

Term	Topic	Disciplinary Knowledge	Vocabulary	Assessment	Cross-Curricular Links	Golden Threads	Rationale
1	Sequences Algebraic Knowledge Equality & Equivalence	Linear & Non linear sequences Term to term rule Use nth term rule Function machines Collecting like terms	Linear Geometric Line terms		Links to Computing (algorithms and patterns), Music (rhythmic sequences), and Art (geometric patterns).	Patterns and structure in mathematics; generalisation through algebra.	Develop algebraic concepts early on in year with se of calculator so all can access.
2	Equality & Equivalence Place value FDP equivalence	Substitution Expand brackets Order decimals on number line Rounding to tens, significant figures Standard form	Substitution Expand Significant Standard form	Autumn test	Significant figures used in Science. Eg speed of light, size of atomic particles.	Balance and equivalence as a foundation for solving equations	Develop place value so that students can write numbers in standard form
3	FDP equivalence Addition & Subtraction Multiplication & Division	Convert between $1/5$ $\frac{1}{2}$ and $1/10^{\text{th}}$ Convert between decimal and percent Formal methods for $+-*$ / decimals Financial maths Solving chart problems	Equivalence Credit Debit			Representation of numbers in multiple forms; proportional reasoning.	Freely convert between fractions, decimal and percents
4	Fractions of an amount Directed Number	Find fractions of any amount Find percentages of any amount Use calculators to find percentages of an amount Fractions greater than 1 of an amount $+-*$ / of	Percent	Spring test	Food Technology (recipe scaling), Physics (temperature changes).	Understanding magnitude and direction; proportionality.	Find a proportion of an amount through fractions and percents.
5	Construction Adding & Subtraction fractions	Draw and measure angles Recognise types of triangles and quadrilaterals Draw pie chart $+-$ fractions by finding common denominators	Denominators Sector Quadrilateral		Percents widely used in science and geography when comparing data.	Precision and reasoning in geometry; relationships between parts and wholes.	Apply angles rules in context such as pie charts
6	Geometric reasoning Primes & Proofs Sets & Probability	Angles around a point, triangle & quadrilateral Angles on parallel lines Find HCF & LCM Find prime products Find simple probability. Understand Venn diagrams	Vertically opposite Equilateral Isosceles Prime Union Intercept	Summer test		Logical reasoning and proof; properties of numbers and shapes.	Develop understanding of primes, multiple and factors so that they can be use in a Venn diagram context

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1	Ratio & Scale Multiplicative change */ fractions	Share by a ratio Ratio 1:n Direct proportion Scale factor Reciprocal to / fractions	Denominator Reciprocal Proportion		Geography (maps), Art (scale drawings), Science (dilution).	Multiplicative relationships; scaling and proportionality.	Develop proportional understanding through bar modelling
2	Cartesian plane Representing data Probability	Explore gradients Plot graphs $y = mx + c$ Scatter and bar charts Two way tables Venn diagrams	Correlation Union Intersection Gradient	Autumn test	Science (graphs in experiments)	Connections between algebra and geometry; uncertainty and prediction	Interleave substitution into plotting graphs.
3	Brackets, equations & inequalities Sequences	Solve with brackets Unknowns on both sides Find nth term rule	Solve Solution Unknown		Science (formula rearrangement).	Structure and manipulation of algebraic expressions.	Spiral learning on previous work on solving equations and sequences. Deepen understanding and provide stretch
4	Fractions and percentages Indices Standard form	Multiplier to find % Find percentage change Addition/subtraction law for indices Calculate in standard form	Indices Base Standard form	Spring test	Business (interest rates), Science (standard form in physics).	efficiency in calculation; representation of large/small numbers.	Spiral work on percentages to include efficient methods of using a multiplier to increase or decrease by an amount. Deepen year 7 work on standard form
5	Number sense Parallel lines & polygons symmetry	Estimate calculations Error intervals Angles on parallel lines Interior angles of polygons	Estimate Significant Interior/exterior Co-interior/corresponding/alternate		Design Technology (structures), Art (symmetry).	<i>Estimation and accuracy; geometric properties.</i>	Explore parallel line rules and interleave angles facts from year 7
6	Area of trapezia and circle Data handling	Area circumference circle Area of trapezium Pie charts Stem & leaf Interpret data	Trapezium. Circumference, radius, diameter Continueos .	Summer test	Science (data interpretation).	Measurement and representation; interpreting information.	Represent circumference as a ratio of diameter to circumference.

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1	Equations Straight line graphs Factorising	Solve equations with unknowns and brackets on both sides Factorise linear and quadratic Change subject	Factorise Quadratic Coefficient		Rearranging formulas (Science)	Link to plotting linear graphs in year 8. Gradient linked to ratio 1:n
2	Conjecture 3D shapes Construction	Write an equation in form $y=mx + c$ from a graph Nets of 3D shapes Volume and SA of prisms Angle & line bisectors	Gradient Intercept Bisector Construct	Autumn test	Sketching 3D shapes (Art)	SA of prisms linked to 2d area from year 8
3	Numbers Percent Maths & Money	Solve problems with decimals HCF and LCM Solve money problems Reverse percent	Factors Multiples VAT		Business (profit margins).	Recap of number work from previous years to ensure foundation are secure prior to KS4. Spiralling percentages from year 7 and 8
4	Deductions Rotation & Translation	Solve angle problems with algebra Solve multi angle problems with chain of reasoning Rotate from a centre and angle. Translate from a vector	Translate Enlarge Rotate Reflect Origin Vector	Spring test	Computer aided design (computing)	Interleave solving with angle facts to solve problems in context Interleave solving equations with angle properties
5	Pythagoras Enlargement & Similarity	Use Pythagoras to find shorter and longer sides. Enlarge by a variety of scale factors Use scale factor to find missing sides of similar shapes	Hypotenuse Scale factor Similar Congruent Corresponding		Computer aided design (computing)	Scale factor and similarity linked.
6	Ratio & Proportion Rates Probability Algebraic representation	Recap ratio, Solve SDT problems. Find expected outcomes Tree diagrams Plot quadratic graphs	Probability Expected Outcomes Conditional	GCSE foundation Paper Aids setting for GCSE classes	Speed distance time (Science)	Spiral understanding of probability from year 7 and 9 and solve probability problems using a tree diagram

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1	Number properties and percent	HCF, LCM & Primes Fractions FDP Percent	Multiples Factors Primes	Test and fix		Fraction, decimal and percent equivalence	Keys skills not secured from KS3
2	Algebra	Simplify Algebra Substitute & Expand Factorise Solve	Substitute Factorise Solution Like terms Expand	Test and fix Mock exams		Collecting of like terms	Keys skills not secured from KS3
3	Ratio & proportion	Sequence Ratio Proportion Average Chart & tables	Difference Mean Mode Median Frequency	Test and fix	Charts tables (Geography and statistics)	Proportional understanding	Keys skills not secured from KS3
4	Graphs and angles	Pie chart scatter Angles basics Parallel lines Interest	Correlation Alternate Co interior Correspond Compound	Test and fix		Basic angle properties	Keys skills not secured from KS3
5	Probability	Venn diagram Probability Tree diagrams	Set Union Intersection Conditional	Test and fix Mock exams		Probability written as a fraction percent or decimal	Keys skills not secured from KS3 Use Venn diagrams to solve probability problems
6	Volume & SA	Area Volume & SA Circle Standard form Speed Distance Time	Prism Trapezium Radius Diameter Index Base	Test and fix		Area and volume as space inside a shape	Keys skills not secured from KS3

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1	Types of number & sequence Represent solutions Non calc methods	HCF & LCM of numbers Nth term of linear and quadratic sequences Inequalities, straight line graphs. surds	Rationalise Conjugate Linear, Geometric			Algebraic expressions to represent sequences	Students will have found nth term of linear sequence at KS3 and will not find algebraic rule for quadratic sequences. Surds introduced earlier and to built on later in the year
2	Ratio and fraction Congruence similarity and enlargement Indices and roots	Share by a ratio 1:n, combine ratios Link ratio to graphs Ratio in area and volume problems. Enlarge by various scale factors	Gradient Enlarge Corresponding	December mocks Ensure we have right students on foundation / higher tier		Ratio as a comparison	Ratio used in new contexts to find gradient and line , area and volume scale factor
3	Indices and roots Simultaneous equations Trigonometry	Fractional indices Solve linear simultaneous Use SOCAHTOA to find angles / sides	Coefficient Hypotenuse Adjacent Opposite		Physics (forces), Geography (gradient and slope).		Trigonometry introduced as ratio of sides
4	Trigonometry Percent and interest Probability	Sine and Cosine rule Compound interest Reverse percentage Tree diagrams Venn diagrams	Compound Conditional Union Intersection Set			Trig functions as a ratio.	Further develop trigonometry to look at more advanced higher formula such as sine and cosine rule
5	Collecting , representing and interpreting data Circles	Construct pie charts Stratified sampling Cumulative frequency Box plots Circle theorem	Stratified Cumulative Interquartile Cyclic Tangent	Summer mock exams	Science (experiments), Business (market analysis).Charts tables (Geography and statistics)	Multiple representations of data	Data for hogher introduced so that students have large portion of higher data complete to access higher mock papers
6	Angles and Bearings Vectors Manipulating expressions	Solve bearing problems Addition and subtraction of vectors Vector journeys	Bearings Vector		Motion in physics (vectors)		

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1	Fraction recap Percent recap Angles recap Ratio and proportion recap Algebra recap	All four fractions inc mixed numbers Simple compound interest FDP conversion Ratio problems Simple angles Solving linear	Denominator Numerator Compound Multiplier Isosceles Alternate Corresponding Co-interior		
2	Area volume recap Congruence and similarity Transformation Bearings	2d Area Volume of prisms Translate, enlarge, reflect and rotate. Bearings and scale drawings	Prism Translate, enlarge, reflect, rotate. Similar, congruent	November Mock	Transformations Computer aided design (Computing)
3	Data handling recap Pythagoras and Trig Loci	Mean from frequency table Stem and leaf Dual bar charts Triangles ASA, SSS SAS	Midpoint Intersection Frequency Class interval		Charts tables (Geography and statistics)
4	Exam prep			March mock	
5	Exam prep				

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1	Quadratics Functions Iteration Gradients Data	Factorise any quadratic Composite, inverse and solve functions. Rearrange to iterate. Equation of a line, parallel and tangent. Histograms and CF graphs	Iterate, composite, inverse, parallel, tangent, frequency density, cumulative.		Functions linked to coding (computing)
2	Surds Change the subject Multiplicative reasoning	Simplify Surds and rationalise denominator Factorise to change subject Product rule for counting Inverse proportion. Speed time graph.	Rationalise, conjugate, permutation, root, combination., inverse.	November mocks	Rearranging formulas (Science) Speed distance time (Science)
3	Indices Expressions Non linear graphs Transformations	Fractional and negative indices. Solve equations by changing base of indices Algebraic fractions Quadratic and cubic graphs Multi step transformations	Indices Rotate Translation Reflect Enlarge		Transformations Computer aided design (Computing)
4	Circle Theorem Worded problems Trig graphs	Circle theorems combined. Typical worded GCSE problems involving ratio & algebra. Problems with mean. Transformation of trig graphs		March mock	
5	Exam prep				