Curriculum Overview – Mathematics

2020-21

Why is the study of Mathematics important?

Mathematics plays a vital role all aspects of life, providing a broad range of skills in problem solving, analytical thinking and reasoning abilities.

Our curriculum is carefully designed to ensure that all students get a firm grounding in the basic rules of number. At KS3 we adopt a mastery approach to develop fluency to consolidate numerical and mathematical capability. This mastery approach develops more confident mathematicians as students move through the curriculum.

At KS4, pupils expand on their knowledge and skills gained at KS3. Either following the Foundation or Mathematics pathways.

The purpose of Mathematics teaching at All Saints is to inspire all pupils through the beauty of Mathematics, be excellent by being fluent with in the fundamentals of Mathematics and succeed with understanding of Mathematics knowledge through an approach in which pupils raise questions and investigate the world in which they live.

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What skills will you gain from Mathematics?

Develop fluency

- Consolidate their numerical and mathematical capability from key stage 2 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.

Reason mathematically

- Make and test conjectures about patterns and relationships; look for proofs or counter-examples.
- Interpret when the structure of a numerical problem requires additive, multiplicative or proportional reasoning.

Problem solving

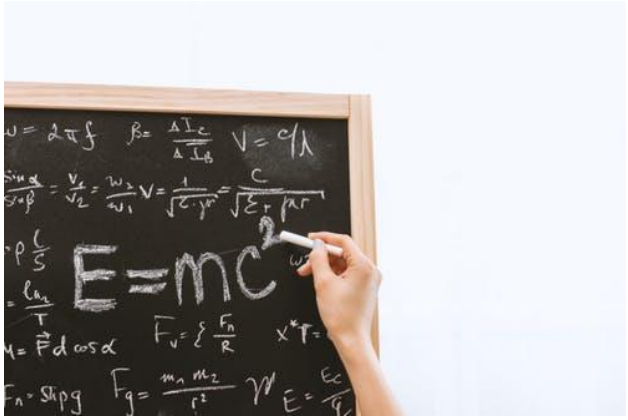
- Develop their mathematical knowledge, in part through solving problems and evaluating the outcomes, including multi-step problems.
- Begin to model situations mathematically and express the results using a range of formal mathematical representations.

"Our curriculum will be structured so that no pupil is prevented from pursuing a course or programme based on their gender, ability, ethnicity, religion or sexual orientation. Pupils with disabilities or special educational needs will, as far as is possible, be provided with reasonable adjustments to enable them to access an ambitious and relevant curriculum."

What knowledge will you gain from the study of Mathematics?

Student will gain knowledge of the following strands over the course of their time at All Saints. All will be underpinned with fluency, reasoning and problem solving.

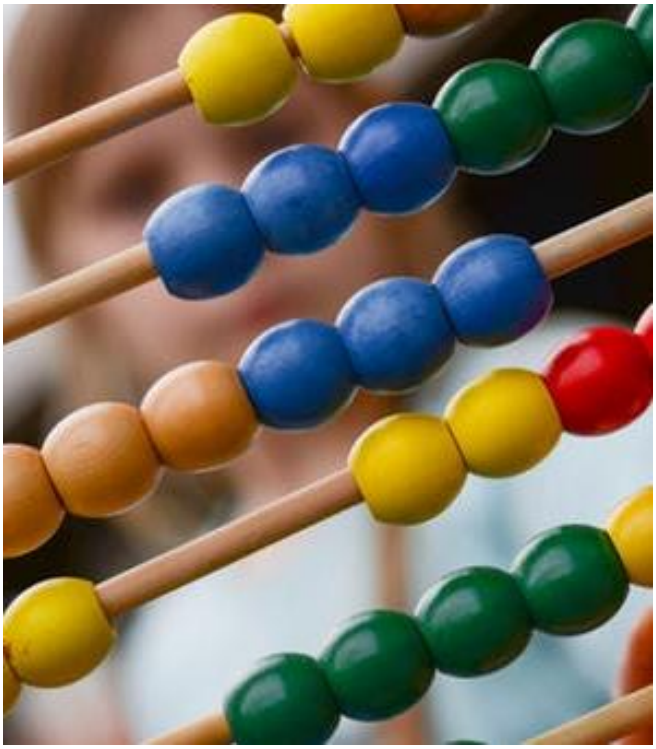
- Number
- Algebra
- Shape and space
- Ratio and Proportion
- Probability and Statistics



How does Mathematics help you in other subject areas?

Mathematics is universal and vital to all other subject areas, our mastery curriculum allows the transference of knowledge and skills from one topic of learning to another.

- Mathematics touches on many other subjects such as Geography and Science, any subject that analyses data, looks at trends, uses formulae. Computer Science is a subject that uses the algorithmic approach that many topics in mathematics also use. There are opportunities to explore the links between science, engineering and mathematics departments in STEM activities.
- Teachers communicate with each other in these subjects to ensure that pupils are taught the same methods in all subjects and that content is delivered in a sensible order.



What can you do to deepen your knowledge and skills of Mathematics?

To develop a further understanding on Mathematics pupils can:

- Use Hegarty Maths in order to further knowledge of topics that are not yet secure.
- Use a revision guide and other online resources to embed knowledge such as formulas and key terms
- Practice Mathematic skills in everyday life.

How are you assessed in Mathematics?

At **KS3**, students are assessed using the school system of

- Not yet accessing
- Emerging
- Developing
- Secure

At **KS4** students are graded 1-9 on GCSE Assessments. This is three equally weighted exam papers: one calculator, two calculator.

- Foundation (Grade 1-5)
- Higher (Grade 3-9)

Students complete a mastery assessment on one of the 5 Mathematical strands (or a mixture). These are marked by the teacher; then pupils are given a chance to recap over topics they are not yet secure on. Once a week pupils complete a skills check, which is a mixture of all the previous topics to ensure recall and retention.

How can *Mathematics* help you in your future?

The goal is for students to be literate in mathematics so that we can prepare them for a world where the subject is rapidly growing and is extensively applied to a diverse number of fields.

Mathematics develops the analytical skills to process information and support decision making in a variety of contexts and applications.

All careers require an understanding of Mathematics, numeracy and problem solving.

Mathematics is vital to our everyday access to life. We use maths so frequently that we barely think about it and when that happens it comes from an excellent foundation of the skills in maths and the further exploration across the curriculum at Key Stages 3 and 4.

INSERT SUBJECT – Curriculum Maps

Key: ------ = half-term

Year 7:

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Topics	Data	Data	Data	Calculations	Calculations	Calculations	Calculations	Calculations
	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16
Topics	Algebra	Algebra	Algebra	Decimals	Decimals	Decimals	Decimals	Fractions
	Week 17	**Week 18**	**Week 19**	**Week 20**	**Week 21**	**Week 22**	**Week 23**	**Week 24**
Topics	Fractions	Fractions	Multiplicative reasoning	Multiplicative reasoning	Multiplicative reasoning	Angles	Angles	Angles
	Week 25	**Week 26**	**Week 27**	**Week 28**	**Week 29**	**Week 30**	**Week 31**	**Week 32**
Topics	Equations/ graphs	Equations/ graphs	Equations/ graphs	Shape	Shape	Shape	Transformations	
	Week 33	**Week 34**	**Week 35**	**Week 36**	**Week 37**	**Week 38**	**Week 39**	
Topics	Fractions, decimals and percentages	Fractions, decimals and percentages	Probability and statistics	Probability and statistics	Probability and statistics	End of year assessments	End of year assessments	

Year 8:

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Topics	Number properties	Number properties	Number properties	Number properties	Shape	Shape	Shape	Shape
	Week 9	**Week 10**	**Week 11**	**Week 12**	**Week 13**	**Week 14**	**Week 15**	**Week 16**
Topics	Algebra and graphs	Algebra and graphs	Algebra and graphs	Algebra and graphs	Algebra and graphs	Algebra and graphs	Decimals	Decimals
	Week 17	**Week 18**	**Week 19**	**Week 20**	**Week 21**	**Week 22**	**Week 23**	**Week 24**
Topics	Decimals	Decimals	Angles	Angles	Angles	Number	Number	Number
	Week 25	**Week 26**	**Week 27**	**Week 28**	**Week 29**	**Week 30**	**Week 31**	**Week 32**
Topics	Number	Number	Number	Sequences and graphs	Sequences and graphs	Sequences and graphs	Fractions, decimals and percentages	Fractions, decimals and percentages
	Week 33	**Week 34**	**Week 35**	**Week 36**	**Week 37**	**Week 38**	**Week 39**	
Topics	Fractions, decimals and percentages	Fractions, decimals and percentages	Probability and statistics	Probability and statistics	Probability and statistics	End of year assessments	End of year assessments	

Year 9: Higher

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Topics	Basic calculation skills		Whole number theory		Algebraic expressions			
	Week 9	**Week 10**	**Week 11**	**Week 12**	**Week 13**	**Week 14**	**Week 15**	**Week 16**
Topics	Functions and sequences		Properties of shapes and solids		Construction and loci			Further algebraic expressions
	Week 17	**Week 18**	**Week 19**	**Week 20**	**Week 21**	**Week 22**	**Week 23**	**Week 24**
Topics	Further algebraic expressions		Equations			Angles		
	Week 25	**Week 26**	**Week 27**	**Week 28**	**Week 29**	**Week 30**	**Week 31**	**Week 32**
Topics	Fractions			Decimals			Units and measurement	
	Week 33	**Week 34**	**Week 35**	**Week 36**	**Week 37**	**Week 38**	**Week 39**	
Topics	Percentages	Percentages		Algebraic formulae		**End of Year Assessment**		

Year 9: Foundation

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Topics	Basic calculation skills				Whole number theory			
	Week 9	**Week 10**	**Week 11**	**Week 12**	**Week 13**	**Week 14**	**Week 15**	**Week 16**
Topics	Algebraic expressions				Functions and sequences			Properties of shapes and solids
	Week 17	**Week 18**	**Week 19**	**Week 20**	**Week 21**	**Week 22**	**Week 23**	**Week 24**
Topics	Properties of shapes and solids	Construction and loci		Further algebraic expressions		Equations		
	Week 25	**Week 26**	**Week 27**	**Week 28**	**Week 29**	**Week 30**	**Week 31**	**Week 32**
Topics	Angles			Fractions			Decimals	
	Week 33	**Week 34**	**Week 35**	**Week 36**	**Week 37**	**Week 38**	**Week 39**	
Topics	Decimals	Units and measurement		Percentages		**End of Year Assesment**		

Year 10: Higher

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Topics	Basic calculation skills	Whole number theory	Algebraic expressions	Functions and sequences	Properties of shapes and solids	Construction and loci	Further algebraic expressions	
	Week 9	**Week 10**	**Week 11**	**Week 12**	**Week 13**	**Week 14**	**Week 15**	**Week 16**
Topics	Equations			Angles		Fractions		Decimals
	Week 17	**Week 18**	**Week 19**	**Week 20**	**Week 21**	**Week 22**	**Week 23**	**Week 24**
Topics	Units and measurement		Percentages	Algebraic formulae		Perimeter	Area	Approximation and estimation
	Week 25	**Week 26**	**Week 27**	**Week 28**	**Week 29**	**Week 30**	**Week 31**	**Week 32**
Topics	Straight-line graphs	Graphs of equations and functions		Three-dimensional shapes	Volume and surface area	Calculations with ratio	Basic probability and experiments	Combined events and probability diagrams
	Week 33	**Week 34**	**Week 35**	**Week 36**	**Week 37**	**Week 38**	**Week 39**	
Topics	Powers and roots	Standard form	Surds		Plane vector geometry	**End of Unit Assessment**		

Year 10: Foundation

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Topics	Basic calculation skills		Whole number theory		Algebraic expressions		Functions and sequences	
	Week 9	**Week 10**	**Week 11**	**Week 12**	**Week 13**	**Week 14**	**Week 15**	**Week 16**
Topics	Properties of shapes and solids		Construction and loci		Further algebraic expressions			Equations
	Week 17	**Week 18**	**Week 19**	**Week 20**	**Week 21**	**Week 22**	**Week 23**	**Week 24**
Topics	Equations	Angles		Fractions		Decimals	Units and measurement	
	Week 25	**Week 26**	**Week 27**	**Week 28**	**Week 29**	**Week 30**	**Week 31**	**Week 32**
Topics	Percentages	Algebraic formulae		Perimeter	Area		Approximation and estimation	Straight-line graphs
	Week 33	**Week 34**	**Week 35**	**Week 36**	**Week 37**	**Week 38**	**Week 39**	
Topics	Graphs of equations and functions	Three-dimensional shapes		Volume and surface area		**End of Unit Assessment**		

Year 11: Higher

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Topics	Basic calculation skills. Whole number theory	Algebraic expressions Functions and sequences	Properties of shapes and solids. Construction and loci	Further algebraic expressions	Equations	Angles	Fractions. Decimals	Units and measurement
	Week 9	**Week 10**	**Week 11**	**Week 12**	**Week 13**	**Week 14**	**Week 15**	**Week 16**
Topics	Percentages	Algebraic formulae	Perimeter. Area.	Approximation and estimation	Straight-line graphs	Graphs of equations and functions	Three-dimensional shapes. Volume and surface area	Calculations with ratio
	Week 17	**Week 18**	**Week 19**	**Week 20**	**Week 21**	**Week 22**	**Week 23**	**Week 24**
Topics	Combined events and probability diagrams	Powers and roots	Standard form. Surds	Plane vector geometry	Plane isometric transformations Congruent triangles	Similarity	Pythagoras' theorem	Trigonometry
	Week 25	**Week 26**	**Week 27**	**Week 28**	**Week 29**	**Week 30**	**Week 31**	**Week 32**
Topics	Circle theorems	Discrete growth and decay	Direct and inverse proportion	Collecting and displaying data. Analysing data	Interpreting graphs	Algebraic inequalities	Transformations of curves and their equations	**Revision**
	Week 33	**Week 34**	**Week 35**	**Week 36**	**Week 37**	**Week 38**	**Week 39**	
Topics	**Revision**							

Year 11: Foundation

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Topics	Basic calculation skills	Whole number theory	Algebraic expressions	Functions and sequences	Properties of shapes and solids. **Constructions and loci.**	Further algebraic expressions	Equations	Angles
	Week 9	**Week 10**	**Week 11**	**Week 12**	**Week 13**	**Week 14**	**Week 15**	**Week 16**
Topics	Fractions. Decimals	Units and measurement	Percentages	Algebraic formulae	Collecting and displaying data. Analysing data.	Perimeter and Area	Approximation and estimation	Straight-line graphs
	Week 17	**Week 18**	**Week 19**	**Week 20**	**Week 21**	**Week 22**	**Week 23**	**Week 24**
Topics	Graphs of equations and functions	Three-dimensional shapes	Volume and surface area	Calculations with ratio		Basic probability and experiments	Combined events and probability diagrams	Powers and roots
	Week 25	**Week 26**	**Week 27**	**Week 28**	**Week 29**	**Week 30**	**Week 31**	**Week 32**
Topics	Standard form	Plane vector geometry	Plane isometric transformations	Pythagoras' theorem	Direct and inverse proportion	Interpreting graphs	Algebraic inequalities	**Revision**
	Week 33	**Week 34**	**Week 35**	**Week 36**	**Week 37**	**Week 38**	**Week 39**	
Topics	**Revision**							

Additional Topics (F): Congruent triangles, Similarity, Trigonometry, Discrete growth and decay,

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