# KS4 Long Term Plan
# Subject: Maths
# 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 11 the GCSE mathematics curriculum is studied at a rapid pace with the focus on exam practice and interleaving in every lesson. Students at every ability are exposed to GCSE questions 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.

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.

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, which allows students to constantly revised different aspects of the course.

The green 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. Students are expected to work on topics they identify as areas of weakness and have been trained in this process throughout Year 10. At least once a 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. After their mocks and PPEs 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. They are then expected to continue to work on areas of weakness until the next set of exams.

In year 11 – teachers plan in collaboration to ensure consistency in approach. Each lesson starts with a mini-test, 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.

| Term | Topics Covered (Date completed by and number of lessons) | Skills/AOs/interleaved content | Assessment (date and nature of assessment) |
|---|---|---|---|
| Yr 11 Autumn 1 | **Fdn** – Percentages, Decimals and Fractions; Rounding, Accuracy and More Decimals; Ratio& Proportion Types of Numbers, Powers and Standard Form<br><br>**Higher** – Percentages, Fractions, Decimals and Accuracy; Ratio and Proportion; Expressions, Sequences, Formulae and Compound Measures | Standard and Problem Solving/Reasoning content covered at all times<br><br>**Fdn – Interleaving/Booster Focus**: Averages and Spread; Displaying & Interpreting Data, Straight Line Graphs);<br><br>**Higher – Interleaving/Booster Focus:** Trigonometry and Pythagoras; Averages and Spread; Quadratics, Equations and Graphs | **11-21st of October – Year 11 Mock** (all 3 papers to be examined) |
| Yr 11 Autumn 2 | **Fdn** – Types of Number, Powers, Standard Form; Expressions, Sequences, Formulae and Compound Measures; Probability; Expanding Brackets & Factorising; Area, Perimeter, Surface Area & Volume; Angles<br><br>**Higher** – Types of Numbers, Powers, Standard Form, Formulae and Compound Measures; Probability; Expanding Brackets and Factorising; Perimeter, Area, Surface Area, Volume with Algebra; Angles | Standard and Problem Solving/Reasoning content covered at all times<br><br>**Fdn - Interleaving/Booster Focus**: Shapes, Transformation and Similarity; Pythagoras and Elements of Trigonometry; Symmetry, Construction and Loci; Equations & Inequalities; Elements of Quadratics, Equations and Graphs<br><br>**Higher – Interleaving/Booster Focus:** Displaying and Interpreting Data; Straight Line Graphs; Transformations, Similarity, Constructions and Vectors; Percentages, Fractions, Decimals and Accuracy; Ratio and Proportion; | |
| Yr 11 Spring 1 | **Fdn** – Angles; Equations & Inequalities; Shapes, Transformations & Similarity<br><br>**Higher** – Equations, Inequalities and Functions; Transformations, Similarity, Constructions and Vectors; Straight Line Graphs | Standard and Problem Solving/Reasoning content covered at all times<br><br>**Fdn - Interleaving/Booster Focus**: Elements of Quadratics, Equations and Graphs; Percentages, Decimals and Fractions; Rounding, Accuracy and More Decimals and Ratio & Proportion<br><br>**Higher – Interleaving/Booster Focus:** Expressions, Sequences, Formulae and Compound Measures; | **31$^{st}$ of Jan – 10$^{th}$ of Feb– PPE** (3 papers; all content tested) |

| | | Probability; Expanding Brackets and Factorising | |
|---|---|---|---|
| Yr 11 Spring 2 | **Fdn** – Symmetry, Constructions & Loci;  Straight Line Graphs; Displaying and Interpreting Data; Averages and Spread<br><br>**Higher –** Displaying and Interpreting Data; Quadratics, Equations and Graphs, Averages and Spread; Trigonometry and Pythagoras | Standard and Problem Solving/Reasoning content covered at all times<br><br>**Fdn - Interleaving/Booster Focus**: Types of Numbers, Powers and Standard Form; Expressions, Sequences, Formulae and Compound Measures;  Probability, Expanding Brackets and Factorising; Area, Perimeter, Surface Area and Volume<br><br>**Higher – Interleaving/Booster Focus:** Perimeter, Area, Surface Area and Volume with Algebra; Angles | |
| Yr 11 Summer 1 | **Fdn** – Quadratics, Equations and Graphs<br><br>**Higher –** Revision, Key Topics | Standard and Problem Solving/Reasoning content covered at all times<br><br>**Fdn - Interleaving/Booster Focus**: Angles | |