

St Mary's CE High School Curriculum Map 2022-23



Subject: Mathematics Higher tier

Year: 10

Mathematics is an interconnected subject in which students need to be able to move fluently between representations of mathematical ideas. The programme of study is organised into apparently distinct domains, but students should build on key stage 3 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 curriculum is taught through the mathematical strands of: Number and Ratio, Algebra, Geometry and Measures, Statistics and Probability

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
CONTENT <i>Declarative / core / powerful Knowledge – 'Know What'</i>	Solve quadratics Functions Algebraic Fractions	Surds Percentage Growth and Decay	Iteration 3D Trigonometry Construction and Loci Congruency	3D Shape	Advanced Statistics	Similarity and Non Right Angled Trigonometry
Intent	These topics will allow students to problem solve with situations involving quadratics	Answers as surds will start to appear more frequently now that more complex material is starting to be explored. Being familiar with surds early will open up working with these in future topics.	Topics involving the use of compass constructions are placed together to allow students to practice the key skills before employing them to loci problems	Having studied 3d Pythagoras and trigonometry earlier in the year, students have the skills to find surface areas and volumes of 3D shapes with missing information	After some recapping of averages, students will be able to extend their understanding of representing data with new graphs.	Having studied volumes and surface areas in the previous half term, students will now have the opportunity to study the effects of scaling the lengths of a shape/solid on the shapes area/volume.
Skills <i>Procedural Knowledge – 'Know How'</i>	Students will be able to: Solve complex linear equations Rearrange formula Solve complex linear simultaneous equations	Students will be able to: Convert recurring decimals to fractions Use surds in different contexts	Students will be able to: Construct key diagrams using a pair of compasses Use constructions to solve loci problems	Students will be able to: Draw the nets of 3d shapes Find the surface area of prisms, cones, pyramids and spheres	Students will be able to: Find the averages from grouped frequency tables Use interquartile range and apply to box plots	Students will be able to: Use the four transformations on shapes and make conclusions about combined transformations

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	that covers all the content taught within the half term.	that covers all the content taught within the half term.	that covers all the content taught within the half term.	that covers all the content taught within the half term.	that covers all the content taught within the half term.	that covers all the content taught within the half term.
Links to careers/wider world			Science modelling Astronomy	Architecture City planning Calculating capacities of objects	Understanding and interpreting "real world" statistics	Understanding that x2 8 inch pizzas are not the same size as x1 16 inch pizza