

Maths Key Stage 4 Curriculum



Curriculum Intent

The National Curriculum for Mathematics states that 'Mathematics is a creative and highly interconnected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems.' (National Curriculum 2014) Mathematics is not just a subject that we decided to teach, it is a subject that provides children with a set of skills to make the world we live in continue to adapt and develop. It is more than just learning basic facts, it is about mathematical reasoning, following lines of inquiry, making conjectures and generalisations, and investigating those generalisations. 'Becoming a proficient mathematician means working with all of the proficiencies – fluency, problem solving, reasoning and understanding' (Askew, M. 2012) and at Trinity St Edward's we aim for all our children to be given the opportunity to think deeply and ultimately access the breath of the national curriculum. This involves both us as teachers and our children having a growth mind-set, a knowledge and understanding about brain science and the determination and resilience to succeed in our subject. Our lessons will be challenging, and we aim to push children to think deeply every day, with sky-high expectations. We want our children to think, speak and act like Mathematicians, which means using the correct vocabulary and articulate their ideas. We aim to teach for understanding and through modelling and a rich choice of material and resources, ensure all our children develop a deep conceptual understanding.

- Breadth – covers the breadth of the national curriculum.
- Conceptual understanding – through modelling, action and focus, children will conceptually understand what they are learning.
- Challenge - We will use intelligent practice to develop fluency and encourage children to reason about the mathematics. Through this work, children will apply their knowledge to other problems.
- Mindset – All children will enjoy maths and know that they can achieve with hard work, resilience and a growth mindset

Overview

Year 10

In year 10 you will continue to study content from the 5 strands of maths: number, algebra, statistics, ratio and proportion and probability. All new content will be a continuation of what has already been taught enabling you to build on prior knowledge and extend this to new scenarios and problems. Examples of this are: trigonometry which will build on your prior knowledge of triangles and Pythagoras; simultaneous equations which require a deep understanding of equality and the application of this in solving equations; and bearings which uses the skill of drawing and measuring angles and applies this into a real-world setting.

Across the year you will be assessed twice, in December and April. These will be amended GCSE papers which will assess you on all the content you have been taught up to that point in the year.

Year 11

As with year 10, year 11 will continue to build on your prior knowledge delving deeper into each of the previously mentioned strands of maths. For example, higher students will extend on their knowledge of solving equations, substitution and linear graphs and begin to explore functions and transforming graphs, whilst those studying the foundation course will use their knowledge of multiplicative change and apply this to more complex formulaic proportion and apply all the work completed on expanding and factorising expressions to solving quadratic equations.

In year 11 you will complete 2 sets of mock exams in approximately November and November followed by your GCSE examinations which will begin in May.

Content

Year 10 - Foundation

Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Developing Algebra and Number	Proportional Reasoning	Developing Algebra and Number	Geometry and statistics	Delving into Data and Geometry	Developing Algebra and Geometry
<ul style="list-style-type: none">Algebra ManipulationRepresenting solutions of equations and inequalitiesPercentages	<ul style="list-style-type: none">Ratio and ScaleWorking with FractionsMock 1	<ul style="list-style-type: none">Straight Line GraphsProbabilityRounding and estimationFactors, powers and surds	<ul style="list-style-type: none">Non-calculator methodsPerimeter, area and volumeInterpreting and representing data	<ul style="list-style-type: none">AnglesMock 2Graphs and statistical diagrams	<ul style="list-style-type: none">Pythagoras and trigonometrySimultaneous equationsVectors

Year 10 - Higher

Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Developing Algebra	Proportional Reasoning and Number	Developing Number	Geometry and statistics	Delving into Data	Developing Algebra and Geometry

<ul style="list-style-type: none"> Representing solutions of equations and inequalities Quadratic expressions and equations 	<ul style="list-style-type: none"> Percentages Ratio and Scale Mock 1 	<ul style="list-style-type: none"> Working with fractions Probability Rounding and estimation Factors, powers and surds 	<ul style="list-style-type: none"> Perimeter, area and volume Interpreting and representing data Angles 	<ul style="list-style-type: none"> Graphs and statistical diagrams Mock 2 	<ul style="list-style-type: none"> Pythagoras and trigonometry Straight line graphs Simultaneous equations Non-calculator methods
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Year 11 - Foundation

Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Developing Algebra and Number	Proportional Reasoning and Number	Geometric Reasoning	Geometry and Algebraic Thinking	Statistics and Transformations	
<ul style="list-style-type: none"> Manipulating expressions Working with equations and solutions Indices and Roots 	<ul style="list-style-type: none"> Non-calculator methods Multiplicative Reasoning Mock 1 	<ul style="list-style-type: none"> Working with Angles Surface area and volume Gradients and lines 	<ul style="list-style-type: none"> Mock 2 Algebraic Reasoning Simultaneous Equations 	<ul style="list-style-type: none"> Recording data Probability Transformations Probability 	

Year 11 – Higher

Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Algebra and Graphs	Using Number and Graphs	Multiplicative Reasoning and Algebra	Geometry Reasoning and Statistics	Functions and Transformations	
<ul style="list-style-type: none"> Manipulating expressions Working with expression, equations and solutions 	<ul style="list-style-type: none"> Non-calculator methods Representing and interpreting data Mock 1 	<ul style="list-style-type: none"> Non-linear graphs Functions Probability Direct and inverse proportion 	<ul style="list-style-type: none"> Mock 2 Area and Volume Calculating with angles Circle Theorems 	<ul style="list-style-type: none"> Transformations Non-calculator methods Algebraic Reasoning 	

