St Thomas More RC College

Maths - Long-Term Plan

		Term 1a	Term 1b	Term 2a	Term 2b	Term 3a	Term 3b
Year 7	Topics to be covered:	Sequences Understand & use algebraic notation	Equality & equivalence Place value & ordering integers & decimals	Fraction, decimal & percentage equivalence Solving problems with addition & subtraction Solving problems with multiplication & division	Fractions & percentages of amounts Operations & equations with directed number Addition & subtraction of fractions	Constructing, measuring & using geometric notation Developing geometric reasoning	Developing number sense Sets & probability End of block
	Skills to be developed:	Algebraic thinking	Place value & proportion	Applications of number	Applications of number Directed number Fractional thinking	Lines & Angles	Reasoning with number
	Key assessments taking place:	End of block assessment (Sequences) End of block assessment (Understand & use algebraic notation)	End of block assessment (Equality & equivalence) End of block assessment (Place value & ordering integers & decimals)	End of block assessment (Fraction, decimal & percentage equivalence) End of block assessment (Solving problems with addition & subtraction) End of block assessment (Solving problems with multiplication & division)	End of block assessment (Fractions & percentages of amounts) End of block assessment (Operations & equations with directed number) End of block assessment (Addition & subtraction of fractions)	End of block assessment (Constructing, measuring & using geometric notation) End of block assessment (Developing geometric reasoning)	End of block assessment (Developing number sense) End of block assessment (Sets & probability)

	Key vocab	Term, Linear, Geometric, Fibonacci Function, Inverse, Input, Output, Variable, Coefficient, Commutative, Expression, Substitute	Integer, Interval, Greater than, Less than, Ascending, Descending, Range, Median, Average, Approximate, Significant figure, Index, Standard form	Equivalent, Percent, Sector, Denominator, Numerator, Quotients, Improper, Rational, Recurring Commutative, Associative, Partition, Polygon, Profit, Debit, Credit, Sum, Exponent	Reflection, Symmetric, Zero pair, Product, Solve, Solution, Indices Congruent, Lowest Common Multiple, Common denominator, Simplify	Rotation, Interior, Exterior, Protractor, Parallel, Perpendicular, Intersect, Equilateral, Isosceles, Scalene, Parallelogram, Rhombus, Trapezium, Vertices, Decagon, Pair of Compasses, Vertex, Proportion Vertically opposite, Convex, Concave, Conjecture, Transversal, Co-interior, Alternate, Corresponding	Factors, Overestimate, Underestimate, Efficient Universal set, Inclusive, Element, Venn diagram, Intersection, Union, Mutually exclusive, Complement, Bias, Event Factorise, Highest Common Factor, Counterexample, Assumption
	Cross-curricular	History – number Term 1a Roman Numerals Computer Science: convert binary into integers, Y8 Term 1b	MFL – number Term 1a Learning numbers in another language and describing age and amounts of things R.E: Term 3b – Hinduism Design Technology: Term 2b- making a mechanical toy (cutting & drilling) Term 3b – (Precision and accuracy for tolerance)		Geography: Percentages: Year 8 Terms 1b and 3a, Year 9 Term 1a, Year 11 Term 2a Health & Social Care: Percentages Y10 Term 1b	Design Technology: Term 1a, term2a, term 2b and term 3b Computer Science: creating simple algorithms, Y7 Term 1b, 2a	

	Opportunities for retrieval practice: All lessons start with a **Do Now** that include 4 questions: one from each of the following: last lesson, last week, last topic and last term. These are planned with interleaving and spacing in mind to keep essential skills sharp and to help with retrieval. Sparx is also used for homeworks and as a useful revision tool.						

Long-Term Plan

		Term 1a	Term 1b	Term 2a	Term 2b	Term 3a	Term 3b
Year 8	Topics to be covered:	Ratio and Scale Multiplicative Change	Multiplying and Dividing Fractions Cartesian Plane Representing Data	Prime Numbers Tables and Probability Brackets, Equations & Inequalities	Sequences Indices Fractions and Percentages	Standard Form Number Sense	Lines of Symmetry Data Handling Cycle
	Skills to be developed:	Proportional Reasoning	Mathematical Representations	Algebraic Techniques	Algebraic Techniques	Developing Geometry	Developing Geometry & Reasoning with data
	Key assessments taking place:	End of block assessment (Ratio and Scale) End of block assessment (Multiplicative Change)	End of block assessment (Multiplying and Dividing Fractions End of block assessment (Cartesian Plane) End of block assessment (Representing Data)	End of block assessment (Prime Numbers) End of block assessment (Tables & Probability) End of block assessment (Brackets, Equations & Inequalities)	End of block assessment (Sequences) End of block assessment (Indices) End of block assessment (Fractions and Percentages)	End of block assessment (Standard Form) End of block assessment (Number Sense)	End of block assessment (Lines of Symmetry) End of block assessment (Data Handling Cycle)

	Key vocab	Equal parts, for every, Relationship, Order, divide, multiply, part, multiplier, units, total, parts, factors, equivalent, simplify, factors, scale, compare, perimeter, circumference, constant, diameter, regular, gradient, slope, steep Proportion, double, triple, linear, variable, approximation, conversion, axes, rates, currency, directly proportional, origin, relationship, corresponding, scale factor, enlargement, length, image, not to scale, distance, metric	Unit fraction, numerator, denominator, product, repeated addition, square, whole, commutative, quotient, divide, estimate, convert, reciprocal, simplify, factors Quadrant, coordinates, horizontal, vertical, axis, origin, parallel, equation, diagonal, scale, linear, direct, unitary, gradient, input, output, symmetrical, equidistant Variable, Correlation, Positive, Negative, Extrapolate, outlier, discrete, continuous, qualitative, quantitatively, ungrouped, sub-total, tally, frequency, class, boundary	Multiples, integer, positive, zero, factors, remainder, divisor, digit,, triangular number, square number, highest common factor, factorising, lowest common multiple, prime, product Outcomes, sample space, set, systematic, chance, event, unbiased, set, intersection, union, region, order Expression, Simplify, term, substitute, coefficient, equivalent, Solve, expand, bracket, identity, factorise, like terms, binomial, quadratic, expand	Position, term, linear, non-linear, Fibonacci, term to term, algebraic, linear, non-linear, position to term Index, power, multiply, expand,, base, exponent, product Decimal, numerator, denominator, equivalent, fraction key, rounding, conversion, tenth, hundredth, interest, profit, loss, original, invest, reverse,	Base, index, power, exponent, negative, original, place value, commutative, scientific notation, zero, reciprocal, root Round, significant, power, integer, nearest, decimal, estimate, root, discrete, continuous, bound, order, priority, deposit, interest, balance, credit, metric, metre, prefix, area, perpendicular, dimensions	Formula, area, parallel, perpendicular height, compound, component, sector, estimate, infinity, radius, pi, diameter Regular, polygon, isosceles, equilateral, reflect, congruent, vertical, horizontal, object, image, vertex Hypothesis, investigation, enquiry, sample, primary, secondary, biased, pictogram, bar chart, line chart, tally, frequency, scale, comparison, key, pie chart, scatter graph, bivariate, grouped, discrete, continuous, intervals, range, spread, average, consistent, distribution, mislead
	Cross-curricular	Geography: Scale: Throughout curriculum Proportion/Ratio: Year 7 Term 1b	Geography: Representing Data (Pie Chart, Line Graph, Bar Chart) throughout curriculum but first Year 7 Term 3a	Computer Science: use formulae and functions, Y7 Term 2b	Geography: Percentages: Year 8 Terms 1b and 3a, Year 9 Term 1a, Year 11 Term 2a	Design Technology: Term 2b, 3a and 3b – measuring and evaluation; design and shapes	Geography: Representing Data (Pie Chart, Line Graph, Bar Chart throughout

		RE: Term 1a – Islam (direction) Design Technology: Term 1a	Geography: Coordinates tied to Grid References Year 7 Term 1a and Year 9 Term 1b Health & Social Care: Graphs Y10 Term 1b Computer Science: sort data into a table, Y7 Term 2b		Health & Social Care: Percentages Y10 Term 1b Computer Science: convert binary into integers, Y8 Term 1b		curriculum but first Year 7 Term 3a Scatter Graphs: Year 7 Term 3a Averages: Year 7 Term 2b RE: Term 2a -RC Life (conversion) Health & Social Care: Graphs Y10 Term 1b Computer Science: creating graphs, Y7 Term 2b
	Opportunities for retrieval practice: All lessons start with a **Do Now** that include 4 questions: one from each of the following: last lesson, last week, last topic and last term. These are planned with interleaving and spacing in mind to keep essential skills sharp and to help with retrieval. Sparx is also used for homeworks and as a useful revision tool.						

Long-Term Plan

		Term 1a	Term 1b	Term 2a	Term 2b	Term 3a	Term 3b
Year 9	Topics to be covered:	Angles in Parallel Lines Area of Trapezia and Circles Straight Line Graphs	Forming and Solving Equations Testing Conjecture 3D Shapes	Constructions and Congruency Numbers Using Percentages	Maths and Money Deduction Rotation and Translation	Pythagoras' Theorem Enlargement and Similarity	Ratio and Proportion Rates

	Skills to be developed:	Geometric Reasoning Reasoning with algebra	Constructing in 2 & 3D Dimensions	Reasoning with Number	Reasoning with Geometry	Reasoning with Geometry	Reasoning with Proportion
	Key assessments taking place:	End of block assessment (Angles in parallel lines) End of block assessment (Area of trapezia and circles) End of block assessment (Straight Line Graphs)	End of block assessment (Forming and Solving Equations) End of block assessment (Testing Conjecture) End of block assessment (3D Shapes)	End of block assessment (Constructions and Congruency) End of block assessment (Numbers) End of block assessment (Using Percentages)	End of block assessment (Maths and Money) End of block assessment (Deduction) End of block assessment (Rotation and Translation)	End of block assessment (Pythagoras' Theorem) End of block assessment (Enlargement and Similarity)	End of block assessment (Rotation and Proportion) End of block assessment (Rates) **End of Key Stage 3 Assessment**
	Key vocab	Adjacent, vertically opposite, acute, obtuse, reflex, right angle, straight, transversal, alternate, corresponding, supplementary, co-interior, isosceles, equilateral scalene, rhombus, parallelogram, trapezium, kite, bisect, delta, interior, exterior, polygon, sum, regular, compass	Inequality, unknown, inverse, solve, solution, expand, satisfy, greater than, less than, balance, coefficient, substitute, formula, subject, rearrange Factor, Multiple, Prime, Common, Verify, Counterexample, prove, verify, demonstrate, expand, factorise,	Acute, obtuse, reflex, right angle, protractor, scale, ratio, multiply, conversion, units, locus, path, equidistant, construction lines, arc, perpendicular, bisector, line segment, congruent, identical, invariant, reflection, corresponding Integer, real, rational, root, irrational, square	Total, debit, credit, balance, expense, bill, percentage, interest, annual, deposit principle, rate, compound, multiplier, tax, value added, original, VAT, income, salary, wage, exemption, overtime, currency, convert, exchange, unitary	Square, square root, hypotenuse, right angled triangle, opposite, adjacent, sum, quadrant, negative, gradient Ratio, scale factor, corresponding, object, image, centre, distance, position, fraction, inverted, orientation	Relationship, multiplier, scale factor, linear, non-linear, variable, gradient, inverse, product, proportional, share, equivalent Speed, distance, time, hours, minutes, convert, accuracy, average, gradient, aces,

		Trapezium, perpendicular, compound, component shapes, sector, infinity, pi, radius, circumference, diameter, estimate, approximately Axis, Parallel, Horizontal, vertical, equation, intercept, linear, function, gradient, positive, negative, intercept, co-ordinate, reciprocal	expression, binomial, quadratic Dimensions, Cube cuboid, cylinder, cone, sphere, pyramid, tetrahedron, face, edge, vertex, polygon, prism, cross-section, net, area, plan, perspective, isometric, front/side elevation, formula, compound, perpendicular height, circumference, pi, height, width, length, commutative	root, cube root, surd, directed, operation, quotient, product, sum, remainder, adjust, compensate, operation, factor, prime product of primes, fraction, mixed number, improper fraction, standard form, index, exponent Convert, equivalent, multiplier, increase, decrease, profit, loss, reverse, change, original, repeated, depreciate, exponent	Alternate, corresponding, co-interior, transversal, parallel, isosceles, interior, exterior, regular, equation, polygon, conjecture, prove, counterexample, bisector Symmetry, order, regular, irregular, Rotational, mirror, direction, invariant, clockwise, anti-clockwise, centre, translate, vector, horizontal, vertical		density, mass, volume, re-arrange, units, constant rate, flow rate, curve, volume, conversion, rate of change, imperial, metric, convert
	Cross-curricular	Health & Social Care: Graphs Y10 Term 1b Computer Science: develop turtle drawing techniques to create shapes, Y8 Term 2b	Geography: 3d shapes Year 7 Term 1b Computer Science: use formulae and functions, Y7 Term 2b	Geography: Percentages: Year 8 Terms 1b and 3a, Year 9 Term 1a, Year 11 Term 2a RE: Term 3b – Belief in God (conversion) Design Technology: Term 1b, term 2b , term 3a and term 3b – cutting, drilling,	Health & Social Care: Money matters in terms of accessing services and overcoming barriers Y10 Term 3a		

				measuring and evaluating			
	Opportunities for retrieval practice: All lessons start with a **Do Now** that include 4 questions: one from each of the following: last lesson, last week, last topic and last term. These are planned with interleaving and spacing in mind to keep essential skills sharp and to help with retrieval. Sparx is also used for homeworks and as a useful revision tool.						

Long-Term Plan

		Term 1a	Term 1b	Term 2a	Term 2b	Term 3a	Term 3b
Year 10	Topics to be covered:	Congruency, Similarity & enlargement Pythagoras and trigonometry	Representing solutions of equations and inequalities Simultaneous equations	Angles and Bearings Working with circles Vectors	Ratio and fractions Percentage & interest Probability	Collecting, representing & interpreting data Non-calculator methods Types of numbers and sequences	Indices and roots Manipulating expressions
	Skills to be developed:	Develop fluency Reason mathematically Solve problems	Develop fluency Reason mathematically Solve problems	Develop fluency Reason mathematically Solve problems	Develop fluency Reason mathematically Solve problems	Develop fluency Reason mathematically Solve problems	Develop fluency Reason mathematically Solve problems

	Key assessments taking place:	End of block assessment (Congruency, Similarity & enlargement) End of block assessment (Pythagoras and trigonometry)	End of block assessment (Representing solutions of equations and inequalities) End of block assessment (Simultaneous equations) **End of Autumn Term Assessment**	End of block assessment (Angles and Bearings) End of block assessment (Working with circles) End of block assessment (Vectors)	End of block assessment (Ratio and fractions) End of block assessment (Percentage & interest) End of block assessment (Probability) **End of Spring Term Assessment**	End of block assessment (Collecting, representing & interpreting data) End of block assessment (Non-calculator methods) End of block assessment (Types of numbers and sequences)	End of block assessment (Indices and roots) End of block assessment (Manipulating expressions) **End of year assessment**
	Key vocab	Enlarge, Scale factor, ratio, origin, object, image, fractional, centre of enlargement, negative scale factor, proportion, correspond, parallel, alternate, co-interior, similar, congruent Hypotenuse, square root, significant figure, decimal place, right angle, opposite, adjacent, gradient, tangent, formula, sine, cosine, complement, tangent, inverse, surd	Variable, solve, equation, solution, expression, inverse, balance, inequality, invers, solution set, greater/less than, union, set notation, gradient, y-intercept, linear, coordinate, intersect, region, test position, roots, quadratic, factorise, intercept Variable, infinite, finite, substitute, verify, subject, re-arrange, simultaneous, intersect, eliminate, coefficient, multiplier, context, linear, non linear	Compass, point, angle, protractor, convert, similar, north line, clockwise, due east/west, scale, construct, parallel, alternate, corresponding, trigonometry, perpendicular Radius, diameter, chord, centre, tangent, arc, sector, segment, circumference, minor/major, subtend, isosceles, Pythagoras, cyclic, cylinder, cone, base, frustum, sphere	Ratio, simplest form, convert, equivalent, share, part, whole, fraction, convert, compare, gradient, origin, equation, direct proportion, exchange, bearing, unit Fraction, decimal, percentage, equivalent, convert, multiplier, increase, decrease, reduce, numerator, denominator, simple, compound,	Population, sample, representation, biased, random, proportional, stratified, primary/ secondary data, source, experiment, questionnaire, midpoint, endpoint, class, interval, composite, sector, broken axis, histogram, class width, frequency density, mean, mode, outlier, median, interquartile range	Prime, exponent, standard form, power, index, base, non-unit fraction Simplify, coefficient, term, variable, identity, equivalent, invert, reciprocal, product, quotient, factorise, solution set, inequality, counterexample

				Column vector, direction, scalar, magnitude, direction, parallel, multiplier, opposite, resultant, common point, collinear	interest, power, index, exponent, depreciated, reverse, growth, decay,. Iterate, geometric, subscript Outcome, equally likely, event, denominator, numerator, complement, Venn diagram, union, relative frequency, estimate, expectation, universal set, sample space, systematic, array, conditional	Credit, debit, profit, loss, balance, volume, area, perimeter, mixed number, improper fraction, integer, terminating, root, surd, square root, error interval, upper/lower bound, truncate Factor, multiply, prime, index form, intersection, HCF, LCM, common difference, arithmetic, geometric, triangular, oscillate, Fibonacci, term to term, linear, non-linear, quadratic	
	Cross-curricular				Design Technology: Term 2a, 3a and 3b	Geography: IQR Year 11 Term 3a Design Technology: <u>Product Design</u> – Term 2a, 2b and 3b (defect, cost, data.etc) Health & Social Care: Graphs Y10 Term 1b	Computer Science: creating graphs, Y7 Term 2b Computer Science: convert binary into integers, Y8 Term 1b

						Computer Science: convert binary into integers, Y8 Term 1b, Y10 Term 2a	
	Opportunities for retrieval practice: All lessons start with a **Do Now** that include 4 questions: one from each of the following: last lesson, last week, last topic and last term. These are planned with interleaving and spacing in mind to keep essential skills sharp and to help with retrieval. Sparx is also used for homeworks and as a useful revision tool.						

Long-Term Plan

		Term 1a	Term 1b	Term 2a	Term 2b	Term 3a	Term 3b
Year 11	Topics to be covered:	Probability Collecting, representing & interpreting data	Surds and Bounds Types of numbers and sequences Indices and roots Manipulating expressions	Gradients & Lines Non-linear graphs Using graphs Expanding & Factorising Functions	Multiplicative reasoning Circle theorems & geometrical reasoning Algebraic reasoning	Transforming & constructing Pupils follow a bespoke programme of study based on strengths and weaknesses taken from the January mock and other assessments.	Pupils follow a bespoke programme of study based on strengths and weaknesses taken from the January mock and other assessments.
	Skills to be developed:	Develop fluency Reason mathematically Solve problems	Develop fluency Reason mathematically Solve problems	Develop fluency Reason mathematically Solve problems	Develop fluency Reason mathematically Solve problems	Develop fluency Reason mathematically Solve problems	

	Key assessments taking place:	Assessment Task to take place after each unit	Assessment Task to take place after each unit	January Mocks (in Hall)	Assessment Task to take place after each unit	March Mocks (in classrooms)	
	Key vocab	Outcome, equally likely, event, denominator, numerator, complement, Venn diagram, union, relative frequency, estimate, expectation, universal set, sample space, systematic, array, conditional, population, sample, representation, biased, random, proportional, stratified, primary/ secondary data, source, experiment, questionnaire, midpoint, endpoint, class, interval, composite, sector, broken axis, histogram, class width, frequency density, mean, mode, outlier, median, interquartile range	Credit, debit, profit, loss, balance, volume, area, perimeter, mixed number, improper fraction, integer, terminating, root, surd, square root, error interval, upper/lower bound, truncate, factor, multiply, prime, index form, intersection, HCF, LCM, common difference, arithmetic, geometric, triangular, oscillate, Fibonacci, term to term, linear, non-linear, quadratic, algebraic, conjecture, counter-example	Gradient, intercept, parallel, perpendicular, axes, coordinate, simultaneous, linear, quadratic, cubic, reciprocal, exponential, function, tangent, root, estimate, velocity, acceleration, expand, factorise, substitution, inverse, expression, inequality	Scale factor, proportion, direct, inverse, pressure, force, exterior, interior, theorem, subtended, circumference, radius, diameter, alternate, segment, proof	Transformation, symmetry, rotation, reflection, translation, column vector, enlargement, locus, loci, perpendicular, construct	

	Cross-curricular	Geography Y11 Autumn term - Misleading graphs					
	Opportunities for retrieval practice: All lessons start with a **Do Now** that include 4 questions: one from each of the following: last lesson, last week, last topic and last term. These are planned with interleaving and spacing in mind to keep essential skills sharp and to help with retrieval. Sparx is also used for homeworks and as a useful revision tool.						