Mathematics

At St. Saviour's & St. Olave's, our students learn that Mathematics is a beautiful subject. It provides students with powerful ways to describe, analyse, change and improve the world. Students can experience a sense of awe and wonder as they appreciate the power of mathematics and make links between different areas of mathematics and also the history of how Mathematics has developed.

Students at our school study mathematics so that they can become fully participating citizens in an ever-changing society who are able to think mathematically, reason, solve problems and assess risk in a range of contexts. They will develop the skills to understand science, technology and engineering as well as everyday tasks essential for keeping safe and healthy and maintaining their own economic well-being. We aim for students to share our passion for mathematics and find the subject both enjoyable and fascinating in its own right.

Good **learning** takes place when students are given opportunities to solve problems by developing their understanding and making links between different areas of mathematics and applying skills.

Good **teaching** enables good learning to take place. 'The teachers' job is to inspire and support in constructing and developing their own understanding of mathematics, rather than simply communicate the ways in which teachers themselves understand the subject.

As a result of good teaching and learning, our students are encouraged to develop into thinking individuals who are mathematically literate and can achieve their potential.

St Saviour's & St Olave's School

KS3 Curriculum for Mathematics

In KS3 our students secure and deepen their understanding and confidence with number work and calculations; Develop understanding of geometry with 2D shapes, 3D shapes and angle facts; Develop an understanding of algebra and progress into graphs and transformations; Practice and develop skills in fluency, reasoning mathematically and problem-solving; Be numerate and develop functional maths skills; Experience a diverse and inclusive education; Explore enrichment opportunities; and enjoy and feel confident in maths.

	Half-term 1	Half-term 2	Half-term 3	Half-term 4	Half-term 5	Half-term 6
Year 7	Unit 1: Analysing and displaying data	Unit 3: Expressions, functions and formulae	Unit 5: Fractions	Unit 7: Ratio and proportion	...cont. Unit 8: Lines and angles	...cont. Unit 10: Transformations
	PROJECT: Black Heroes of Mathematics	Unit 4: Decimals and measures	Unit 6: Probability	Unit 8: Lines and angles	Unit 9: Sequences and graphs	Revision for EOY Exam
	Unit 2: Number skills				Unit 10: Transformations	Review of the Year
Year 8	Unit 1: Number	Unit 3: Statistics, graphs and charts	Unit 5: Real-life graphs	cont. Unit 7: Lines and angles	Unit 10: Percentages, decimals and fractions	Revision for EOY Exam
	Unit 2: Area and volume	Unit 4: Expressions and equations	Unit 6: Decimals and ratio	Unit 8: Calculating with fractions	Revision for EOY Exam	Review of the Year
	PROJECT: Windrush			Unit 9: Straight-line graphs		
Year 9	Ch 1: Basic Number	cont. Ch 2: Fractions, Ratio & Proportion	cont. Ch 4: Number & Sequences	cont. Ch 5: Ratio & Proportion	cont. Ch 7: Transformations, construction & Loci	Revision for EOY Exams
	Ch 2: Fractions, Ratio & Proportion	Ch 3: Statistical diagrams & averages	Ch 5: Ratio & Proportion	Ch 6: Angles	Ch 8: Algebraic manipulation	Ch 8: Algebraic manipulation
		Ch 4: Number & Sequences		Ch 7: Transformations, construction & Loci		Review of the Year

KS4 Curriculum for GCSE Mathematics

In KS4 our students must study GCSE Mathematics as a compulsory subject. Maths is for everyone. It is diverse, engaging and essential in equipping students with the right skills to reach their future destination, whatever that may be. Maths is a core subject at school, which we must all study at least up to GCSE level. But maths is so much more than just a compulsory subject – the career possibilities can be endless. The course explains mathematical ideas from work related to students' everyday experience of the world. It aims to present mathematics in an imaginative, attractive way that brings the subject to life and places mathematics in context to demonstrate its relevance to everyday life.

	Half-term 1	**Half-term 2**	**Half-term 3**	**Half-term 4**	**Half-term 5**	**Half-term 6**
Year 10	Ch 8: Algebraic manipulation	Ch 10: Linear graphs	Ch 12: Similarity	Ch 14: Powers & standard from	Ch 16: Counting, accuracy, powers & surds	cont. Ch 17: Quadratic equations
	Ch 9: Length, area & volume	Ch 11: Right-angled triangles	Ch 13: Exploring & applying probability	Ch 15: Equations & Inequalities	Ch 17: Quadratic equations	Ch 18: Sampling & more complex diagrams
Year 11	Ch 18: Sampling & more complex diagrams	cont. Ch 20: Properties of Circles	cont. Ch 23: Graphs	Revision for Mock Exam	Revision for GCSE Exam	
	Ch 19: Combined events	Ch 21: Variation	Ch 24: Algebraic fractions & functions	MOCK EXAM WEEK	PUBLIC EXAMS	
	Ch 20: Properties of Circles	Ch 22: Triangles	Ch 25: Vector Geometry	Revision for GCSE Exam		
		Ch 23: Graphs				

KS5 Curriculum for A-Level Mathematics

In our sixth form our students use and appreciate the application of mathematics in solving a wide variety of real-life problems; we would like our students to have a strong foundation in basic concepts and be able to reason mathematically. Our aim is to show students how Mathematics is used in the real world through modelling and problem solving. Furthermore, we solve quite complicated problems by using mathematical arguments and logic. Our students will also have to understand and demonstrate what is meant by proof in mathematics. Last but not least, we teach our students to use calculator technology and other resources effectively and appropriately; understand limitations and when it is inappropriate to use such technology.

Exam board: EDEXCEL

Units we offer: Pure Maths 1, Pure Maths 2, Applied Maths 1, Applied Maths 2- these are all compulsory for a full A level qualification.

	Half-term 1	**Half-term 2**	**Half-term 3**	**Half-term 4**	**Half-term 5**	**Half-term 6**
Year 12	Pure Maths: Algebraic Expressions Equations Coordinate Geometry	Pure Maths: Algebraic Methods Trigonometry Vectors	Pure Maths: Differentiation Integration	Pure Maths: Exponential Logarithms	Pure Maths: AS content Revision	Pure Maths: Proof by contradiction Partial Fractions Functions and Graphs
	Applied Maths: Data collection and representation. Correlation. Probability.	Applied Maths: Statistical distributions. Hypothesis testing.	Applied Maths: Modelling in Mechanics Constant Acceleration	Applied Maths: Forces and motion Variable Acceleration	Applied Maths: AS content revision	Applied Maths: Regression, correlation and hypothesis testing.
Year 13	Pure Maths: Sequences and Series Binomial expansion Trigonometry	Pure Maths: Parametric equations Differentiation Product rule Chain rule Quotient rule	Pure Maths: Second derivatives Numerical methods	Pure Maths: Integration Vectors	Pure Maths: A Level content revision and exams	
	Applied Maths: Conditional probability The normal distribution	Applied Maths: Moments Forces and friction	Applied Maths: Projectiles Application of forces	Applied Maths: Vectors in kinematics Variable acceleration in one dimension.	Applied Maths: A level content revision and exams	

KS5 Curriculum for A-Level Further Mathematics

In our sixth form our students study A level further maths to prepare for a degree in Engineering, Physics, Mathematics and other similar courses. Many university maths departments encourage students to take Further Mathematics at A level as it introduces a wider range of pure and applied content, such as matrices and complex numbers. Students who have studied Further Mathematics often find the transition to university far more straightforward.

Exam board: EDEXCEL

Units we offer: Core Pure 1, Core Pure 2, Further Stats 1, Further Stats 2- these are all compulsory for a full A level qualification.

	Half-term 1	**Half-term 2**	**Half-term 3**	**Half-term 4**	**Half-term 5**	**Half-term 6**
Year 12	Core Pure: Complex numbers Argand diagram	Core Pure: Series Roots of polynomials	Core Pure: Volumes of revolution Matrices	Core Pure: Linear transformations Proof by induction.	Core Pure: Vectors. AS content revision	Core Pure: Complex numbers Series
	Further Stats: Discrete Random Variables Poisson distribution	Further Stats: Geometric and negative binomial distribution Hypothesis testing	Further Stats: Central limit theorem Chi-squared tests	Further Stats: Probability generating functions Quality of tests	Further Stats: AS content revision	Further Stats: Linear Regression Correlation
Year 13	Core Pure: Methods in calculus	Core Pure: Volumes of revolution Polar coordinates	Core Pure: Hyperbolic functions	Core Pure: Methods in differential equations Modelling with differential equations	Core Pure: A level content revision Exams	
	Further Stats: Continuous distributions Combinations of random variables	Further Stats: Estimation, confidence intervals and tests using a normal distribution	Further Stats: Further hypothesis tests	Further Stats: Confidence intervals using the t-distribution	Further Stats: A level content revision Exams	