Park Vale Academy

Inspire, Challenge, Enrich

Maths 2023-2024 Curriculum Maps

Park Vale Academy

Year 7	Autumn HT 1	Autumn HT 2	Spring HT 1	Spring HT 2	Summer HT 1	Summer HT 2
Topic and/or Key Question	**300 Minutes** **1. Place Value** **2. Calculations**	**2. Calculations** **3. Negative Numbers** **4. Fractions**	**4. Fractions** **5. Indices**	**Revision & Assessment** **6. Introduction to Algebra**	**6. Introduction to Algebra** **7. Working with Measures**	**8. Shapes, Area & Pythagoras** **9. Fractions, Decimals & Percentages**
Key Knowledge/Skills Main skills (subject specific and generic) that will be developed and how	**Place Value** 1.1 Reading & Writing Integers 1.2 Reading & Writing Decimals 1.3 Types of Decimal 1.4 Inequality Symbols & Comparing Decimals 1.5 Rounding to Decimal Places 1.6 Rounding to Significant Figures 1.7 Number Bases **Calculations** 2.1 Add & Subtract Decimals 2.2 Short Division 2.3 Multiply & Divide by Powers of 10 2.4 Multiplying Decimals 2.5 Dividing by 0.5, 0.1, 0.01 & 0	**Calculations** 2.6 Dividing Decimals 2.7 Mental Calculation Methods **Negative Numbers** 3.1 Ordering Negative Numbers 3.2 Using a Number Line (Journeys) 3.3 Add & Subtract Negative **Numbers** 3.4 Multiply & Divide Negative Numbers 3.5 Four Operations with Negatives 3.6 Negative Decimals Fractions 4.1 Fraction Notation 4.2 Improper Fractions & Mixed Numbers 4.3 Fraction of an Amount 4.4 Equivalent Fractions 4.5 Fractions & Decimals	**Fractions** 4.6 Add & Subtract Fractions 4.7 Multiply & Divide Fractions 4.8 Four Operations with Mixed Numbers 4.9 Four Operations with Integers, Fractions, Decimals & Negatives **Indices** 5.1 Index Notation 5.2 Zero & Negative Indices 5.3 Laws of Indices 5.4 Roots 5.5 Order of Operations	**REVISION & ASSESSMENT** **Introduction to Algebra** 6.1 Collecting Like Terms 6.2 Multiplying Variables 6.3 Multiply & Divide Algebraic Fractions	**Introduction to Algebra** 6.4 Reading & Writing Algebra 6.5 Substitution 6.6 Solving Equations **Working with Measures** 7.1 Estimation & Error Intervals 7.2 Standard Form 7.3 Metric Lengths 7.4 Perimeter 7.5 Speed & Time	**Shapes, Area & Pythagoras** 8.1 Shapes 8.2 Units for Area 8.3 Area 8.4 Pythagoras **Fractions, Decimals & Percentages** 9.1 Ordering Fractions & Decimals 9.2 Convert between Fractions, Decimals & Percentages 9.3 Percentage of and Amount 9.4 Percentage Change
Key Vocabulary **(School Improvement Priority)**	Base 10, binary, decimals, equality, figures, fractions, greater than, integer, irrational, less than, notation, place value, recurring, rounding, significant figure, terminating, commutative law, addition, subtraction, decimals, place value, dividend, quotient, divisor, multiplication, division	Commutative law, addition, subtraction, decimals, place value, dividend, quotient, divisor, multiplication, division, greater than, less than, negative, positive, addition, subtraction, product, multiply, divide, quotient, dividend, divisor, whole, numerator, denominator, part, greater than, less than, mixed number, proper, improper	Whole, numerator, denominator, part, greater than, less than, mixed number, proper, improper, base, exponent, power, variable, root, index	Like term, expression, variable, index, indices, substitute, solve, one-step, two-step	Like term, expression, variable, index, indices, substitute, solve, one-step, two-step, estimate, round, error interval, standard form, metric, perimeter, circumference, radius, diameter, speed, distance, time	Parallel, perpendicular, quadrilateral, properties, area, parallelogram, trapezium, compound shape, Pythagoras, theorem, fraction, decimal, percent, percentage, order, convert, recurring, compare, multiplier,
Extended Writing / Disciplinary Reading **(School Improvement Priority)**	**Famous Mathematicians - Pythagoras**	**Engineering – The Great Pyramid of Giza**	**Astronomy – First Person in Space**	**Sport – Red Rum's Third Grand National Win**	**Art – MC Escher's Surreal Art & Tessellations**	**Codes & Encryption – Where it All Started**
Assessment [Summative & Formative] How knowledge and skills will be assessed formally and informally. How feedback will be given	**Baseline Testing** **Chapter Test 1 (F)**	**Chapter Test 2 (F)** **Chapter Test 3 (F)** **Cumulative Test 2**	**Chapter Test 4 (F)** **Chapter Test 5 (F)** **Cumulative Test 4**	**DC1 Papers 1 & 2**	**Chapter Test 6 (F)** **Chapter Test 7 (F)** **Cumulative Test 6**	**Chapter Test 8 (F)** **Chapter Test 9 (F)** **Cumulative Test 8**

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Year 8	Autumn HT 1	Autumn HT 2	Spring HT 1	Spring HT 2	Summer HT 1	Summer HT 2
Topic and/or Key Question	**1. Algebraic Expressions** **2. Angles**	**2. Angles** **3. Formulae** **4. Area & Volume**	**4. Area & Volume** **5. Forming & Solving Equations**	**5. Forming & Solving Equations** **6. Number Theory & Sequences** **Revision**	**Revision & Assessment** **7. Functions, Coordinates & Graphs**	**7. Functions, Coordinates & Graphs** **8. Introduction to Statistics** **YEAR 8 PROJECT: Probability**
Key Knowledge/Skills Main skills (subject specific and generic) that will be developed and how	**Algebraic Expressions** 1.1 Collecting Like Terms 1.2 Multiplying Variables 1.3 Four Operations with Algebraic Fractions 1.4 Writing Expressions 1.5 Expanding Brackets & Factorising 1.6 Multiply 2 or 3 Brackets Together **Angles** 2.1 Angle Notation 2.2 Half Turns & Full Turns 2.3 Angles on Parallel Lines	**Angles** 2.4 Types of Triangle and their Angles 2.5 Angles in Quadrilaterals Formulae 3.1 Writing & Using Formulae 3.2 Re-arranging Formulae (One Step) 3.3 Re-arranging Formulae (Two Step) **Area & Volume** 4.1 Expressions for Area 4.2 Area of Circles, Part Circles and Compound Shapes	**Area & Volume** 4.3 Properties of 3D Shapes & Surface Area 4.4 Volume of Cuboids, Prisms & Cylinders **Forming & Solving Equations** 5.1 One Step Equations 5.2 Two Step Equations 5.3 Multi-Step Equations	**Forming & Solving Equations** 5.4 Double Sided Equations **Number Theory & Sequences** 6.1 Factors, Primes & Composites 6.2 Multiples 6.3 Odds, Evens & Multiples in Algebra 6.4 Sequences: Term-to-Term Rules 6.5 nth Term Rules **REVISION**	**REVISION & ASSESSMENT** **Functions, Coordinates & Graphs** 7.1 Functions 7.2 Coordinates 7.3 Plotting Linear Graphs	**Functions, Coordinates & Graphs** 7.4 Plot Non-Linear Graphs 7.5 Reading & Using Graphs **Introduction to Statistics** 8.1 Collecting Data 8.2 Charts & Graphs 8.3 Averages & Range **YEAR 8 PROJECT**
Key Vocabulary **(School Improvement Priority)**	Expressions, like terms, multiply, index, notation, fraction, divide, simplify, operations, variables, expand, factorise, turn, angle, right angle, perpendicular, parallel, corresponding, alternate, co-interior, vertically opposite, equilateral, isosceles, scalene, quadrilateral	Turn, angle, right angle, perpendicular, parallel, corresponding, alternate, co-interior, vertically opposite, equilateral, isosceles, scalene, quadrilateral, formula, variable, term, substitute, subject, rearrange, expression, area, semi, quarter, compound, face, edge, vertex, pyramid, prism, net, plane, cube, cuboid	Expression, area, semi, quarter, compound, face, edge, vertex, pyramid, prism, net, plane, cube, cuboid, inverse, equation, root, index, order of operations, like terms, area, perimeter	Inverse, equation, root, index, order of operations, like terms, area, perimeter, factor, prime, composite, highest common factor, multiple, square, cube, lowest common multiple, odd, even, arithmetic, geometric, Fibonacci, nth term, position, term	Function, Cartesian, co-ordinates, linear, quadratic, cubic, exponential, simultaneous	Bias, discrete, bar chart, pie chart, x axis, y axis, outliers, mean, mode, median, range, extrapolation, frequency, continuous, pictogram, sector, qualitative, quantitative, scatter graph, line of best fit, correlation, causation, interpolation
Extended Writing / Disciplinary Reading **(School Improvement Priority)**	**Famous Mathematicians - Hypatia**	**Engineering – The Great Wall of China**	**Astronomy – The Lunar Landing**	**Sport – The 2003 Rugby World Cup**	**Art – Vitruvian Man by Leonardo da Vinci**	**Codes & Encryption – Mary, Queen of Scots & Queen Elizabeth**
Assessment [Summative & Formative] How knowledge and skills will be assessed formally and informally. How feedback will be given	**Chapter Test 1 (F)**	**Chapter Test 2 (F)** **Chapter Test 3 (F)** **Cumulative Test 2**	**Chapter Test 4 (F)** **Cumulative Test 4**	**Chapter Test 5 (F)** **Chapter Test 6 (F)**	**Cumulative Test 6** **DC2 Papers 1 & 2**	**Chapter Test 7 (F)** **Chapter Test 8 (F)** **Cumulative Test 8**

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Year 9	Autumn HT 1	Autumn HT 2	Spring HT 1	Spring HT 2	Summer HT 1	Summer HT 2
Topic and/or Key Question	**1. Non-Calc. Fractions, Decimals & Percentages** **2. Linear Graphs & Gradient**	**2. Linear Graphs & Gradient** **3. Transformations** **4. Non-Calc. Ratio & Proportion**	**4. Non-Calc. Ratio & Proportion** **Revision & Assessment**	**5. Angles & Similarity** **6. Pythagoras & Trigonometry**	**6. Pythagoras & Trigonometry** **7. Probability**	**8. Maps & Constructions** **9. Percentages (Calculator Methods)**
Key Knowledge/Skills Main knowledge/skills (subject specific and generic) that will be developed and how	**Non-Calculator FDP** 1.1 FDP Conversion 1.2 Four Operations with Fractions & Mixed Numbers 1.3 FDP Word Problems **Linear Graphs & Gradient** 2.1 Plotting Linear Graphs 2.2 Gradient	**Linear Graphs & Gradient** 2.3 y = mx + c 2.4 Real Life Graphs **Transformations** 3.1 Translations 3.2 Reflection 3.3 Rotation 3.4 Enlargement 3.5 Mixed & Combined Transformations **Non-Calculator Ration & Proportion** 4.1 Ratio Notation 4.2 Ratio Problems	**Non-Calculator Ratio & Proportion** 4.3 Proportion **REVISION & ASSESSMENT**	**Angles & Similarity** 5.1 Angle Basics Review 5.2 Interior & Exterior Angles in Polygons 5.3 Similarity **Pythagoras & Trigonometry** 6.1 Pythagoras' Theorem	**Pythagoras & Trigonometry** 6.2 Sin, Cos & Tan **Probability** 7.1 Theoretical Probability 7.2 Systematic Listing & Counting 7.3 Experimental Probability 7.4 Tables & Venn Diagrams	**Maps & Constructions** 8.1 Maps & Bearings 8.2 Constructing Loci 8.3 Constructing Triangles & Congruence 8.4 Plans & Elevations **Percentages (Calculator Methods)** 9.1 Using Decimal Multipliers 9.2 Reverse & Successive Percentage Problems
Key Vocabulary **(School Improvement Priority)**	Fraction, decimal, percentage, linear, function, positive, negative, parallel, intercept, y-axis, x-axis, gradient, line, line segment, equations	Linear, function, positive, negative, parallel, intercept, y-axis, x-axis, gradient, line, line segment, equations, shape, translate, vector, reflect, horizontal, vertical, diagonal, rotate, enlargement, scale factor, invariance, ratio, simplify, equivalent, proportion, direct, inverse	Ratio, simplify, equivalent, proportion, direct, inverse	Angles, half turn, triangle, quadrilateral, parallel, polygon, interior, exterior, similar, right angle, hypotenuse, square, triangle, Pythagoras, sine, cosine, tangent, ratio	Right angle, hypotenuse, square, triangle, Pythagoras, sine, cosine, tangent, ratio probability scale, mutually exclusive, exhaustive, sample space, systematic, outcome, product, independent, dependent, relative frequency, fair, biased, conditional, two-way table, Venn diagram, union, intersection	Scale, bearing, clockwise, construct, locus, loci, equidistant, bisect, perpendicular, protractor, congruent, plan, elevation, multiplier, increase, decrease, profit, loss, reverse, successive, compound interest
Extended Writing / Disciplinary Reading **(School Improvement Priority)**	**Famous Mathematicians - Cardano**	**Engineering – The Collosseum**	**Astronomy – The Hubble Space Telescope**	**Sport – The 2012 London Olympics**	**Art – Drip Painting by Jackson Pollock**	**Codes & Encryption – World War 2, Alan Turing & the Enigma**
Assessment [Summative & Formative] How knowledge and skills will be assessed formally and informally. How feedback will be given	**Chapter Test 1 (F)**	**Chapter Test 2 (F)** **Chapter Test 3 (F)** **Cumulative Test 2**	**Chapter Test 4 (F)** **Cumulative Test 4** **DC3 Papers 1 & 2**	**Chapter Test 5 (F)**	**Chapter Test 6 (F)** **Chapter Test 7 (F)** **Cumulative Test 6**	**Chapter Test 8 (F)** **Chapter Test 9 (F)** **Cumulative Test 8**

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Maths 2023-2024 Curriculum Maps

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Year 10 (F)	Autumn HT 1	Autumn HT 2	Spring HT 1	Spring HT 2	Summer HT 1	Summer HT 2
Topic and/or Key Question	**31. Number** **32. Algebra**	**34. Fractions and Percentages** **35. Equations, Inequalities and Sequences**	**36. Angles** **37. Averages and Range**	**38. Perimeter, Area and Volume** **39. Graphs**	**40. Transformations** **41. Ratio and Proportion**	**41. Ratio and Proportion** **Revision & Assessment (Mocks)** **42. Right-angled Triangles**
Key Knowledge/Skills Main skills (subject specific and generic) that will be developed and how	**Number** 31.1 Calculations 31.2 Decimal numbers 31.3 Place value 31.4 Factors and multiples 31.5 Squares, cubes and roots 31.6 Index notation 31.7 Prime factors **Algebra** 32.1 Algebraic expressions 32.2 Simplifying expressions 32.3 Substitution 32.4 Formulae 32.5 Expanding brackets 32.6 Factorising 32.7 Using expressions and formulae	**Fractions and Percentages** 34.1 Working with fractions 34.2 Operations with fractions 34.3 Multiplying fractions 34.4 Dividing fractions 34.5 Fractions and decimals 34.6 Fractions and percentages 34.7 Calculating percentages 1 34.8 Calculating percentages 2 **Equations, Inequalities and Sequences** 35.1 Solving equations 1 35.2 Solving equations 2 35.3 Solving equations with brackets 35.4 Introducing inequalities 35.5 More inequalities 35.6 More formulae 35.7 Generating sequences 35.8 Using the nth term of a sequence	**Angles** 36.1 Properties of shapes 36.2 Angles in parallel lines 36.3 Angles in triangles **Averages and Range** 37.1 Mean and range 37.2 Mode, median and range 37.3 Types of average 37.4 Estimating the mean 37.5 Sampling	**Perimeter, Area and Volume** 38.1 Rectangles, parallelograms and triangles 38.2 Trapezia and changing units 38.3 Area of compound shapes 38.4 Surface area of 3D solids 38.5 Volume of prisms 38.6 More volume and surface area **Graphs** 39.1 Coordinates 39.2 Linear graphs 39.3 Gradient 39.4 y = mx + c 39.5 Real-life graphs	**Transformations** 40.1 Translation 40.2 Reflection 40.3 Rotation 40.4 Enlargement 40.5 Describing enlargements 40.6 Combining transformations **Ratio and Proportion** 41.1 Writing ratios 41.2 Using ratios 1 41.3 Ratios and measures 41.4 Using ratios 2 41.5 Comparing using ratios	**Ratio and Proportion** 41.6 Using proportion 41.7 Proportion and graphs 41.8 Proportion problems **REVISION & ASSESSMENT** **Right-angled Triangles** 42.1/2 Pythagoras' theorem 42.3/4 Trigonometry: the sine ratio 42.5 Trigonometry: the cosine ratio 42.6 Trigonometry: the tangent ratio 42.7 Finding lengths and angles using trigonometry
Key Vocabulary **(School Improvement Priority)**	*calculation, positive, negative, BIDMAS, simplify, cancelling, inverse, operation, round, decimal place, significant figures, estimate, factor, multiple, common, prime, square, cube, root, power, surd, prime factor, HCF, LCM, expression, notation, algebraic, simplify, index laws, multiply, divide, substitute, formula, formulae, brackets, expand, powers, term, factorise, identity, equals, compare*	*fraction, add, subtract, multiply, divide, whole number, simplify, cancelling, convert, decimals, percentage, quantity, simple interest, increase, decrease, compare, fraction, add, subtract, multiply, divide, whole number, simplify, cancelling, convert, decimals, percentage, quantity, simple interest, increase, decrease, equation, inverse, linear, rearrange, solve, brackets, unknown, inequality, inclusive, exclusive, number line, substitute, formula, formulae, subject, identity, sequence, extend, generate, nth term, arithmetic,*	*angle, side, property, quadrilateral, congruent, parallel, corresponding, alternate, triangle, proof, interior, exterior, polygon, regular, tessellate, mean, mode, median, range, frequency, compare, estimate, outlier, average, grouped, sampling, bias*	*rectangle, parallelogram, triangle, area, perimeter, trapezium, hectare, volume, cuboid, prism, surface area, coordinate, midpoint, line segment, plot, straight-line, parallel, axes, relationship, gradient, intercept, equation, interpret, distance-time, rate, prediction*	*translate, coordinate, column vector, translation, reflect, mirror line, reflection, rotate, rotation, enlarge, enlargement, scale factor, centre, transform, transformation, combined, ratio, simplify, convert, units, divide, quantity, parts, decimal, proportion, unitary, direct, inverse*	*ratio, simplify, convert, units, divide, quantity, parts, decimal, proportion, unitary, direct, inverse, Pythagoras' Theorem, right-angled, hypotenuse, triangle, sine, cosine, tangent, opposite, adjacent, elevation, depression, exact*

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Extended Writing / Disciplinary Reading **(School Improvement Priority)**	**Famous Mathematicians - Euler**	**Engineering – Brooklyn Bridge**	**Astronomy – The Flight of the First Private Spacecraft**	**Sport – The 1966 World Cup**	**Art – Geometry in Art by Salvador Dali**	**Codes & Encryption – Prime Numbers & Credit Cards**
Assessment [Summative & Formative] How knowledge and skills will be assessed formally and informally. How feedback will be given	**Topic Quiz:** • **Number** • **Algebra** **Exam practice 1**	**Topic Quiz:** • **Fractions and Percentages** • **Equations, Inequalities and Sequences** **Exam practice 2**	**Topic Quiz:** • **Angles** • **Averages and Range**	**Topic Quiz:** • **Perimeter, Area and Volume** • **Graphs** **Exam practice 3**	**Topic Quiz:** • **Transformations** • **Ratio and Proportion** **Exam practice 4**	**Topic Quiz:** • **Ratio and Proportion** • **Right-angled Triangles** **DC Assessment (Mocks)** **(P1 & P2 - Nov Paper Prev. Year)**

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Year 10 (H)	Autumn HT 1	Autumn HT 2	Spring HT 1	Spring HT 2	Summer HT 1	Summer HT 2
Topic and/or Key Question	**31. Number** **32. Algebra**	**34. Fractions, Ratio and Percentages** **35. Angles and Trigonometry**	**36. Graphs** **37. Area and Volume**	**38. Transformations and Constructions** **39. Equations and Inequalities**	**39. Equations and Inequalities** **40. Probability**	**41. Multiplicative Reasoning** **Revision & Assessment (Mocks)** **42. Similarity and Congruence**
Key Knowledge/Skills Main skills (subject specific and generic) that will be developed and how	**Number** 31.1 number problems and reasoning 31.2 Place value and estimating 31.3 HCF and LCM 31.4 Calculating with powers (indices) 31.5 Zero, negative and fractional indices 31.6 Powers of 10 and standard form 31.7 Surds **Algebra** 32.1 Algebraic indices 32.2 Expanding and factorising 32.3 Equations 32.4 Formulae 32.5 Linear sequences 32.6 Non-linear sequences 32.7 More expanding and factorising	**Fractions, Ratio and Percentages** 34.1 Fractions 34.2 Ratios 34.4 Percentages 34.5 Fractions, decimals and percentages **Angles and Trigonometry** 35.1 Angle properties of triangles and quadrilaterals 35.2 Interior angles of a polygon 35.3 Exterior angles of a polygon 35.4 Pythagoras' theorem 1 35.4 Pythagoras' theorem 2 35.6 Trigonometry 1 35.7 Trigonometry 2	**Graphs** 36.1 Linear graphs 36.2 More linear graphs 36.3 Graphing rates of change 36.4 Real-life graphs 36.5 Line segments 36.6 Quadratic graphs 36.7 Cubic and reciprocal graphs 36.8 More graphs **Area and Volume** 37.1 Perimeter and area 37.2 Units and accuracy 37.3 Prisms 37.4 Circles 37.5 Sectors of circles 37.6 Cylinders and spheres 37.7 Pyramids and cones	**Transformations and Constructions** 38.1 3D solids 38.2 Reflection and rotation 38.3 Enlargement 38.4 Transformations and combinations of transformations 38.5 Bearings and scale drawings 38.6 Constructions 1 38.7 Constructions 2 38.8 Loci **Equations and Inequalities** 39.1 Solving quadratic equations 1 39.2 Solving quadratic equations 2 39.3 Completing the square 39.4 Solving simple simultaneous equations 39.5 More simultaneous equations	**Equations and Inequalities** 39.6 Solving linear and quadratic simultaneous equations 39.7 Solving linear inequalities **Probability** 40.1 Combined events 40.2 Mutually exclusive events 40.3 Experimental probability 40.4 Independent events and tree diagrams 40.5 Conditional probability 40.6 Venn diagrams and set notation	**Multiplicative Reasoning** 41.1 Growth and decay 41.2 Compound measures 41.3 More compound measures 41.4 Ratio and proportion **REVISION & ASSESSMENT** **Similarity and Congruence** 42.1 Congruence 42.2 Geometric proof and congruence 42.3 Similarity 42.4 More similarity 42.5 Similarity in 3D solids
Key Vocabulary **(School Improvement Priority)**	*reasoning, estimate, place value, HCF, LCM, prime factors, indices, powers, standard form, rational, irrational, surd, fraction, mixed number, integer, reciprocal, decimal, convert, ratio, proportion, direct, inverse, percentage, increase, decrease*	*add, subtract, multiply, divide, fraction, mixed number, convert, measures, proportion, direct, ratio, increase, decrease, percentage, angle, triangle, quadrilateral, interior, exterior, sum, opposite, polygon, Pythagoras' Theorem, length, hypotenuse, right-angled, trigonometry, ratio, sine, cosine, tangent*	*elevation, depression, exact, graph, linear, gradient, y-intercept, equation, rearrange, compare, sketch, rate, distance-time, velocity-time, acceleration, proportion, direct, best fit, midpoint, line segment, parallel, perpendicular, metric, volume, surface area, prism, circumference, diameter, radius, semicircle, quarter, arc, sector, cylinder, sphere, 2D, 3D,*	*reflect, mirror line, rotate, centre, describe, enlarge, translate, transformation, fractional, negative, scale factor, bearing, scale, construct, bisect, angle, triangle, locus, loci, quadratic, symmetry, cubic, reciprocal, circle, perimeter, area, compound, formula, trapezium, units, metric, maximum, minimum*	*equation, quadratic, root, function, rearrange, solve, expression, simultaneous, real-life, straight line, unknown, solution, set notation, probability, product, outcome, event, combined, sample space, mutually exclusive, experimental, theoretical, compare, fair, biased, tree diagram, independent, conditional, two-way table, Venn diagram, set notation*	*growth, decay, percentage, increase, decrease, rate, metric, speed, distance, time, acceleration, formula, formulae, compound, relationship, ratio, similar, congruent, prove, corresponding, linear, scale factor, area, volume*

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Extended Writing / Disciplinary Reading **(School Improvement Priority)**	**Famous Mathematicians - Euler**	**Engineering – Brooklyn Bridge**	**Astronomy – The Flight of the First Private Spacecraft**	**Sport – The 1966 World Cup**	**Art – Geometry in Art by Salvador Dali**	**Codes & Encryption – Prime Numbers & Credit Cards**
Assessment [Summative & Formative] How knowledge and skills will be assessed formally and informally. How feedback will be given	**Topic Quiz:** • **Number** • **Algebra** **Exam Practice 1**	**Topic Quiz:** • **Fractions, Ratio and Percentages** • **Angles and Trigonometry** **Exam Practice 2**	**Topic Quiz:** • **Graphs** • **Area and Volume**	**Topic Quiz:** • **Transformations and Constructions** **Exam Practice 3**	**Topic Quiz:** • **Equations and Inequalities** • **Probability** **Exam Practice 4**	**Topic Quiz:** • **Multiplicative Reasoning** • **Similarity and Congruence** **DC Assessment** **(P1 & P2 - Nov Paper Prev. Year)**

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Year 11 (F)	Autumn HT 1	Autumn HT 2	Spring HT 1	Spring HT 2	Summer HT 1	Summer HT 2
Topic and/or Key Question	**44. Multiplicative Reasoning** **46. Quadratic Equations and Graphs**	**47. Perimeter, Area and Volume 2** **48. Fractions, Indices and Standard Form**	**48. Fractions, Indices and Standard Form** **Revision & Assessment (Mocks)** **49. Congruence, Similarity and Vectors**	**49. Congruence, Similarity and Vectors** **50. More Algebra** **Revision Cycle**	**Revision Cycle** **GCSE Exams**	**GCSE Exams**
Key Knowledge/Skills Main skills (subject specific and generic) that will be developed and how	**Multiplicative Reasoning** 44.1 Percentages 44.2 Growth and decay 44.3 Compound measures 44.4 Distance, speed and time 44.5 Direct and inverse proportion **Quadratic Equations and Graphs** 46.1 Expanding double brackets 46.2 Plotting quadratic graphs 46.3 Using quadratic graphs 46.4 Factorising quadratic expressions 46.5 Solving quadratic equations algebraically	**Perimeter, Area and Volume 2** 47.1 Circumference of a circle 1 47.2 Circumference of a circle 2 47.3 Area of a circle 47.4 Semicircles and sectors 47.5 Composite 2D shapes and cylinders 47.6 Pyramids and cones 47.7 Spheres and composite solids **Fractions, Indices and Standard Form** 48.1 Multiplying and dividing fractions 48.2 The laws of indices 48.3 Writing large numbers in standard form	**Fractions, Indices and Standard Form** 48.4 Writing small numbers in standard form 48.5 Calculating with standard form **REVISION & ASSESSMENT** **Congruence, Similarity and Vectors** 49.1 Similarity and enlargement 49.2 More similarity 49.3 Using similarity	**Congruence, Similarity and Vectors** 49.4 Congruence 1 49.5 Congruence 2 49.6 Vectors 1 49.7 Vectors 2 **More Algebra** 50.1 Graphs of cubic and reciprocal functions 50.2 Non-linear graphs 50.4 Solving simultaneous equations algebraically 50.5 Rearranging formulae 50.6 Proof	**Revision Cycle** **GCSE Exams**	**GCSE Exams**
Key Vocabulary **(School Improvement Priority)**	*Percentage, profit, loss, growth, decay, compound measure, speed, distance, time, average, acceleration, conversion, direct, inverse, proportion, multiply, expand, single, double, brackets, quadratic, expression, function, square, plot, equation, factorise, solve*	*Calculate, circumference, radius, diameter, area, pi, semi-circle, sector, perimeter, 2D, 3D, composite, compound, cylinder, pyramid, cone, surface area, volume, sphere, fraction, mixed number, indices, index laws, standard form, convert, negative, powers, add, subtract, multiply, divide*	*Similar, congruent, enlarge, enlargement, scale factor, similarity, congruence, regular, polygon, angle, unknown, side, vector, multiple*	*Graph, interpret, cubic, function, linear, non-linear, simultaneous, equation, expression, formula, formulae, proof, prove*		
Assessment [Summative & Formative] How knowledge and skills will be assessed formally and informally. How feedback will be given	**Topic Quiz:** • Multiplicative Reasoning • Quadratic Equations and Graphs **Exam Practice 1**	**Topic Quiz:** • Perimeter, Area and Volume 2 **Exam Practice 2**	**Topic Quiz:** • Fractions, Indices and Standard Form **DC Assessment (Mock)** **(P1-3 - Nov Paper Previous Year)**	**Topic Quiz:** • Congruence, Similarity and Vectors • More Algebra **Exam Practice 3**	**Revision Cycle** **GCSE Exams**	**GCSE Exams**

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Year 11 (H)	Autumn HT 1	Autumn HT 2	Spring HT 1	Spring HT 2	Summer HT 1	Summer HT 2
Topic and/or Key Question	**43. More Trigonometry** **44. Further Statistics** **45. Equations and Graphs**	**45. Equations and Graphs** **46. Circle Theorems**	**38b. Constructions** **Revision & Assessment (Mocks)** **47. More Algebra** **48. Vectors and Geometric Proof**	**49. Proportion and Graphs** **Revision Cycle**	**Revision Cycle**	**GCSE Exams**
Key Knowledge/Skills Main skills (subject specific and generic) that will be developed and how	**More Trigonometry** 43.1 Accuracy 43.2 Graph of the sine function 43.3 Graph of the cosine function 43.4 The tangent function 43.5 Calculating areas and the sine rule 43.6 The cosine rule and 2D trigonometric problems 43.7 Solving problems in 3D 43.8 Transforming trigonometric graphs 1 43.9 Transforming trigonometric graphs 2 **Further Statistics** 44.1 Sampling 44.2 Cumulative frequency 44.3 Box plots 44.4 Drawing histograms 44.5 Interpreting histograms 44.6 Comparing and describing populations	**Equations and Graphs** 45.1 Solving simultaneous equations graphically 45.2 Representing inequalities graphically 45.3 Graphs of quadratic functions 45.4 Solving quadratic equations graphically 45.5 Graphs of cubic functions **Circle Theorems** 46.1 Radii and chords 46.2 Tangents 46.3 Angles in circles 1 46.4 Angles in circles 2 46.5 Applying circle theorems	**Constructions** 38.5 Bearings and scale drawings 38.6 Constructions 1 38.7 Constructions 2 38.8 Loci **REVISION & ASSESSMENT** **More Algebra** 47.1 Rearranging formulae 47.2 Algebraic fractions 47.3 Simplifying algebraic fractions 47.4 More algebraic fractions 47.5 Surds 47.6 Solving algebraic fraction equations 47.7 Functions 47.8 Proof	**Vectors and Geometric Proof** 48.1 Vectors and vector notation 48.2 Vector arithmetic 48.3 More vector arithmetic 48.4 Parallel vectors and collinear points 48.5 Solving geometric problems **Proportion and Graphs** 49.1 Direct proportion 49.2 More direct proportion 49.3 Inverse proportion 49.4 Exponential functions 49.5 Non-linear graphs 49.6 Translating graphs of functions 49.7 Reflecting and stretching graphs of functions	**Revision Cycle** **GCSE Exams**	**GCSE Exams**
Key Vocabulary **(School Improvement Priority)**	*Angle, sine, cosine, tangent, graph, function, 2D, 3D, Pythagoras' Theorem, bearings, reflect, rotate, translate, sample, random, stratified, interpret, cumulative, frequency, median, quartiles, interquartile, median, range, box plot, histogram, frequency density, compare, data*	*equation, simultaneous, graph, inequality, interpret, quadratic, function, graphically, iterative, root, cubic, sketch, circle, radius, diameter, circumference, chord, centre, tangent, angle, length, prove, subtended, cyclic, quadrilateral, alternate, segment, theorem*	*bearing, clockwise, anti-clockwise, construct, perpendicular, bisector, construct, locus, loci,scale, solve, formula, formulae, subject, add, subtract, multiply, divide, factorise, numerator, denominator, fraction, simplify, cancel, surds, rationalise, function, inverse, prove*	*vector, magnitude, resultant, position, prove, parallel, collinear, equation, proportion, direct, inverse, square, cubic, graph, exponential, sketch, gradient, tangent, estimate, area, non-linear, translate, function, stretch, curve, axes, parallel, reflect*		
Assessment [Summative & Formative] How knowledge and skills will be assessed formally and informally. How feedback will be given	**Topic Quiz:** • **More Trigonometry** • **Further Statistics** **Exam Practice 1**	**Topic Quiz:** • **Equations and Graphs** • **Circle Theorems** **Exam Practice 2**	**Topic Quiz:** • **Constructions** • **More Algebra** **DC Assessment (Mock)** **(P1-3 - Nov Paper Previous Year)**	**Topic Quiz:** • **Vectors and Geometric Proof** • **Proportion and Graphs** **Exam Practice 3**	**Revision Cycle** **GCSE Exams**	**GCSE Exams**

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