

SCHEME H			
Autumn 1 Y10	Spring 1 Y10	Summer 1 Y10	Autumn 1 Y11
Fractions and decimals	Congruence and similarity	Further equations and graphs	Inequalities
Half Take (F/H) Page 36 Square Root Range (H) Page 75	Gang of Four (F/H) Page 35 Identical Rectangles (H) Page 39	Poster (F/H) Page 60 Form (H) Page 34	
Calculate exactly with fractions (all four rules, improper/mixed, questions in context) N8	Recap the basic congruence criteria for triangles (SSS, SAS, ASA, RHS) and use these and other geometric facts to construct simple proofs(G5/6)	Solve quadratic equations, including those that require rearrangement, by factorising, completing the square and using the quadratic formula. Find approximate solution using a graph.(A18h)	Set up and solve linear inequalities. Represent solution on a number line. (A22)
Work interchangeably with terminating decimals and their corresponding fractions (N10)	Not clear whether 'harder' congruence proofs is in the scheme any longer. TBC by AQA.	Identify and interpret roots, intercepts and turning points of quadratic functions graphically; deduce roots algebraically and turning points by completing the square (A11)	Represent inequalities graphically, shading out unwanted regions and with solid/dashed lines as appropriate (A22)
Change recurring decimals into their corresponding fractions and vice versa (N10h)	Know and use the relationships between lengths, areas and volumes in similar figures (G19h)	derive an equation, solve the equation and interpret the solution, including solution of geometrical problems and problems set in context (A21)	Solve quadratic inequalities (A22)
Coordinates and linear graphs	Calculating with percentages	Equation of a circle	Algebraic fractions
Isosceles Grid (F/H) Page 41 A (H) Page 42	Loop (F/H) Page 45 Shares (H) Page 70	PQR (H) Page 61	Stretcher (H) Page 78
Re-cap lesson on $y=mx + c$ (eg nrich diamond collector) (A9)	Use multipliers to increase/decrease an amount by a percentage (R9)	Recognise and use the equation of a circle with centre at the origin (A16h)	Simplify and manipulate algebraic expressions involving algebraic fractions (A4h)
Find the equation of the line through two given points, or through one point with a given gradient (A9)	Calculate percentage increase/decrease (R9)	Find the equation of a tangent to a circle at a given point (A16h)	
Use the form $y=mx + c$ to identify parallel and perpendicular lines (A9)	Solve original value problems (reverse percentages) including simple interest problems (R9)	Find coordinates of crossing points/length of a chord made from a line intersecting a circle (A16h)	
Work out complex 'equations of lines' type questions - see topic test for examples (A9h)	Set up, solve and interpret the answers in growth and decay problems, including compound interest and work with general iterative processes (R16)		
Rounding	Constructions and Loci	Transforming functions	Vectors
Side by Side (F/H) Page 72 Repeater (H) Page 65	Pointillism (F/H) Page 59 Trapezium Tiles (H) Page 91	Flight Cost (H) Page 32	
Use inequality notation to specify simple error intervals due to truncation and rounding (including dp and sf) (N15)	Make scale drawings from a sketch, diagram or description (G2)	Transform the graph of any function by translation and reflection (stretch in vertical/horizontal plane no longer in syllabus) A13	Apply addition and subtraction of vectors, multiplication of vectors by a scalar, and diagrammatic and column representation of vectors (G25)
Apply and interpret limits of accuracy including upper and lower bounds (N16h)	Construct the three types of perpendicular (bisector, from a point on/off the line) (G2)	Link this to turning points of quadratics and completing the square	Use vectors to construct geometric arguments and proofs (G25)
	Construct angle bisector and 60 degree angle (G2)		
	Use constructions to solve loci problems (G2)		
Collecting and representing data	Equations	Direct and inverse proportion	Circle theorems
Mean Set (F/H) Page 48 Mean (H) Page 47	Pecuniary (F/H) Page 58 Purple Paint (H) Page 62	T-Grid (F/H) Page 80 P & Q (H) Page 56	
Find estimated mean from a grouped frequency distribution (S4)	Substitute numerical values into formulae and expressions, including scientific formulae (A2)	Solve problems involving direct and inverse proportion, including graphical and algebraic representations (R10)	Use dynamic software to explore and learn the standard circle theorems. Know the correct names for the theorems: angle at centre is equal to twice angle at circumference; angle in a semi-circle is 90° ; angles in the same segment are equal; opposite angles in a cyclic quadrilateral sum to 180° ; tangent at any point on a circle is perpendicular to the radius at that point tangents from an external point are equal in length; the perpendicular from the centre to a chord bisects the chord; alternate segment theorem

Construct cumulative frequency graphs and box plots. Know the link between them. Use them to find information about distributions (S4h)	BALANCE METHOD: Solve linear equations in one unknown algebraically including those with the unknown on both sides of the equation and including brackets/fractions. Include substitution to check answers (A17)	Construct and interpret equations that describe direct and inverse proportion (R13)	Prove the standard circle theorems
Compare two distributions using appropriate measures of average and spread (which may come from cf/box plot diagrams). Know that IQR and median are not affected by outliers, whereas range and mean are (S4h)		Recognise and interpret graphs that illustrate direct and inverse proportion (R14)	
Construct equal and unequal width histograms and use them to work out estimated median and other information eg proportions, quartiles (S3h)			
Infer properties of populations or distributions from a sample, whilst knowing the limitations of sampling (S1) - use both the Collecting and Representing Data and the Statistical Measures topic test - good questions in both			
Sequences			Further trigonometry
Middle Sequence (H) Page 51			Right-Angled Triangles (H) P66
Recognise and use Fibonacci-type sequences, quadratic sequences and simple geometric progressions (r^n where n is an integer and r is a rational number > 0 or a surd) and other sequences, see A24h			Know and apply the sine rule and cosine rule to find unknown lengths and angles (G22)
Deduce expressions to calculate the n th term of linear and quadratic sequences (A25h)			Learn both versions of sine and cosine rules and know when it's appropriate to use them (and when simple trig is better) (G22)
			Know and apply $\text{area} = \frac{1}{2}ab\sin C$ to calculate area, sides or angles of triangles (G23)
Circumference and area			
Rollover (F/H) Page 68			
Inside Circle (H) Page 40			
Calculate the perimeters of circles and composite shapes including exact answers (G17)			
Calculate areas of circles and composite shapes including exact answers (G17)			
Calculate arc lengths, angles and areas of sectors of circles (G18)			
Real life graphs			
Flow Chart (F/H) Page 33			
Javelin B (H) Page 43			
Recognise, sketch and interpret graphs of linear functions, quadratic functions, simple cubic functions, the reciprocal function and exponential functions $y=kx$ where $k>0$			
Interpret the gradient of a straight-line graph as a rate of change (R14)			
Plot and interpret graphs (including reciprocal graphs and exponential graphs) and graphs of non-standard functions in real contexts (eg distance, speed, acceleration) (A14h)			
Autumn 2	Spring 2	Summer 2	Autumn 2
Ratio and proportion	Probability	Simultaneous equations	Numerical methods
Hotel (F/H) Page 38	Dice (H) Page 22	Peculiar (F/H) Page 57	
Sharing (H) Page 71		Mean Street (H) Page 49	
Relate ratios to fractions and to linear functions (R8)	Work out relative frequencies and relate these to theoretical probabilities (P3)	Solve two simultaneous linear equations. Find approximate solution using a graph. (A19)	Find approximate solutions to equations numerically using iteration (use suffix notation) (A20h)

Use equality of ratios to understand proportion situations (R7)	Use Venn diagrams to solve probability problems (P6)	Solve two simultaneous equations where one is linear and one is quadratic. Find approximate solution using a graph. (A21)	
Apply ratio to real contexts and problems (such as those involving conversion, comparison, scaling, mixing, concentrations, best-buy and geometrical problems) (R5 and see topic test)	Use tree diagrams to solve probability problems with and without replacement (P6/8)	Derive two simultaneous equations. Solve the equations and interpret the solution. Include solution of geometrical problems and problems set in context. (A21)	
	Calculate and interpret conditional probabilities using two-way tables, tree diagrams and Venn diagrams (P9h)		
Indices	Volume	Sketching graphs	Gradients and rates of change
Middle Sequence (H) Page 51	Yoghurt (F/H) Page 97 Box Clever (H) Page 14	Towers (F/H) Page 90 X-Cube (H) Page 96	
Recap powers and roots including basic rules of indices (N6h, N7)	Work out surface areas of spheres, pyramids and cones (G17) Use multiples of pi for exact answers	Recognise, sketch and interpret graphs of linear functions, quadratic functions, simple cubic functions, reciprocal functions, exponential functions with positive powers of x. (A12)	Interpret the gradient of a straight-line graph as a rate of change (R14)
Evaluate index numbers with fractional powers and understand why fractional index numbers are roots (N7h - not in a topic test!)	Work out volumes of cuboids and other right prisms (including cylinders). Use multiples of pi for exact answers (G16/N8)	Recognise, sketch and interpret graphs of the three trig functions (0-360). (A12)	Interpret the gradient at a point on a curve as the instantaneous rate of change (R15)
Evaluate index numbers with negative powers and understand why negative index numbers are reciprocals (N7h - not in a topic test!)	Work out surface areas of compound solids constructed from cubes, cuboids, cones, pyramids, cylinders, spheres, hemispheres, frustums (G17)	Solve trigonometric equations (eg $\sin x = 0.5$ in the region $0 - 360$) using the symmetrical properties of the graph (A12)	Apply the concepts of average and instantaneous rates of change (gradients of chords and tangents) in numerical, algebraic and graphical contexts (R15)
Evaluate and manipulate algebraic expressions involving index numbers, including fractional and negative powers. (N7h - not in a topic test!)	Calculate the volume of spheres, pyramids, cones and composite solids, including frustums. Use multiples of pi for exact answers (G17/N8)		
Rewrite index numbers with different bases. Use this to solve equations with index numbers eg $16^x = 8^3$, find x. (Not in a topic test!)			
Surds	Algebraic manipulation (use first topic test for 'quadratics, rearranging formulae and identities' called 'introduction')		Area under a curve
Square Area (H) Page 74	Expand (H) Page 27		Quadratic Function Graph (H) Page 64
Simplify surd expressions involving squares (eg $\sqrt{12} = \sqrt{4 \times 3} = \sqrt{4} \times \sqrt{3} = 2\sqrt{3}$) (N8h)	Expand double and triple brackets and simplify, including with surds. Understand what is meant by 'identity' and how that differs from 'equation', 'expression' and 'formula' (A4/h)		Calculate or estimate gradients of graphs and areas under graphs (including quadratic and other non-linear graphs) (A15)
Manipulate and calculate exactly with surds (rules for adding, subtracting, multiplying, dividing,) (N8h)	Make identities by factorising expressions into single (recap) and double brackets including difference of two squares (A4/h)		Interpret the results in cases such as distance-time graphs, velocity-time graphs and graphs in financial contexts (A15)
Expanding brackets involving surds (single/double) (N8h)	Rearrange formulae to change the subject, including where the subject appears more than once (A5h??)		
Rationalise denominators (including denominators of $(b\sqrt{a})$ and $(a + \sqrt{b})$) (N8h)	Show that expressions are equivalent and find missing values by comparing coefficients (A6)		
Solve equations involving surds (N8h)			
Basic probability	Composite and inverse functions (use second topic test for 'quadratics, rearranging formulae and identities' called 'further')		Algebraic proof
Spinners (F/H) Page 73 Wheels (H) Page 94	Meet (H) Page 50		Trapezium Tiles (H) Page 91
Analyse probability experiments using tables and frequency trees (P4)	Introduce and use function notation. Interpret simple expressions as functions with inputs and outputs (A7)		Construct rigorous algebraic proofs to validate a given result (A6h) No topic test exists, use teaching guidance.
Construct possibility spaces for experiments with equally likely outcomes and use these to calculate theoretical probabilities (P7)	Understand, interpret and use inverse functions (A7h). Make link to rearranging.		
	Understand, interpret and use composite functions (A7h)		

Standard form	Pythagoras and basic trigonometry		
Isosceles Grid (F/H) Page 41	Cuboid Ratio (H) Page 21		
Terms (H) Page 83			
Convert ordinary numbers into standard form and vice versa (recap) (N9)	Know and use Pythagoras' theorem to solve problems. (G20)		
Order and calculate with numbers written in standard form (N9)	Know and use the three basic trig ratios to solve problems. (G20)		
Solve simple equations where the numbers are written in standard form (N9)	Know and use the exact values for sin, cos, tan, 0, 30, 45, 60, 90 degrees (not tan 90) to solve problems (G21)		
Solve standard form problems with and without a calculator. (N9)			
Transformations	Scatter graphs		
T-Grid (F/H) Page 80	N & M (H) Page 53		
Three Different Numbers Page 84			
Carry out the four transformations (G7)	Use and interpret scattergraphs of bivariate data (S6)		
Describe transformations fully including using column vectors for translation (G7)	Recognise correlation and know that it does not indicate causation (S6)		
Enlargement with negative scale factors (G7/h)	Draw estimated lines of best fit and make predictions (S6)		
Describe the changes and invariance achieved by combinations of rotations, reflections and translations (G8/h)	Interpolate and extrapolate apparent trends whilst knowing the danger of doing so (S6)		