

Mathematics

The Mathematics curriculum at Ark Soane aims to ensure that students are better able to understand and engage with the world around them. A Mastery curriculum means students acquire a deep, long-term, secure and adaptable understanding of the subject. It provides students with the knowledge to take an unfamiliar situation and make sense of it mathematically. Students will be expected to ask questions, explain ideas, be systematic and organised in their thinking, spot patterns, and use logic.

At the heart of what students will learn will be problem solving. Key concepts and representations will be repeatedly revisited through the years as students build and develop their conceptual understanding with multiple representations and common structures allowing students to link concepts together and make connections. Quick and efficient recall of knowledge will allow students the flexibility to move between different contexts and representations of mathematics. We will always start with ensuring that the basics are secure then draw attention to critical aspects to develop a deeper understanding. Students will be explicitly shown connections and relationships to transition from novice learners to expert.

Students will be exposed to all strands of Maths through their time at Soane (Number, Algebra, Geometry, Ratio and Proportion and Probability and Statistics). These strands will be explicitly interleaved through the years so that students are able to see the subject as whole rather than seeing the different areas of Maths as separate elements. At GCSE, students will follow the Edexcel course.

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 7	Making generalisations about the number system 1	Making generalisations about the number system 2	2-D Geometry	The cartesian plane	Fractions	Ratio and Proportion
Year 8	Equations and inequalities	Graphical representations	Proportional reasoning	Representations and reasoning with data	Angles	Area, volume, and surface area
Year 9	Probability	Linear simultaneous equations	Geometry of triangles	Ratio and proportion	Quadratics	Reasoning with number
Year 10	Working with number – indices, roots, standard form, Expressions and Formulae	Displaying data, fractions, decimals and percentages,	Equations and inequalities, sequences, simultaneous equations	Working with data, probability perimeter, area, volume	Graphs, transformations, ratio and proportion, multiplicative reasoning	Right-angled triangles, plans and elevations, constructions
Year 11	Quadratics equations, circles, cylinders, cones and spheres	Vectors, similarity and congruence	Rearranging equations, graphs of cubic and reciprocal functions	Revision	Revision	Revision
Year 12*	Proof, Algebra and functions	Coordinate geometry in the (x,y) plane, sequences and series	Trigonometry, exponentials and logarithms, Statistical sampling	Differentiation, Data presentation and interpretation	Integration, Probability	Numerical methods, Statistical distributions
Year 13*	Statistical hypothesis testing, quantities and units in mechanics	Vectors Kinematics	Forces and Newtons law, Moments	Revision	Examinations	

