English Martyrs' Catholic School

Mathematics Curriculum Statement

The school is committed to ensuring that all students become excellent mathematicians, competent in number and mathematical reasoning. To achieve this, the school provides a sequenced curriculum, appropriate to the needs of all students, enabling each person to build their knowledge and develop it across the term and over the years.

The Mathematics curriculum at English Martyrs' aims to develop young people who:

- enjoy their Mathematics lessons while feeling supported by their teacher
- secure positive destinations beyond school in careers involving mathematics
- take pride in their work by making sure it is of the highest standard every lesson
- understand how mathematics is experienced and applied in everyday life
- want to achieve highly.
- have a positive growth mindset and become resilient, confident and responsible citizens.

Our Mathematics curriculum provides opportunities for students to:

- become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language.
- can solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

How we deliver the curriculum

The curriculum is taught formally in lessons and learning is continued through homework and on-line blended learning which involves a number of web-based tools. Retrieval practice happens at the start of every lesson where students undertake a brief task which consolidates previously learned material. In addition, since 2021, all students in Year 7- 10 also have an additional timetabled session of mathematics work, twice each week, as part of the *A c c e l e r a t e* Programme. These sessions offer spaced retrieval practice and are led by a mathematics specialist. Below is a summary of key Teaching and Learning Principals adopted by Mathematics and taken from Rosenshine's Principals of Instruction.

Summary of The English Martyrs T&L Routines

Retrieval	- Teachers set a timer of 7 minutes - To be completed in silence and independently - Personalised to suit learner needs - Use English Martyrs Retrieval proforma or bell work template
Questioning	- Cold calling to be used for all questioning - No hands up - Questions are planned and pre-empted through planning - Responses must be in full sentences. Students encourges to say it again better with half formed answers. - Probing Questions to develop student understanding (p100)
Modelling	- Modelling is done through a visualiser, or one note only - Teachers use Rosenshine's 'I do, we do, you do' framework - Teachers use board = paper when modelling - Students write a subheading 'Worked Example' and highlight this
Practice	- Lasts a **minimum** of 15 minutes - Students write a subheading '**Practice**' and highlight this - Practice time is academically challenging. (Avoid repetitive questions where a learnt algorithm will get the answer - To be completed independently and in silence

Mathematics Plan and Overview for Years 7-11

Year	LPA	MPA	HPA	VHPA*
7	Stage 6	Stage 7	Stage 8	Stage 9
↓	↓	↓	↓	↓
8	Stage 7	Stage 8	Stage 9	Stage 10
↓	↓	↓	↓	↓
9	Stage 8	Stage 9	Stage 10	Stage 11
↓	↓	↓	↓	↓
10	Stage 10F	Stage 10	Stage 11	Further Maths
↓	↓	↓	↓	↓
11	Stage 11F	Stage 11	Further Maths	AS LEVEL
Approximate % of students	28%	45%	20%	<1%

Curriculum Overview

We have a 5-year curriculum plan for year Y7-11 which enables students to develop a rich knowledge base over time and apply this to increasingly demanding problem-solving tasks and investigations as well as enrichment activities.

All students are taught in ability sets. These sets are carefully constructed which internal baseline tests used along with KS2 Scaled scores.

The distinct topics in years 7 and 8 cover; **Number; Ratio and Proportion, Algebra, Geometry and Measures as well as Handling Data**. In Year 7 and 8, KS3 students are given the opportunity to explore, problem solve and reason through mathematical investigation. The programmes of studies are closely linked to Edexcel GCSE from Year 9 in order to ensure that students and families understand the nature and requirement of public examination study.

In years 9 to 11 students will be given the opportunity to build upon the work completed during Year 7 & 8, ensuring that students can find links between different topics and solve problems using a range of skills. Learning is developed and extended across Number, Ratio and Proportion, Algebra, Geometry and Measures and Handling Data. Students will learn how mathematics can be used outside of the classroom and they will gain problem-solving skills that can be used across school.

Detailed Outline of Mathematics Curriculum across year 7, 8 and 9

Stage 6	Stage 7	Stage 8	Stage 9
7LPA	7MPA, 8LPA	7HPA, 8MPA, 9LPA	8HPA, 9MPA,
Number System S6	Number System 1 S7	Number System 1 S8	Indices 1 S9 / 10F
Number System S6	Number System 1 S7	Number System 1 S8	Standard Form S9 / 10F
Calculating 1 S6	Number System 2 S7	Calculating S8	Sequences 1 S9 / 10F
Calculating 2 S6	Calculating 1 S7	Algebra 1 S8	Constructions 1 S9 / 10F
Algebra 1 S6	Calculating 1 S7	Algebra 1 S8	Pythagoras 2 S9
Algebra 1 S6	Coordinates & Graphs 1 S7	Pythagoras 1	Trigonometry 1
Test	Test	Test	Test
Half term	Half term	Half term	Half term
FDP 1 S6	Algebra 1 S7	Geometry 1 S8	Similarity & Congruence 1 S9/10F
FDP 1 S6	Algebra 1 S7	Geometry 1 S8	Revise Angles (2 lessons)
Shape 1 S6	Shape S7	FDP 1 S8	Circle Theorems 1
Sequences 1 S6	Sequences 1 S7	Sequences 1 S8	FDP 1 S9 Reverse and compound %
Constructions 1 S6	Constructions 1 S7	Constructions 1 S8	Probablility 2 Stage 9/10F
Constructions 1 S6	Constructions 1 S7	Constructions 1 S8	Algebra 1 S9/ 2 10F (2 brackets 1)
Test	Test	Test	Test
Probability S6	FDP 1 S7	Ratio and Proportion S8	Algebra 1 S9/ 2 10F (2 brackets 1)
Review	Review	Review	Rounding and Estimation S9/10F
Christmas Christmas	Christmas Christmas	Christmas Christmas	Christmas Christmas
Proportion S6	Probability S7	FDP 2 S8	Measures S9 / 10F
Measures S6	Proportion S7	FDP 2 S8	Coord & Graphs 1 S9 y=mx+c
Measures S6	Measures S7	Probability S8	Coord & Graphs 1 S9 y=mx+c
Geometry 1 S6	Geometry 1 S7	Area and Volume 1 S8	Simultaneous equations 1
Test	Test	Test	Test
Statistics 1 S6	Statistics 1 S7	Area and Volume 1 S8	Simultaneous equations 1
Statistics 1 S6	Statistics 1 S7	Statistics 1 S8	Inequalities 1
Half term	Half term	Half term	Half term
Checking and Est S6	Checking & Est S7	Statistics 1 S8	**Statistics 1 Stage 9**
FDP 2 S6	FDP 2 S7	Measures S8	**Statistics 1 Stage 9**
FDP 2 S6	FDP 2 S7	Coordinates and Graphs 1 S8	**Factorise 2 brackets 2**
Coordinates and Graphs 1 S6	FDP 2 S7	Coordinates and Graphs 1 S8	**Factorise 2 brackets 2**
Algebra 2 S6	Algebra 2 S7	Algebra 2 S8	Coord & Graphs 2 S9/10F (Real Life)
Algebra 2 S6	Algebra 2 S7	Algebra 2 S8	Coord & Graphs 2 S9/10F (Quads)
Easter Easter	Easter Easter	Easter Easter	Easter Easter
Area and Perimeter S6	Area and Volume S7	FDP 3 S8	Circumference and Area 2 Stage 9 /10
Area and Perimeter S6	Area and Volume S7	FDP 3 S8	Ratio & Proportion S9 / 10F
Transformations S6	Transformations S7	Transformations S8	Constructions 1 S9 / 10F
Transformations S6	**Y8 Exam. Other Years Teach through**		
Half term	Half term	Half term	Half term
Shape 2 S6	Transformations S7	Shape Stage 8 / 10F	Bearings
Statistics 2 S6	Statistics 2 S7	Statistics 2 S8	Trigonometry 2
Statistics 2 S6	Statistics 2 S7	Statistics 2 S8	Trigonometry 2
Test	Test	Test	Test
Year 7 Knowledge	Year 7 Knowledge	Review	Review
Activities Week	Activities Week	Activities Week	Activities Week

Assessment Structure

The principal is that the minimum requirement for a year 6 is to follow the stage 6 curriculum and is aimed at students who were not secure in their Math's SATS.

Stage 7 therefore represents the level of work required any Middle AttainingYear 7 to go on and achieve GCSE successfully (Grade 5+) at Higher Tier in Year 11. The scheme of work provides opportunity for topics to be taught in depth with links to NRICH enrichment activities and problem solving activities designed through various Maths Hubs.

Basic Skills Tests

Basic skills tests should normally be done weekly and students should progress through a full set of these in an Academic year. The goal is to improve on the previous weeks score and whilst we record these, they are "Low Stakes" and serve as a regular form of retrieval practice.

Synoptic Tests

These tests are completed once every half term and contribute 70% towards a student's current working at Grade. This then informs teachers about current progress and allows for an Accurate Assessment grade to be predicted.

Mathematicians (Enrichment)

It is important to keep Mathematics "rich" in schools and that we share a history about famous mathematicians through time. Students should develop a broader perspective about mathematics and its origins such as Johann Rahn inventing the "Therefore" symbol and the divide sign. These examples are peppered throughout the Scheme of work and should be shared with all students at every opportunity.

GCSE

In year 10 students will sit two Trial exams in full test conditions, they will be examined on content taught from year 7 to 10. A final decision on Tier entry will be made at the end of year 10.

In year 11, students will complete two full sets of mock exam papers in the exam hall under full test conditions. Year 11 students are given a fines level grade which is their Actual GCSE grade followed by a security grade A, B or C. This will indicate how secure the student is in that grade and will allow staff to ensure that appropriate intervention is put in place early on.

In the summer of Year 11 students will be entered for either the Edexcel Foundation tier or Higher tier.

Students will complete 3 papers: 1 Non Calculator and 2 Calculator papers.

Each paper is 1hour 30 minutes long.

Intervention

The mathematics department are committed to ensuring that every student achieves their best. We want to ensure that no child is left disadvantaged academically due to COVID-19 therefore we have invested to two Mathematics tutors who will work with students who have fallen behind and need help to catch up. These Academic tutors will work primarily with disadvantaged students.

Literacy

Students are encouraged to write in full sentences when doing any problem solving or reasoning questions. Key words are introduced gradually with students encouraged to write full definitions in their exercise books. Students are tested weekly on spelling of key words and are required to write summary paragraphs at the end of each unit of work to summarise what they have learned. Students are also expected to answer in full sentences using key words.