Time	Autumn Term		Spring Term		Summer Term	
	28 lessons	24 lessons	20 lessons	24 lessons	16 lessons	28 lessons
Unit	Algebraic thinking	Place value rounding, average and range	Graphing data, FDP	Directed Number & Fractional thinking	Speed distance and time. Properties of number	Fractional thinking - sum and difference Angles in polygons
Focus	• Sequences • Algebraic notation • Equality equivalence	• Place value & ordering • • Averages • rounding	• Representing data • FDP	• Operations & equations with directed number • Fractions of amounts • Area and perimeter	• Finding speed • Developing number sense • Sets & probability • Prime numbers & proof	• Adding and subtracting fractions • Developing geometric reasoning
Theme	Algebra	Number	Staitics	Number	Number	Geometry
Key words	**Sequence, Term, Position, Rule Linear, Non-LInear, Difference, Arithmetic, Geometric, Function, Input, Output, Operation, Inverse, Commutative, substitute, Expression, Evaluate**	**Approximate,Integer,Interval, Median, Negative, Placeholder, Place value, Range,Significant figure,Fraction, Decimal,Percentage, Place value**	Frequency, bar charts, pictograms, categorical data, **Quantitative, Qualitative, Continuous,Discrete,**	**Subtract, Negative, Commutative,Product,Inverse,Square root, Square,Expression,Numerator, Denominator**	**Speed, distance time, Set, Element, Intersection, Union, Mutually Exclusive, Probability,Bias,Fair, Random,Multiples, factors, primes conjectures, counter examples, expressions, HCF, LCM**	**Polygon,Scalene triangle, Isosceles triangle,Sector,Vertically Opposite, Interior Angles, Numerator, Denominator, Mixed numbers,Improper fractions,Substitution**
Driving Question / Big Idea	Our mission is to explore sequences in detail rather than rushing to find the nth term. We will develop a deep understanding of the basic algebraic forms. We will form and solve one-step linear equations building on their study of inverse operations.	Students will explore numbers up to one billion and decimals to hundredths. Rounding to a given power of ten will be explored leading to rounding to one significant figure. Averages will be explored.	Students will be introduced to different ways of presenting data and question which is best for different data sets. What is equivalence?	Introduction of zero pairs. Working with bar models and visual representation of shapes.	Opportunity to introduce the double number line. What is meant by per? The concept of prime numbers will be explored including the use of Venn diagrams. The use of counterexamples will be addressed.	Students will build on their KS2 knowledge of shape and investigate the angles in polygons, Working with fractions a great opportunity for CPA.
			3 mini assessments	2 mini assessments	3 mini assessments	2 mini assessments

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Time	Autumn Term		Spring Term		Summer Term	
	28 lessons	24 lessons	20 lessons	24 lessons	16 lessons	28 lessons
Unit	Ratio, proportion and scale Algebra manipulation	Coordinates and graphs, fractions thinking, reflection	Area, volume, equations and percentages	Powers and statistics	Line and Angles	Delving into data
Focus	• Ratio & scale • Multiplicative change • Brackets, equations & inequalities	• Working in the Cartesian plane • Multiplying & dividing fractions • Line symmetry & reflection	• Area • Volume • Density • Equations and inequality • Percentages	• Indices • Standard index form • Data	• Angles in parallel lines & polygons • Area of trapezia & circles	• The data handling cycle • Measures of location
Theme	Ratio and Proportion	Graphs and fractions	Geometry and measure	Number/Statistics	Geometry	Statistics
Keywords	**Ratio, Proportion, equal Parts, order,part, equivalence, factors,scale,Commutative, Simplify,Substitute, Equivalent, Coefficient,Product, Highest Common Factor (HCF)**	**Quadrant, Coordinate, Horizontal,Vertical, Origin, Parallel, Gradient, Intercept, Variable, Correlation, Origin, Line,Commutative, . Unit Fraction, Dividend, Divisor, Quotient, Reciprocal, Line of symmetry,Reflect**	**Percent, Equivalent,Reduce, Growth,Integer, equal, Inverse operation, height, base**	**Standard (index) Form,Arithmetic, Geometric, Base, Power, Indices**	**Parallel,Transversal, Isosceles,Polygon, Sum,Addition, Regular Polygon,Perimeter,t Pi, circumference, diameter,Perpendicular, Formula,Sector,**	**Hypothesis,Sampling, Primary Data, Secondary Data, Discrete Data,Continuous Data, Spread,Average,Frequency, Represent,Outlier,**
Driving Question / Big Idea	We will focus on the meaning of ratio and the various models used to represent ratios. We will deepen understanding rather than just following procedures and we will develop the link between ratio and scaling. Building on their understanding of equivalence students will explore expanding a single bracket and	We will look formally at algebraic rules for straight lines and introduce the ideas of gradients & intercepts Multiplying and dividing fractions will be developed fully, looking at multiple representations to see what underpins the algorithms. .	.Opportunity for visual representation of shapes. Development of bar model as a representation, Students will focus on the relationships between fractions and percentages including equivalents and working out percentage increase and decrease.	Standard index form will be introduced to all students at this point. The use of context and why it is needed is important. Students will have an opportunity to revisit key basic skills in a variety of contexts.	This block builds on student knowledge from KS2 & Year 7, extending to explore parallel lines, quadrilaterals and other polygons. The area of a trapezium will now be extended to all students along with the formula for the area of a circle.	Students will experience the use of primary and secondary sources of data. They will interpret and construct statistical diagrams including multiple bar charts and pie charts. Misleading graphs will be explored. Median and mean will be revisited including finding the total given the mean

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Time	Autumn Term		Spring Term		Summer Term	
	28 lessons	24 lessons	20 lessons	24 lessons	16 lessons	28 lessons
Unit	Reasoning with Number	Review algebra and number	Reasoning with graphs	Reasoning with Geometry	Geometry, algebra	Algebra
Focus	• Numbers • Using percentages • Maths & money • Area and volume	• Forming & solving inequalities • Fractions • Rates • Standard form	• Straight line graphs • Maths & money • Ratio and proportion	• Construction & congruency • Enlargement & similarity • Algebra Manipulation	• Pythagoras' Theorem • Non - linear graphs • Sets and probability	• Simultaneous equations • Revise and review
Theme	Number, Geometry	Algebra, ratio and proportion	Algebra, Number	Geometry, algebra	Geometry, algebra	Algebra and Graphs
Keywords	**Integer, Rational, Irrational,Inverse operation, Quotient,Product,Multiples, Factor,Equivalent, Reduce, Growth,Integer,Invest, Multiplier,Original, 2D , 3D, cylinders**	**Ratio, Direct proportion, Inverse proportion, Inequality, Variable,Rearrange,Substitute,Solve,Verify, formulae**	**Gradient,Intercept,Parallel: ,Coordinate,Linear,Asymptote, Reciprocal, Perpendicular, Growth,Integer,Invest, Multiplier,Profit,Credit, Debit,Balance,Expense,Deposit,Currency, Inverse, non linear**	**Enlarge,Similar, Scale factor,Corresponding, Adjacent,Hypotenuse, Protractor,Locus,Equidistant,Discorectangle ,Perpendicular,Arc, Bisector, expand , product, equation, identiity**	**Enlarge,Similar, Scale factor,Corresponding, Adjacent,Hypotenuse, linear, quadratic, cubic, reciprocal, exponential, gradient, intercept, tangent and roots.parabola, Venn, intersect, union, complement**	**variable, equations, expression and inverse. intercept.**
Driving Question / Big Idea	Students will revisit types of number and extend to include rational and real numbers. We will also extend knowledge of HCF & LCM. Percentage increase & decrease will be revisited and linked with percentages over 100% and reverse percentage problems. We will explore financial maths including bills & bank statements, interest rates and finding	Students will be introduced to formulae and understand the same inverse operations apply. This is a opportunity to revisit fractions, rates and standard form. We will work with speed, distance & time and solve problems	Students will interpret straight line graphs and find their equation. Links will be made with solving equations and linear sequences. Proportion will be explored graphically.	Congruence will be explored via construction Students will enlarge shapes by a positive scale factor and calculate the lengths of missing sides in similar shapes. Algebra tiles will be used to develop understanding of the area model.	Students will also work with Pythagoras' theorem to calculate missing sides in right-angled triangles and to determine whether a triangle is right-angled.Students will be explore the different shapes of graphs.	Solving simultaneous equations algebraically will be dealt with using substitution first, followed by elimination. This will then be linked to the graphical solution.

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Time	Autumn Term		Spring Term		Summer Term	
	28 lessons	24 lessons	20 lessons	24 lessons	16 lessons	28 lessons
Unit	Developing Algebra	Number/ ratio and proportion	Geometry	Geometry/ statistics and algebra	Developing geometry	Developing geometry and algebra
Focus	• Algebra manipulation • Equation, inequalities and formulae • Quadratics	• Percentage and Interest • Ratio and scale • Review fractions	• Non Calculator methods • Straight line graphs • Probability	• Perimeter, area and volume • Interpret and represent data • Non- linear graphs	• Angles • Graphs and diagrams • Vectors	• Factors, powers, surds • Trigonometry • Simultaneous euqations
Themes	Algebra	Number/ ratio and proportion	Number/algebra	Geometry/ statistics and algebra	Geometry and algebra	Number, geometry and algebra
Keywords	**Key words include variable, equations, expression and inverse.**	**Key words include Proportion,Ratio, Direct proportion, Inverse proportion, Mass**	**Key words include Gradient,Intercept,Parallel:,Coordinate,Linear,Asymptote, Reciprocal, Perpendicular,mutually exclusive, experimental and conditional.**	**Key words include sampling, extrapolation, correlation, dispersion,**	**Key words include clockwise, bearing, construct and perpendicular.**	**Key words include integer, factor, multiple, arithmetic and geometric. Hypotenuse, adjacust and opposite**
Driving Question / Big Ideas	Students will revisit and reinforce standard techniques to deepen understanding. Emphasis needs to be placed on forming equations. Algebra tiles will be revised and support the CPA model for quadratics.	This section builds upon knowledge of fractions, percentages and ratio from KS3. Students will investigate direct and inverse proportion.	.Students will concentrate on non-calculator methods and how to leave answers in an exact form. he student's knowledge of probability including various types of probability diagram will be extended.	Students will be investigating various types of statistical diagrams. Reinforcing their ability to interpret data and draw conclusions. Measures of central tendency (location) and spread(dispersion) will be considered, The equation of different types of graph will be investigated and recalled.	This sees the formal introduction to bearings which will make links across the curriculum. Accurate drawing, parallel lines,. Building on vector use for translations at KS3 students will explore journeys within shapes.	This will also include calculations involving indices and standard form. Students will extend their knowledge of sequences and understand the different types of sequence. This unit extends students' experiences and looks more formally at similar triangles and parallel line angle rules. Trigonometry is introduced as a special case of similarity in right angled triangles.
	2 mini assessments, HK Sparx	2 mini assessments	2 mini assessments, HK Sparx	2 mini assessments	1 mini assessment	PPE

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Time	Autumn Term		Spring Term		Summer Term	
	28 lessons	24 lessons	20 lessons	24 lessons	16 lessons	28 lessons
Unit	Listing and Describing Graphs Non - linear graphs	Algebra Using Graphs	Reasoning	Revision & Communication	Revision	Exams
Focus	•Probability and displaying data • Gradients & lines • Non- linear graphs	• Using graphs • Expanding and factorising • Changing the subject • Functions	• Multiplication • Geometric • Algebraic	Using the PPE analysis to review and improve		
Themes	Algebra	Algebra				
Keywords	**Key words include linear, quadratic, cubic, reciprocal, exponential, gradient, intercept, tangent and roots.**	**Keywords include expression, equation, formulae, equivalent, substitution input and output.e**	**Keywords include additive, multiplicative, proportion, geometric, algebraic and indices.**	**Key words include transforming, construction, perpendicular, bisector, loci, distribution, probability and congruence.**		
Driving Question / Big Ideas	Students will be able to identify and sketch various types of graph. They will be able to interpret graphs representing different measures. The equation of different types of graph will be investigated and recalled.	This unit supports and strengthens the student's ability to manipulate algebraic expressions and equations. Skills will be interleaved from previous years and challenging questions will stretch all students in their understanding. Students being able to substitute into formulae or functions in a given context.	A diverse selection of reasoning problems will require students to make links between various topics. Compound measures will be investigated, and proportion will feature within multiplicative reasoning. Angles and trigonometric ratios will be recalled. Students will understand and be able to use the correct geometrical language in context. Students will recall their knowledge of sequences and deepen their understanding of how sequences work and different types of sequences. Their knowledge of laws of indices will be extended.	A diverse selection of reasoning problems will require students to make links between various topics. Compound measures will be investigated, and proportion will feature within multiplicative reasoning. Angles and trigonometric ratios will be recalled. Students will understand and be able to use the correct geometrical language in context. Students will recall their knowledge of sequences and deepen their understanding of how sequences work and different types of sequences. Their knowledge of laws of indices will be extended.		
Assessment	2 mini assessments. HW via Sparx.	1 mini assessment PPE HW via Sparx	PPE HW via Sparx	HW via Sparx		