KINGS' SCHOOL AL BARSHA

CURRICULUM OVERVIEW

Subject: Maths

Purpose of Study

Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. The programme of study is organised into distinct domains, but pupils should build on key stage 2 and connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. They should also apply their mathematical knowledge in science, geography, computing and other subjects. The expectation is that the majority of pupils will move through the programme of study at broadly the same pace. However, decisions about progression should be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems. Those who are not sufficiently fluent should consolidate their understanding, including through additional practice, before moving on.

Aims

Working mathematically through the mathematics content, pupils will be taught to:

- Develop fluency in order to consolidate their numerical and mathematical capability and extend their understanding of the number system and place value to include decimals, fractions, powers and roots.
- Select and use appropriate calculation strategies to solve increasingly complex problems and use algebra to generalise the structure of arithmetic.
- Reason mathematically to extend their understanding of the number system; make connections between number relationships, and their algebraic and graphical representations.
- Develop and extend and their knowledge of ratio and proportion in working with measures and geometry.
- Be resilient and be able to solve problems and evaluate the outcomes, including multi-step problems with an emphasis on financial maths.

Programme of Study			
	Autumn 1 & 2	**Spring 1 & 2**	**Summer 1 & 2**
YEAR 7	Written and Mental Calculations. Place Value and Rounding. Measures, Time and Speed. Integers, Powers and Roots.	Algebraic Manipulation. Geometric Reasoning, Angles and Bearings. Linear Equations, Identities, Formulae and Simultaneous Equations.	Area, Perimeter and Volume. Pythagoras. Fractions. Probability.
Recommended sites	www.mangahigh.com	www.mymaths.co.uk	http://www.bbc.co.uk/education/subjects/zqhs34j
Further Reading	Maths Frameworking, 3rd Edition, Pupil Book (1.1, 1.2 and 1.3) Publisher: Collins	Maths Frameworking, 3rd Edition, Pupil Book (1.1, 1.2 and 1.3) Publisher: Collins	Maths Frameworking, 3rd Edition, Pupil Book (1.1, 1.2 and 1.3) Publisher: Collins
YEAR 8	Further Written and Mental Calculations. Fractions and Percentages. Probability. Averages from Raw Data and Frequency Tables.	Construction and Loci. Sequences, Functions, Graphs and Coordinates. Rotation, Enlargement, Reflection and Translation.	Collecting and Representing Data. Pythagoras and Trigonometry. Algebraic Manipulation. Standard Form and Indices.
Recommended sites	www.mangahigh.com	www.mymaths.co.uk	http://www.bbc.co.uk/education/subjects/zqhs34j
Further Reading	Maths Frameworking, 3rd Edition, Pupil Book (2.1, 2.2 and 2.3) Publisher: Collins	Maths Frameworking, 3rd Edition, Pupil Book (2.1, 2.2 and 2.3) Publisher: Collins	Maths Frameworking, 3rd Edition, Pupil Book (2.1, 2.2 and 2.3) Publisher: Collins
YEAR 9	Fractions. Indices and Surds. Properties of Numbers. Brackets. Solving Equations. rearranging formulae. Sequences. Statistical Diagrams. Ratio and	Linear, Non-linear and Real-life graphs. Area. Units of Measure. Circles and Sectors. Pyramids and Cones. Plans and Elevations. Transformations. Loci and Constructions. Quadratic	Further Percentages, Ratio and Proportion. Compound Measures. Similarity and Congruency. Further Pythagoras and Trigonometry. Further Statistics. Inequalities. Further Graphs.

	Proportion. Angles in Polygons. Pythagoras and Trigonometry.	Equations. Simultaneous Equations. Probability. Venn Diagrams.	
Recommended sites	www.mangahigh.com	www.mymaths.co.uk	http://www.bbc.co.uk/education/subjects/z38pycw
Further Reading	Edexcel GCSE (9-1) Mathematics: Higher Student Book. Publisher: Pearson	Edexcel GCSE (9-1) Mathematics: Higher Student Book. Publisher: Pearson	Edexcel GCSE (9-1) Mathematics: Higher Student Book. Publisher: Pearson
Year 10	Simultaneous Equations, Quadratic Expressions, Equations and Graphs. Displaying Data. Standard Form. Surds. Angles and Bearings.	Probability. Proportionality. Non-Linear Graphs, Real Life Graphs and Transformation of Graphs. Inequalities and Proofs. Further Trigonometry. Circle Theorems.	Further Circle Theorems. Vectors. Constructions and Drawing. Loci.
Recommended sites	www.mangahigh.com	www.mymaths.co.uk	http://www.bbc.co.uk/education/subjects/z38pycw
Further Reading	Edexcel GCSE (9-1) Mathematics: Higher Student Book. Publisher: Pearson	Edexcel GCSE (9-1) Mathematics: Higher Student Book. Publisher: Pearson	Edexcel GCSE (9-1) Mathematics: Higher Student Book. Publisher: Pearson
Year 11	In Year 11, students take one of two possible routes: • Revisiting the main core content of the GCSE course. The topics revisited are influenced by analysis of previous year's assessments. Class teachers will be able to provide further information. • Students sit the GCSE exam at the end of Year 10, and begin an additional GCSE course, **Further Maths GCSE**.		
Recommended sites	www.mangahigh.com	www.mymaths.co.uk	http://www.bbc.co.uk/education/subjects/z38pycw

Further Reading	Edexcel GCSE (9-1) Mathematics: Higher Student Book. Publisher: Pearson	Edexcel GCSE (9-1) Mathematics: Higher Student Book. Publisher: Pearson	AQA Certificate in Further Mathematics. Publisher: Hodder Education
GCSE Specification	**Edexcel GCSE Mathematics (1-9) 1MA1**, from 2015 http://qualifications.pearson.com/en/qualifications/edexcel-gcses/mathematics-2015.html http://www.aqa.org.uk/subjects/mathematics/aqa-certificate/further-mathematics-8360		

Year 12	Algebraic Manipulation. Quadratic functions. Simultaneous Equations. Inequalities. Graphs, Coordinates Geometry. Factor Theorem. Binomial Expansion. Probability. Data Presentation. Sampling. Statistical Distributions. Hypothesis Testing. The Normal Distribution.	Trigonometric Ratios, Identities, Equations and Graphs. Vectors in 2D and 3D. Differentiation. Integration. Kinematics. Forces and Newton's Laws of Motion.	Algebraic Fractions. Partial Fractions. Exponential Functions and Logarithms. Proof. Calculus in Mechanics. Revision.
Recommended sites	www.mymaths.co.uk	https://www.examsolutions.net/	https://nrich.maths.org/
Further Reading	Edexcel AS and A level Mathematics Pure Mathematics Year 1 Textbook - Harry Smith and Greg Attwood	Edexcel AS and A level Mathematics Statistics & Mechanics Year 1 Textbook - Harry Smith and Greg Attwood	Edexcel AS and A level Further Mathematics Decision Mathematics 1 Textbook - Harry Smith and Greg Attwood (Further Maths only)
A-Level Specification	**Edexcel Level 3 Advanced GCE in Mathematics (9MA0)**, from 2017 https://qualifications.pearson.com/en/qualifications/edexcel-a-levels/mathematics-2017.html		