

PRIMARY

KEY STAGE 3

KEY STAGE 4

KEY STAGE 5

Curriculum Intent

The Mathematics curriculum has been designed to give students the knowledge and skills required for a solid foundation and understanding of problem-solving skills in accordance to the updated National Curriculum and age related expectations. We aim to ensure all students have a secure sense of number throughout their journey at KBA.

Topics are ordered so that skills and knowledge are built upon, and prerequisite skills for future topics are learned in a logical and layered order so that they can be implemented and interwoven with new skills and knowledge. Pupils are graded using the key performance indicators (KPIs) used widely across all UL schools.

1. How do you ensure consistent delivery of the subject across all key stages?

Maths is taught using a mastery approach throughout the whole academy where students will have a maths lesson every day. The topics taught (which are detailed below) progress in a logical and layered order and build upon previous learning. Students are formally and informally assessed throughout their journey and any gaps in knowledge are identified and addressed.

2. How does the curriculum cater for disadvantages, SEND and other minority group students?

All children have access to the same curriculum and differentiated support is provided where necessary. For example, in KS1 and KS2 there are manipulatives available for the students to use.

Another example is that a scaffolded scheme of learning is followed for low attaining Year 9 and 10 students to break the topics into smaller, more manageable chunks and gives time every week to work on basic number skills such as times tables.

There are smaller teaching groups, focus groups, intervention groups and additional teaching support in the classroom provided in the both primary and secondary phases.

3. How does the curriculum embed prior knowledge and aid long-term retention of knowledge?

Knowledge organisers are an aid which is used across the academy to help students recall key information and ensure they retain it. There is also informal recap within lessons such as starters and arithmetic quizzes. This approach to lesson structure ensures the Rosenshine principles are embedded in the teaching. There are regular assessments throughout the year which are cumulative and ensure prior knowledge is revisited and helps to ensure long-term retention of knowledge.

PRIMARY

Year	Term 1 & 2	Term 3 & 4	Term 5 & 6
EYFS	Numbers and place value Addition and subtraction Number and place value Addition and subtraction Measurement	Addition and subtraction Number and place value Addition and subtraction Geometry	Addition and subtraction Number and place value Multiplication and division Geometry Measurement
1	Place value Addition and subtraction Place Value Shape	Addition and subtraction Place value Length and height Weight and volume	Multiplication and division Fractions Value within 100 Position and direction Money and Time
2	Place value Addition and subtraction Multiplication and division Money	Multiplication and division Fractions Properties of shape Length and height Statistics	Position and direction Time Mass, capacity and temperature
3	Place value Addition and subtraction Multiplication and division	Multiplication and division Fractions Money Length and Perimeter Money	Fractions Time Properties of shape Mass and capacity
4	Place value Addition and subtraction Multiplication and division Length and perimeter	Multiplication and division Fractions Decimals Area	Decimals Money Time Properties of shape, Position and direction Statistics
5	Place value Addition and subtraction Multiplication and division Fractions and Statistics Perimeter and Area	Multiplication and division Fractions Decimals and percentages	Decimals Properties of shape Position and direction Converting units Volume
6	Place value Addition, subtraction, multiplication and division Fractions Position and direction	Decimals Percentages Converting units Perimeter, area and volume Ratio	Algebra Properties of shape Statistics

KEY STAGE 3

	1 st Half of the year (Sep – Jan)	2 nd Half of the year (Jan-July)
7	<ul style="list-style-type: none"> • Place value and Number sense • Addition and Subtraction • Perimeter • Rounding & Estimation (in real life situations) • Multiplication and Division • Factors and Multiples • Area of rectangles and triangles and parallelograms 	<ul style="list-style-type: none"> • Fractions as part of a whole • Fractions as a value • Fractions as an operation • Order of operations • Basic rules of algebra • Expand and factorise • Substitution • Angles • Polygons • Symmetry and reflection • Coordinates • Mean • Two way tables & Venn diagrams
	Mid-Year Assessment – all topics in 1st half of Year 7	End of Year Assessment – includes all topics from Year 7
8	<ul style="list-style-type: none"> • Indices • Prime Factorisation • Rounding • Fractions • Percentages revision • Linear equations • Coordinates and basic graphs 	<ul style="list-style-type: none"> • Units of measurement • Angles • Circumference • Proportional reasoning • Fractions, decimals and percentages • Ratio • Area of composite shapes • Presenting and interpreting data • Averages • Two way tables • 3-D visualisation • Volume
	Mid-Year Assessment - includes topics from all of Year 7 and 1st half of Year 8	End of Year Assessment - includes all topics from Year 7 and 8
9	<ul style="list-style-type: none"> • Place value & Number Properties • 4 Rules - Decimals • Indices Powers & Roots • Factors, Multiples & Primes • Ratio (basic) • FDP • Fractions • Percentages • Proportion 	<ul style="list-style-type: none"> • Notation • Simplifying & Index Laws • Expanding & Factorising • Expressions & Substitution • Linear Equations • Linear Inequalities • Perimeter & Area • Pythagoras • Properties of shapes

		<ul style="list-style-type: none"> • Angle facts • Parallel lines • Circles • Volume & Surface Area • Sequences • Basic vectors
	Mid-Year Assessment – includes topics from all of Year 7 and 8 and the 1st half of Year 9	End of Year Assessment - includes all topics from Year 7, 8 and 9

9 Set 1	<ul style="list-style-type: none"> • Indices Powers & Roots • Factors, Multiples & Primes • Multiply and divide decimals • Rounding and estimation • Use a calculator • Ratio • FDP • Fractions • Percentages • Proportion 	<ul style="list-style-type: none"> • Notation • Expanding & Factorising • Expressions & Substitution • Linear equations • Linear Inequalities • Perimeter & Area & Measures • Pythagoras • Right-Angled Trigonometry • Properties of shapes • Angle facts • Parallel lines • Circles • Volume & Surface Area • Sequences • Basic vectors • Transformations
	Mid-Year Assessment – includes topics from all of Year 7 and 8 and the 1st half of Year 9	End of Year Assessment - includes all topics from Year 7, 8 and 9

Year 7 and Year 9 begin the academic year by covering basic number skills to ensure strong foundations which can be applied to Algebra, Geometry and Statistics topics later in the year or in future academic years. For this reason, there has been no change to the curriculum plan in light of the school closure. Any weaknesses in prior knowledge will be highlighted quickly in lessons by covering these topics first and there will then be a focus on these skills in starter activities until it becomes embedded. Prior knowledge will be continually assessed and tracked throughout Year 7, 8, 9 and 10 and appropriate strategies employed to close any gaps that occur.

Year 8 carries on from the Year 7 SoL which was obviously disrupted by the school closure. Work was set based on topics from the SoL where distant learning was appropriate, but this did not cover all. Also, as there was no end of year assessment, consolidation of all Year 7 topics did not take place. Year 8 starts by building on Number and Shape topics which were covered early in Year 7 while the school was open. It is appropriate for these topics to be taught according to the SoL at the beginning of Year 8. To ensure students have the required prior knowledge from Year 7 topics, the timetable allows for "Pause" lessons once a week where the teacher will consolidate topics from Term 4-6 of the Year 7 SoL. Informal assessments will take place throughout Term 1 and 2 before the mid-year assessment which will help the teachers identify any weaknesses which are apparent from Year 7 Term 1-3 topics and these will be the basis of the starter activities for Year 8.

There is a modified Year 9 SoL this year to ensure students are appropriately challenged throughout this year, Year 10 and 11. The introduction of topics happens earlier for this class to ensure the students are fluent for KS4. It will be updated as necessary throughout the year as experienced teachers are teaching the two top sets. It still starts with basic number skills to ensure strong foundations and it is still an appropriate starting point in light of the school closure.

KEY STAGE 4 – Foundation (typically set 3, 4 and 5 in Year 10 and set 3, 4, 5, and 6 in Year 11)

	1 st Half of the year (Sep – Jan)	2 nd Half of the year (Jan-July)
10	<ul style="list-style-type: none"> • Linear equations and inequalities (9.15-9.16) • Angle facts – polygons and parallel lines (9.20-9.21) • Volume and surface area (9.23) • Rearrange formulae • Linear Graphs, including understanding gradient and intercept • Compound Measures • Quadratic graphs, TP and roots • Linear Simultaneous Equations • Further graphs 	<ul style="list-style-type: none"> • Sequences (9.24) • Circles (9.22) • Probability • Standard Form • Simple interest • Ratio (further) • Growth & Decay • Statistics • Plans & elevations • Constructions & Loci
	Mid-Year Assessment - includes all topics from Year 7, 8 9 and the 1st half of Year 10	End of Year Assessment - - includes all topics from Year 7, 8 9 and 10
11	<ul style="list-style-type: none"> • Pythagoras • Right Angled Trigonometry • Bearings & Scale Drawings • Number Review • Algebra Review • Class specific revision topics for mock exams 	<ul style="list-style-type: none"> • Transformations • Congruence • Vectors • Similar shape • Class specific revision topics for mock exams
		March Mock Exams
	November Mock Exams	ACTUAL GCSE EXAMS.

KEY STAGE 4 – Higher Set 2

	1 st Half of the year (Sep – Jan)	2 nd Half of the year (Jan-July)
10	<ul style="list-style-type: none"> • Linear equations and inequalities (9.15-9.16) • Angle facts – polygons and parallel lines (9.20-9.21) • Volume and surface area (9.23) <ul style="list-style-type: none"> • Rearrange formulae • Linear Graphs, including understanding gradient and intercept • Compound Measures • Quadratic graphs, TP and roots • Linear Simultaneous Equations • Further graphs • Further expanding & factorising 	<ul style="list-style-type: none"> • Sequences (9.24) • Circles (9.22) • Probability <ul style="list-style-type: none"> • Capture & Recapture • Standard Form <ul style="list-style-type: none"> • Proportion (further) • Surds <ul style="list-style-type: none"> • Recurring decimals • Bounds • Growth & Decay • Simple interest • Ratio (further) • Right angled Trigonometry • Plans & elevations • Constructions & Loci • Similar shapes
	Mid-Year Assessment - includes all topics from Year 7, 8 9 and the 1st half of Year 10	End of Year Assessment - includes all topics from Year 7, 8 9 and 10
11	<ul style="list-style-type: none"> • Algebraic Proof • Solving quadratic and further simultaneous equations <ul style="list-style-type: none"> • Functions • Iteration <ul style="list-style-type: none"> • Quadratic Inequalities • Bearings • Circle Theorems <ul style="list-style-type: none"> • Further trigonometry and trigonometric graphs • Class specific revision topics for mock exams 	<ul style="list-style-type: none"> • Statistics (Higher tier topics) • Transformations <ul style="list-style-type: none"> • Congruence • Vectors • Gradients (further) and area under a graph • Kinematics • Graphical transformations • Class specific revision topics for mock exams
		March Mock Exams
		<ul style="list-style-type: none"> • Class specific revision topics for exams
	November Mock Exams	ACTUAL GCSE EXAMS.

KEY STAGE 4 – Higher Set 1

	1 st Half of the year (Sep – Jan)	2 nd Half of the year (Jan-July)
10	<ul style="list-style-type: none"> • Linear equations and inequalities (9.15-9.16) • Angle facts – polygons and parallel lines (9.20-9.21) • Volume and surface area (9.23) • Rearrange formulae • Linear Graphs, including understanding gradient and intercept • Quadratic graphs, TP and roots • Linear Simultaneous Equations • Further graphs • Further expanding, factorising and solving (quadratic) • Non-linear simultaneous equations 	<ul style="list-style-type: none"> • Sequences (9.24) • Circles (9.22) • Right angled Trigonometry • Volume and surface area • Compound Measures • Similar shapes • Standard form • Surds • Recurring decimals • Bounds • Growth and Decay • Proportion (further) • Statistics inc. Higher • Capture & Recapture • Probability • Constructions and Loci • Vectors • Functions • Sequences
	Mid-Year Assessment - includes all topics from Year 7, 8 9 and the 1st half of Year 10	End of Year Assessment - includes all topics from Year 7, 8 9 and 10
11	<ul style="list-style-type: none"> • Algebraic Proof • Iteration • Quadratic Inequalities • Bearings • Circle Theorems • Further trigonometry and trigonometric graphs • Class specific revision topics for mock exams 	<ul style="list-style-type: none"> • Transformations • Congruence • Vectors • Gradients (further) and area under a graph • Kinematics • Graphical transformations • Class specific revision topics for mock exams
		March Mock Exams
		<ul style="list-style-type: none"> • Class specific revision topics for exams
	November Mock Exams	ACTUAL GCSE EXAMS.

For the 2020-2021 academic year, the Year 10 SoL has some extra topics in there to consolidate the topics which would have been taught in during the school closure. For set 2, the topics in grey have elements which could be delayed ensuring there is enough time to cover all the topics in black. These topics are level 7+ and it is more important that the students have embedded knowledge of the topics in black which are level 4-6. There have been left on the SoL so the teacher know which topics can be delayed if needs be. I have also highlighted these topics in the Year 11 SoL for Set 2.

These topics are not in grey for Set 1 and it is expected that they will be able to cover all the topics in the lesson. This will give them greater exposure to level 7+ topics earlier in KS4 to help them achieve their targets which will be higher.

As there are no proposed changes to the GCSE assessment, we are unable to take topics out.

KEY STAGE 5

MATHS	September – November	December – March	March - June
12	<ul style="list-style-type: none"> Quadratics Equations and Inequalities Correlation Differentiation Algebraic Methods (1) Constant Acceleration Integration Straight line graphs Forces & motion Trigonometric ratios Tangents and normal Probability Trigonometric identities and equations Circles Binomial expansion (homeworks also cover Data collection, Measures of location & spread and Representation of data) 	<ul style="list-style-type: none"> Exponentials and logarithms Vectors (1) Statistical distributions Sequences and series Vectors (2) Hypothesis testing Binomial Expansion Proofs Variable acceleration Modelling 	<ul style="list-style-type: none"> Algebraic methods Trigonometric Functions
	November Mock Exam	March Mock Exam	End of Year Exam
13	<ul style="list-style-type: none"> Differentiation (1) Radians Integration Trigonometry and modelling Trigonometric Functions Parametric Equations Regression, correlation and hypothesis testing Projectiles Differentiation (2) Conditional probability Forces and friction 	<ul style="list-style-type: none"> Vectors Normal distribution Momentum Sequences and series Functions and graphs Application of forces Binomial expansion Numeric methods Further kinematics 	<ul style="list-style-type: none"> Revision, practice and examination
	November Mock Exam	March Mock Exam	ACTUAL A LEVEL EXAMINATION

As Year 11 into 12 students were set transition work during the school closure, this consolidated GCSE topics which are the foundations of KS5 topics. The KS5 teachers are also familiar with their new cohort and what individual strengths and areas of developments there are in the class and will tailor starters, homework and intervention towards these areas of development. As there are no proposed changes to the A Level assessment, we are unable to take topics out.