KS4 Long Term Plan
Subject: Maths (Higher and Fdn)
Exam Board: Edexcel

Curriculum Statement of Intent Maths

We believe that students deserve a creative and ambitious mathematics curriculum, rich in skills and knowledge, which ignites curiosity and prepares them well for everyday life and future employment.

Our mathematics curriculum at KS4 is broad and balanced and intended to cater for the needs of all our students with topics ranging from grade 1 (for the lowest attainers) to grade 9 (for our most able students). The curriculum allows for choice and flexibility in topics and it can be differentiated at every level. We aim to equip students with the foundations of mathematical skills at KS3 and build on them and extend at KS4 thus allowing students to apply their knowledge in more challenging problems and secure the best grades they are capable of at GCSE. We also offer an additional qualification in Year 11 for our highest achievers which provides students with a broader understanding of the fundamental concepts in maths beyond the GCSE standard curriculum.

Our maths curriculum will enable students of all abilities to:

- become fluent in the fundamentals of mathematics, 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.

- 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 preserving in seeking solutions.

- communicate, justify, argue and prove using mathematical vocabulary.

- develop their character, including resilience, confidence and independence, so that they contribute positively to the life of the school, their local community and the wider environment.

A high-quality mathematics education will therefore provide a foundation for mathematical reasoning, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject. Our students will be very well prepared for future studies at A Level, further education and higher education as well as essential skills for employment and apprenticeships.

Curriculum Statement of Implementation

In year 10 the GCSE mathematics curriculum is studied at a slower pace with the focus on exam practice and interleaving in every lesson. Where possible our pedagogy is underpinned by mastery approach to the teaching of mathematics for understanding, rather than a repetition of the process. We design our curriculum basing future teaching on the building blocks taught previously, so that students can easily form the links between different topics.

Concepts are broken down into small connected and structured steps and linked with different areas of mathematics, so that students can see it as a whole subject. There is a lot of emphasis on multi-steps, challenging problems and training students to work towards getting credit in every question.

Homework supports and further consolidates the learning that happens in class. It is set twice a week: online and written, and it is always interleaved (approximately 60% current content and 40% previously taught content), which allows students to constantly revise different aspects of the course.

The blue assessment booklets enable students to easily locate the relevant Dr Frost clip for any topics they have not fully understood in class and evaluate their homework tasks and identify areas they need to study further independently. At the end of each unit, students reflect on the content they have covered and identify topics they have struggled with and / or need to work on during their independent work. At least once a half term, students will be required to complete an independent homework task on weak topics identified and will be required to provide evidence of their work. This is to best prepare them for Year 11 where this process will be embedded in their practice. After each assessment students will complete a personalised question level analysis and from this will have another piece of independent work set based on topics they did not get full marks in.

In year 10 – teachers plan in collaboration to ensure consistency in approach. Each lesson starts with a mini-test or skills check, so that students get used to regular, low-stake testing. Starters focusses are allocated in the scheme of work ensuring time is given to a combination of interleaved and retrieval practice.

Students in St Paul's love maths as they know they are getting the highest quality mathematical education in class and they aspire to achieve the best possible grades in it.

FOUNDATION

Term	Topics Covered (Date completed by and number of lessons)	Skills/AOs/interleaved content	Assessment (date and nature of assessment)
Yr 10 Autumn 1	Decimals Percentages and Fractions (12 lessons) Rounding and Accuracy (6 lessons) Ratio and proportion (10 lessons) Types of Numbers, Powers and Standard Form (8 lessons)	Area, Perimeter, Equations, Inequalities, properties of shapes.	**N/A**
Yr 10 Autumn 2	Types of Numbers, Powers and Standard Form (8 lessons) Expressions, Sequences and Compound Measures (8 lessons) Probability (6 lessons)	Using mathematical equipment, substitution, drawing straight line graphs, data, averages	**YEAR 10 W/C 22/11 Non-Calculator and Calculator 40 minutes each**
Yr 10 Spring 1	Expanding brackets and factorising (6 lessons) Area perimeter surface area and volume (12 lessons) Angles (8 lessons)	Averages and spread, fractions, rounding.	
Yr 10 Spring 2	Equations and inequalities (8 lessons) Shape, transformations and similarity (6 lessons) Symmetry constructions and loci (4 lessons)	Ratio, proportion, HCF, LCM and Prime factors, standard form, SDT	**Dr Frost self marked non-calculator paper Calculator paper 40 minutes**
Yr 10 Summer 1	Straight line graphs (6 lessons) Displaying and interpreting data (6 lessons)	Forming expressions and equations, expanding brackets	**Y10 Mocks 1 x 1.5 hour Non-Calculator 1 x 1.5 hour Calculator**
Yr 10 Summer 2	Averages and Spread (6 lessons) Trig and Pythag (8 lessons) Quadratics (4 lessons)	Factorising, basic angles, parallel lines, volume	

HIGHER

Term	Topics Covered (Date completed by and number of lessons)	Skills/AOs/interleaved content	Assessment (date and nature of assessment)
Yr 10 Autumn 1	Percentages, Fractions, Decimals and Accuracy (12 lessons) Ratio and Proportion (10 lessons) Expressions, Sequences, Formulae and Compound Measures (10 lessons)	Equations, Inequalities and Functions Transformations, Similarity, Constructions, Loci and Vectors Straight Line Graphs	
Yr 10 Autumn 2	Types of Numbers, Powers, SF and Surds (8 lessons) Probability (8 lessons) Expanding Brackets and Factorising (6 lessons)	Displaying and Interpreting data Quadratics, Equations and Graphs Averages and Spread	**YEAR 10 W/C 22/11 Non-Calculator and Calculator 40 minutes each**
Yr 10 Spring 1	Perimeter, Area, Surface Area, Volume with Algebra (12 lessons) Angles (8 lessons)	Averages and Spread Trigonometry and Pythagoras Percentages, Fractions, Decimals and Accuracy	
Yr 10 Spring 2	Equations, Inequalities and Functions (10 lessons) Transformations, Similarity, Constructions, Loci and Vectors (10 lessons)	Ratio and Proportion Expressions, Sequences, Formulae and Compound Measures Types of Numbers, Powers, SF and Surds	**Dr Frost self marked non-calculator paper Calculator paper 40 minutes**
Yr 10 Summer 1	Straight Line Graphs (8 lessons) Displaying and Interpreting data (6 lessons)	Types of Numbers, Powers, SF and Surds Probability Expanding Brackets and Factorising	**Y10 Mocks 1 x 1.5 hour Non-Calculator 1 x 1.5 hour Calculator**
Yr 10 Summer 2	Quadratics, Equations and Graphs (10 lessons) Averages and Spread (6 lessons) Trigonometry and Pythagoras (8 lessons)	Perimeter, Area, Surface Area, Volume with Algebra Angles	