KSA KEY 4 STAGE OVERVIEW (Long Term Planning)

Subject: Mathematics (Foundation Tier)

Year 10

Week/ Lesson	Term	Topic	Knowledge	Skills
Unit 1 14 hours	**Autumn T1**	**Number** **Unit 1a: Integers and place**	• An appreciation of place value, and recognise even and odd numbers • Knowledge of using the four operations with whole numbers • Knowledge of integer complements to 10 and 100 • Knowledge of strategies for multiplying and dividing whole numbers by 2, 4, 5 and 10 • Be able to read and write decimals in figures and words	• 1.1 -Calculations
		Number **Unit 1b: Decimals**		• 1.2 - Decimal numbers • 1.3 - Place value
		Number **Unit 1c: Indices, powers and roots**		• 1.5 - Squares, cubes and roots • 1.6 - Index notation
		Number **Unit 1d: Factors, multiples and primes**		• 1.4 - Factors and multiples • 1.5 - Prime factors
Unit 1 2 hours		**Reteach, Review, Assess and Feedback**		
Unit 2 9 hours		**Algebra** **Unit 2a: Algebra: the basics**	• Ability to use negative numbers with the four operations and recall and use hierarchy of operations and understand inverse operations • Deal with decimals and negatives on a calculator • Use index laws numerically	• 2.1 - Algebraic expressions • 2.2 - Simplifying expressions • 2.3 - Substitution • 2.4 - Formulae • 2.5 - Expanding brackets • 2.6 - Factorising • 2.7 - Using expressions and formulae
		Algebra **Unit 2b: Expressions and substitution into formulae**		• 2.3 - Substitution • 2.4 - Formulae • 2.5 - Expanding brackets • 2.6 - Factorising • 2.7 - Using expressions and formulae • 5.3 - Solving equations with brackets • 5.6 - More formulae • 8.1 - Rectangles, parallelograms and triangles
Unit 2 2 hours		**Reteach, Review, Assess and Feedback**		
Unit 3		**Graphs, tables and charts**		• 3.1 - Frequency tables

17 hours		**Unit 3a: Tables, charts and graphs**	• Be able to read scales on graphs, draw circles, measure angles and plot coordinates in the first quadrant, and know that there are 360 degrees in a full turn and 180 degrees at a point on a straight line • Have experience of tally charts • Have used inequality notation • Must be able to find the midpoint of two numbers • Be able to use the correct notation for time using 12- and 24-hour clocks	• 3.2 - Two-way tables • 3.3 - Representing data • 3.4 - Time series • 3.5 - Stem and leaf diagrams • 4.6 - Fractions and percentages • 7.1 - Mean and range • 7.2 - Mode, median and range
		Graphs, tables and charts **Unit 3b: Pie charts**		• 3.6 - Pie charts • 4.2 - Operations with fractions • 4.5 - Fractions and decimals
		Graphs, tables and charts **Unit 3c: Scatter graphs**		• 3.7 - Scatter graphs • 3.8 - Line of best fit • 9.7 - More real-life graphs
Unit 3 2 hours		**Reteach, Review, Assess and Feedback**		
Unit 4 11 hours	**Autumn T2**	**Fractions and percentages** **Unit 4a: Fractions, decimals and percentages**	• Be able to use the four operations of number • Be able to find common factors • Have a basic understanding of fractions as being 'parts of a whole' • Be able to define percentage as 'number of parts per hundred' • Know number complements to 10 and multiplication tables	• 4.1 - Working with fractions • 4.2 - Operations with fractions • 4.3 - Multiplying fractions • 4.4 - Dividing fractions • 4.5 - Fractions and decimals • 4.6 - Fractions and percentages • 4.7 - Calculating percentages 1 • 4.8 - Calculating percentages 2 • 14.2 - Growth and decay
		Fractions and percentages **Unit 4b: Percentages**		• 4.6 - Fractions and percentages • 4.7 - Calculating percentages 1 • 4.8 - Calculating percentages 2 • 14.1 - Percentages
Unit 4 2 hours		**Reteach, Review, Assess and Feedback**		
Unit 5 12 hours		**Equations, inequalities and sequences** **Unit 5a: Equations and inequalities**	• Be able to use inequality signs between numbers • Be able to use negative numbers with the four operations, recall and use the hierarchy of operations and understand inverse operations • Be able to deal with decimals and negatives on a calculator • Be able to use index laws numerically • Be able to draw a numberline	• 6.6 - Geometrical problem • 8.1 - Rectangles, parallelograms and triangles • 14.3 - Compound measures • 14.4 - Distance, speed and time • 17.2 Circumference of a circle 2
		Equations, inequalities and sequences **Unit 5b: Sequences**		• 5.7 - Generating sequences • 5.8 - Using the nth term of a sequence
Unit 5		**Reteach, Review, Assess and Feedback**		

2 hours				
Unit 6 9 hours	**Spring T1**	**Angles** **Unit 6a: Properties of shapes, parallel lines and angle facts**	• Be able to use a ruler and protractor • Have an understanding of angles as a measure of turning • Be able to name angles and distinguish between acute, obtuse, reflex and right angles • Recognise reflection symmetry, be able to identify and draw lines of symmetry, and complete diagrams with given number of lines of symmetry • Recognise rotation symmetry and be able to identify orders of rotational symmetry and complete diagrams with given order of rotational symmetry	• 6.1 - Properties of shapes • 6.2 - Angles in parallel lines • 6.3 - Angles in triangles • 6.4 - Exterior and interior angles • 6.5 - More exterior and interior angles • 6.6 - Geometrical problems • 15.8 - Bearings
		Angles **Unit 6b: Interior and exterior angles of polygons**		• 6.4 - Exterior and interior angles • 6.5 - More exterior and interior angles
Unit 6 2 hours		**Reteach, Review, Assess and Feedback**		
Unit 7 5 hours		**Averages and range** **Unit 7a: Statistics; sampling and the averages**	• Be able to calculate the midpoint of two numbers • Be able to draw the statistical diagrams in unit 3 • Have used inequality notation	• 7.1 - Mean and range • 7.2 - Mode, median and range • 7.3 - Types of average • 7.4 - Estimating the mean • 7.5 - Sampling
Unit 7 2 hours		**Reteach, Review, Assess and Feedback**		
Unit 8 8 hours		**Perimeter, area and volume 1** **Unit 8a: Perimeter, area and volume**	• Be able to measure lines and recall the names of 2D shapes • Be able to use strategies for multiplying and dividing by powers of 10 • Be able to find areas by counting squares and volume by counting cubes • Be able to interpret scales on a range of measuring instruments	• 8.1 - Rectangles, parallelograms and rectangles • 8.2 - Trapezia and changing units • 8.3 - Area of compound shapes • 8.4 - Surface area of 3D solids • 8.5 - Volume of prisms • 8.6 - More volume and surface area • 14.3 - Compound measures
Unit 8 2 hours		**Reteach, Review, Assess and Feedback**		
Unit 9 12 hours	**Spring T2**	**Graphs** **Unit 9a: Real-life graphs**	• Be able to plot coordinates and read scales • Be able to substitute into a formula	• 9.1 - Coordinates • 9.5 - Real-life graphs • 9.6 - Distance-time graphs • 9.7 - More real-life graphs • 11.7 - Proportion and graphs

		Graphs **Unit 9b: Straight line graphs**		• 9.1 - Coordinates • 9.2 - Linear graphs • 9.3 - Gradient • 9.4 - y=mx+c • 9.5 - Real-life graphs • 9.6 - Distance-time graphs • 9.7 - More real-life graphs
Unit 9 2 hours		**Reteach, Review, Assess and Feedback**		
Unit 10 12 hours		**Transformations** **Unit 10a: Transformations**	• Recall basic shapes • Be able to plot points in all four quadrants • Have an understanding of the concept of rotation • Be able to draw and recognise lines parallel to axes and y=x, y=-x • Have encountered the terms clockwise and anticlockwise previously	• 10.1 - Translation • 10.2 - Reflection • 10.3 - Rotation • 10.4 - Enlargement • 10.5 - Describing enlargements • 10.6 - Combining transformations
Unit 10 2 hours		**Reteach, Review, Assess and Feedback**		
Unit 11 7 hours	**Summer T1**	**Ratio and proportion** **Unit 11a: Ratio**	• Know the four operations of number • Have a basic understanding of fractions as being 'parts of a whole'	• 11.1 - Writing ratios • 11.2 - Using ratios 1 • 11.3 - Ratios and measures • 11.4 - Using ratios 2 • 11.5 - Comparing using ratios • 14.1 - Percentages
		Ratio and proportion **Unit 11b: Proportion**		• 11.5 - Comparing using ratios • 11.6 - Using proportion • 11.7 - Proportion and graphs • 11.8 - Proportion problems • 14.5 - Direct and inverse proportion
Unit 11 2 hours		**Reteach, Review, Assess and Feedback**		
Unit 12 3 hours		**Right angled triangles** **Unit 12a: Right-angled triangles: Pythagoras and trigonometry**	• Be able to rearrange simple formulae and equations, as preparation for rearranging trigonometric formulae • Recall basic angle facts • Understand when to leave an answer in surd form • Plot coordinates in all four quadrants and draw axes	• 12.1 - Pythagoras' theorem 1 • 12.2 - Pythagoras' theorem 2 • 12.3 - Trigonometry: the sine ratio 1 • 12.4 - Trigonometry: the sine ratio 2 • 12.5 - Trigonometry: the cosine ratio • 12.6 - Trigonometry: the tangent ratio • 12.7 - Finding lengths and angles using trigonometry
Unit 12		**Reteach, Review, Assess and Feedback**		

2 hours				
Unit 13 10 hours		**Probability** **Unit 13a: Probability**	• Know how to add and multiply fractions and decimals • Have experience of expressing one number as a fraction of another number	• 13.1 - Calculating probability • 13.2 - Two events • 13.3 - Experimental probability • 13.4 - Venn diagrams • 13.5 - Tree diagrams • 13.6 - More tree diagrams
Unit 13 2 hours		**Reteach, Review, Assess and Feedback**		
Unit 14 5 hours	**Summer T2**	**Multiplicative reasoning** **Unit 14a: Multiplicative reasoning**	• Be able to interpret scales on a range of measuring instruments • Be able to find a percentage of an amount and relate percentages to decimals • Be able to rearrange equations and use these to solve problems • Know speed=distance/time, density=mass/volume	• 14.1 - Percentages • 14.2 - Growth and decay • 14.3 - Compound measures • 14.4 - Distance, speed and time • 14.5 - Direct and inverse proportion
Unit 14 2 hours		**Reteach, Review, Assess and Feedback**		
Unit 15 10 hours		**Constructions, loci and bearings** **Unit 15a: Plans and elevations**	• Be able to measure and draw lines	• 15.1 - 3D solids • 15.2 - Plans and elevations • 15.5 - Accurate drawings 2
		Constructions, loci and bearings **Unit 15b: Constructions, loci and bearings**		• 15.3 - Accurate drawings 1 • 15.4 - Scale drawings and maps • 15.6 - Constructions • 15.7 - Loci and regions • 15.8 - Bearings
Unit 15 2 hours		**Reteach, Review, Assess and Feedback**		
		End of Year Assessment		

KAT KEY 4 STAGE OVERVIEW (Long Term Planning)

Year 11

Week/ Lesson	Term	Topic	Knowledge	Skills
3 hours		**Monitoring and addressing gaps from mini low stakes assessment**		
Unit 16 7 hours	**Autumn T1**	**Quadratic equations and graphs** **Unit 16a: Quadratic equations: expanding and factorising**	• Be able to square negative numbers • Be able to substitute into formulae • Be able to plot points on a coordinate grid • Be able to expand single brackets and collect 'like' terms	• 16.1 - Expanding double brackets • 16.4 - Factorising quadratic expressions • 16.5 - Solving quadratic equations algebraically
		Quadratic equations and graphs **Unit 16b: Quadratic equations: graphs**		• 16.2 - Plotting quadratic graphs • 16.3 - Using quadratic graphs
Unit 16 2 hours		**Reteach, Review, Assess and Feedback**		
Unit 17 4 hours		**Perimeter, area and volume 2** **Unit 17a: Circles, cylinders, cones and spheres**	• Know the formula for calculating the area of a rectangle • Know how to use the four operations on a calculator	• 17.1 - Circumference of a circle 1 • 17.2 - Circumference of a circle 2 • 17.3 - Area of a circle • 17.4 - Semi Circles and sectors • 17.5 - Composite 2D shapes and cylinders • 17.6 - Pyramids and cones
Unit 17 2 hours		**Reteach, Review, Assess and Feedback**		
Unit 18 8 hours		**Fractions, indices and standard form** **Unit 18a: Fractions and reciprocals**	• Know how to do the four operations with fractions • Be able to write powers of 10 in index form and recognise and recall powers of 10 • Recall the index laws	• 18.1 - Multiplying and dividing fractions
		Fractions, indices and standard form **Unit 18b: Indices and standard form**		• 18.2 - The laws of indices • 18.3 - Writing large numbers in standard form • 18.4 - Writing small numbers in standard form • 18.5 - Calculating with standard form
Unit 18 2 hours		**Reteach, Review, Assess and Feedback**		
Unit 19 14 hours	**Autumn T2**	**Congruence, similarity and vectors** **Unit 19a: Similarity and congruence in 2D**	• Used column vectors when dealing with translations • Recall and apply Pythagoras' Theorem on a coordinate grid	• 19.1 - Similarity and enlargement • 19.2 - More similarity • 19.3 - Using similarity • 19.4 - Congruence • 19.5 - Congruence 2

			• Be able to recognise and enlarge shapes and calculate scale factors • Know how to calculate area and volume in various metric measures • Be able to measure lines and angles and using compasses, ruler and protractor construct standard constructions	
		Congruence, similarity and vectors **Unit 19b: Vectors**		• 19.6 - Vectors 1 • 19.7 - Vectors 2
Unit 20 5 hours		**More Algebra** **Unit 20a: Rearranging equations, graphs of cubic and reciprocal functions and simultaneous equations**	• Be able to draw linear graphs • Be able to plot coordinates and sketch simple functions with a table of values • Be able to substitute into and solve equations • Have experience of using formulae • Recall and use the hierarchy of operations and use of inequality symbols	• 20.1 - Graphs of cubic and reciprocal functions • 20.2 - Non-linear graphs • 20.3 - Solving simultaneous equations graphically • 20.4 - Solving simultaneous equations algebraically • 20.5 - Rearranging formulae • 20.6 - Proof
8 hours		**PPE1**		
6 hours		**QLA and Feedback from PPE1**		
	Spring T1			
8 hours	**Spring T2**	**PPE2**		
6 hours		**QLA and Feedback from PPE2**		
	Summer T1			
		GCSEs Begin		
		GCSEs		
	Summer T2			
