ST BEDE'S
CATHOLIC VOLUNTARY ACADEMY

KS3 – Year 7

Year 7	Advent 1	Advent 2	Lent 1	Lent 2	Pentecost 1	Pentecost 2
Key content	1. Sequences 2. Understand and use algebraic notation 3. Equality and equivalence	4. Place value and ordering integers and decimals 5. Fraction, decimal and percentage equivalence	6. Solving problems with addition & subtraction 7. Solving problems with multiplication and division 8. Fractions & percentages of amounts	9. Operations and equations with directed number 10. Addition and subtraction of fractions	11. Constructing, measuring and using notation 12. Developing geometric reasoning	13. Developing number sense 14. Sets and probability 15. Prime numbers and proof
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: Fraction, decimal and percentage** 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	**Unit 6: Solving problems with addition & subtraction** Mental and formal strategies for addition and subtraction of integers Use formal methods for addition and subtraction of decimals Choose the most appropriate method: mental strategies, formal written or calculator Solve problems in the context of perimeter Solve financial maths problems Solve problems involving tables and timetables Solve problems with frequency trees Solve problems with bar charts and line charts **Unit 7: Solving problems with multiplication and division** Properties of multiplication & division Understand and use factors Understand and use multiples Multiply and divide	**Unit 9: Operations and equations with directed number** Understand and use representations of directed numbers Order directed numbers using lines and appropriate symbols Add and subtract directed numbers Multiplication and division of directed numbers Evaluate algebraic expressions with directed number Solve two-step equations Use order of operations with directed numbers **Unit 10: Addition and subtraction of fractions** Understand representations of fractions Convert between mixed numbers and fractions Understand and use equivalent fractions	**Unit 11: Constructing, measuring and using notation** Understand and use letter and labelling conventions including those for geometric figures Draw and measure line segments including geometric figures Understand angles as a measure of turn Classify angles Measure and draw angles Identify perpendicular and parallel lines Recognise types of triangles Recognise types of quadrilaterals Identify polygons up to a decagon Construct triangles Interpret simple pie charts Draw pie charts **Unit 12: Developing geometric reasoning** Understand and use the sum of angles at a point, on a straight line, the equality	**Unit 13: Developing number sense** Know and use mental addition, subtraction, multiplication and division strategies for integers, decimals and fractions Use estimation as a method for checking mental calculations Use known number facts to derive other facts Use known algebraic facts to derive other facts Know when to use a mental strategy, formal written method or a calculator **Unit 14: Sets and probability** Identify and represent sets Interpret and create Venn diagrams Know and use the vocabulary of probability Generate sample spaces for single events Calculate the probability of a single event Understand and use the probability scale

	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 ≡ symbol	Understand fractions as division Convert fluently between fractions, decimals and percentages	integers and decimals by powers of 10 Convert metric units Use formal methods to multiply and divide integers Use formal methods to multiply and divide decimals **Unit 8: Fractions & percentages of amounts** Find a fraction of a given amount Find a percentage of a given amount using mental methods and calculator	Add and subtract fractions Add and subtract improper fractions and mixed numbers Use fractions in algebraic contexts Use equivalence to add and subtract decimals and fractions	of vertically opposite angles Know and apply the sum of angles in a triangle Know and apply the sum of angles in a quadrilateral Find and use the angle sum of any polygon (H) Investigate angles in parallel lines (H)	Know that the sum of probabilities for all possible outcomes is 1 **Unit 15: Prime numbers and proof** 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 the HCF Find common multiples of a set of numbers including the LCM Write a number as a product of its prime factors

KS3 – Year 8

Mathematics – KS3 Curriculum Map

ST BEDE'S
CATHOLIC VOLUNTARY ACADEMY

Year 8	Advent 1	Advent 2	Lent 1	Lent 2	Pentecost 1	Pentecost 2
Key content	1. Ratio and scale 2. Multiplicative change 3. Fractions, decimals and percentages equivalence 4. Fractions of Amount	5. Working in the cartesian plane 6. All operations with fractions	7. Equality and Equivalence 8. Brackets, equations and inequalities 9. Sequences	10. Indices 11. Fractions and percentages 12. Standard index form 13. Number Sense	14. Angles in parallel lines and polygons 15. Area of trapezia and circles 16. Line symmetry and reflection	17. The data handling cycle 18. 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: Fractions, decimals and percentages** Convert between fractions and Understand the meaning of percentage using a hundred square	**Unit 5: Working in 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 6: All operations with fractions** Understand representations of fractions Convert between mixed numbers and fractions Understand and use equivalent fractions Add and subtract fractions Add and subtract improper fractions and mixed numbers Use fractions in algebraic contexts Find the product of a pair of any fractions Understand and use the reciprocal Divide any pair of fractions Multiply and divide	**Unit 7: Equality and Equivalence** Understand the meaning of 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 ≡ symbol **Unit 8: 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 10: Indices** Using the addition and subtraction law for indices Exploring powers of powers (H) **Unit 11: 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 12: Standard index form** Writing numbers in standard form Convert number written	**Unit 14: 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 15: 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 17: 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 18: 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)

	Convert fluently between fractions, decimals and percentages **Unit 4: Fractions of Amount** Find a fraction of a given amount Find a percentage of a given amount using mental/calculator methods	improper and mixed numbers	**Unit9: 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 Generate sequences given a rule in words and algebraic rule Find the rule for the nth term of a linear sequence (H)	in standard form to ordinary numbers Compare and order numbers in standard form Add and subtract numbers in standard form Multiply and divide numbers in standard form Use a calculator to work with numbers in standard form **Unit 13: 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 16: 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

KS3 – Year 9

Mathematics – KS3 Curriculum Map

ST BEDE'S
CATHOLIC VOLUNTARY ACADEMY

Year 9	Advent 1	Advent 2	Lent 1	Lent 2	Pentecost 1	Pentecost 2
Key content	1. Sequences 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. 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: 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 Generate sequences given a rule in words and algebraic rule Find the rule for the nth term of a linear sequence (H) **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** Factors, multiples and primes	**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 Calculate compound 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: Rotation and translation** 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** Squares and square roots (R) Identify the hypotenuse of a right-angled triangle Determine whether a triangle is right-angled	**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 Use distance-time graphs	**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

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