand and use the sum of exterior angles of any polygon Understand and use the sum of the interior angles in any polygon Unit 14: Area of trapezia and circles Calculate the area of triangles, rectangles and parallelograms Calculate the area of a trapezium Calculate the perimeter and area of compound shapes (1) Calculate the area of a	Unit 16: The data handling cycle Draw and interpret scatter graphs Identify different types of data Read and interpret ungrouped frequency tables Read and interpret grouped frequency tables Construct and interpret two-way tables Design and criticise questionnaires Draw and interpret pictograms, bar charts and vertical line charts Draw and interpret multiple bar charts Draw and interpret pie charts Draw and interpret line graphs Represent and interpret grouped quantitative data Find and interpret the range Identify misleading graphs Unit 17: Measures of location Understand and use the mean, median and mode Choose the most appropriate average Find the mean from an ungrouped frequency table (H) Find the mean from a grouped frequency table (H)



	Multiply and divide improper and mixed numbers	Construct and interpret two-way tables Unit 6: Tables and probability Construct sample spaces for one or more events Find probabilities from a sample space Find probabilities from two-way tables Find probabilities from Venn diagrams Use the product rule for finding the total number of possible outcomes	powers (H)	numbers in standard form Multiply and divide numbers in standard form Use a calculator to work with numbers in standard form Unit 12: Number Sense Round numbers to powers of 10 and 1 significant figure Round numbers to a given number of decimal places Estimate the answer to a calculation Calculate using the order of operations Calculate with money Convert metric measures of lengths, weight and capacity Solve problems involving time and the calendar	circle and parts of a circle with and without a calculator Calculate the perimeter and area of compound shapes (2) Unit 15: Line symmetry and reflection Recognise line symmetry Reflect a shape in a horizontal or vertical line Reflect a shape in a diagonal line	Identify outliers Compare distributions using averages and the range
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KS3 – Year 9

Year 9	Advent 1	Advent 2	Lent 1	Lent 2	Pentecost 1	Pentecost 2
Key content	1. Measures of location 2. Straight line graph 3. Testing conjectures	4. Three-dimensional shapes 5. Constructions and congruency	6. Numbers 7. Using percentages 8. Maths and money	9. Deduction 10. Reflections, rotation and translation 11. Pythagoras' Theorem	12. Enlargement and similarity 13. Solving ratio & proportion problems 14. Rates	15. Probability 16. Algebraic representation 17. GCSE Transition
Key concepts and skills	Unit 1: Measures of location Understand and use the mean, median and mode Choose the most appropriate average Find the mean from an ungrouped frequency table (H) Find the mean from a grouped frequency table (H) Identify outliers Compare distributions using averages and the range Unit 2: Straight line graph Lines parallel to the axis, $y=x$ and $y=-x$ Using tables of values Compare gradients and intercepts Understand and use $y=mx+c$ Write an equation in the form $y=mx+c$ (H) Find the equation of a line from a graph Interpret gradients and intercepts of real-life graphs Unit 3: Testing conjectures	Unit 4: Three-dimensional shapes Know names of 2D and 3D shapes Recognise prisms (including language of edges and vertices) Accurate nets of cuboids and other 3D shapes Plans and elevations Surface area of cubes and cuboids Surface area of triangular prisms and a cylinder Volume of cubes and cuboids Volume of other 3D shapes - prisms and cylinders Explore volumes of cones, pyramids and spheres (H) Unit 5: Constructions and congruency Locus of distance from a point, from a straight line, from two points and from two lines Construct a perpendicular bisector Construct an angle bisector	Unit 6 : Numbers Integers, real and rational numbers Understand and use surds (H) Work with directed number Solve problems with integers and decimals HCF and LCM Adding, subtracting, multiplying and dividing fractions Solve problems with fractions Numbers in standard form Unit 7: Using percentages Use the equivalence of fractions, decimals and percentages (R) Calculate percentage increase and decrease Express a change as a percentage Solve reverse percentage problems Recognise and solve percentage problems (non-calculator and calculator) Solve problems with repeated percentage change (H) Unit8: Maths and money Solve problems with bills and bank statements Calculate simple interest	Unit 9: Deduction Angles in parallel lines (R) Solve angle problems using chains of reasoning Angle problems with algebra Conjectures with angles and with shapes Link constructions and geometrical reasoning (H) Unit 10: Reflection, rotation and translation Recognise line symmetry Reflect a shape in a horizontal or vertical line Reflect a shape in a diagonal line Identify the order of rotational symmetry of a shape Rotate a shape about a point Translate points and shapes by a given vector Compare rotation and reflection of shapes Find the result of a series of transformations (H) Unit 11: Pythagoras' Theorem	Unit 12: Enlargement and similarity Recognise enlargement and similarity Enlarge a shape by a positive integer scale factor Enlarge a shape by a positive fractional scale factor Enlarge a shape by a negative scale factor (H) Work out missing sides and angles in a pair of given similar shapes Unit 13: Solving ratio & proportion problems Solve problems with direct proportion (R) Direct proportion and conversion graphs (R) Solve problems with inverse proportion Graphs of inverse relationships (H) Solve ratio problems Solve best buy problems Solve problems involving ratio and algebra (H) Unit 14: Rates Solve speed, distance and time problems with and without a calculator	Unit 15: Probability Single event probability (R) Relative frequency - including convergence Expected outcomes Independent events Use tree diagrams (H) Use tree diagrams to solve without replacement problems (H) Use diagrams to work out probabilities Unit 16: Algebraic representation Draw and interpret quadratic graphs Interpret graphs, including reciprocal and piece-wise Investigate graphs of simultaneous equations (H) Represent inequalities



	Factors, multiples and primes Conjectures about number Expand a pair of binomials Conjectures with algebra Explore the 100 grids Expand three binomials (H)		Calculate compound interest Solve problems with Value Added Tax Calculate wages and taxes Solve problems with exchange rates Solve unit pricing problems	Squares and square roots (R) Identify the hypotenuse of a right-angled triangle Determine whether a triangle is right-angled Calculate the hypotenuse of a right-angled triangle Calculate missing sides in right-angled triangles Use Pythagoras' theorem on coordinate axes	Use distance-time graphs Solve problems with density, mass and volume Solve flow problems and their graphs Rates of change and their units Convert compound units	
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