Mathematics Foundation

Year 10 Sparx

Unit 1: Percentages: Calculate percentage of amounts for quantities, consider repeated change. Recognise growth and decay scenarios and use percentages to model situations.

Unit 2: Volume and Surface Area: Calculate the surface area and volume of 3D shapes using the specific formulae for prisms, cones, pyramids and frustums.

Unit 3: Simultaneous Equations: Students ensure strong understanding of linear equations and develop their understanding into solving two unknowns at the same time.

Unit 4: Formulae: understand how functions relate to equations and graphs. Be able to use inverse operations for all types of operators. Be able to substitute into functions - find composite and inverse functions (higher); use iterative methods to solve equations (higher).

Unit 5: Trigonometry - use Pythagoras to solve missing side problems involving right angles. Know and use the sine, cosine and tangent ratios to find missing sides or lengths in right angles and for higher students this moves into non-right-angle triangles.

Unit 6: Construction – Use loci and construction to solve and draw accurate diagrams to scale.

Unit 7: Linear Graphs: To use the skills of substation and plotting to draw all types of linear graphs. This develops into understanding the gradient and intercept to identify equation of line from pictures.

Unit 8: Real Life Graphs: Students use their previous topic to deepen their knowledge. Students will plot, draw and interpret real-life graphs.

Unit 9: Probability to use their declarative and procedural knowledge to apply to probability problems using tree diagrams, tables or Venn diagrams. For higher students, this will include conditional probability.

Unit 10: Compound Measures and Ratio write and simplifying ratios. Demonstrate that you can solve worded ratio and proportion problems. This is linked to compound measures to develop knowledge of compound relationships for DST, DMV and exchange rate understanding.
Unit 11: Further Graphs: Students learn how to plot and draw quadratic, cubic and reciprocal graphs.

Unit 12: Sequences: Recap linear nth term before developing understanding *of* how to calculate the nth term of quadratic and geometric sequences.
Unit 13: Handling Data: How does sampling and bias affect conclusions that are made from data?
Unit 14: Proportion: Students work on direct and inverse proportion problems first with words, and then algebraically.
Unit 15: Transformation: Students learn and perfect rotation, reflection, translation and rotation.
Unit 16: Rounding: Students learn about error intervals and how truncated noises.
Unit 17: Indices: Students develop fluency and practice with the index laws for all six laws.

Unit 18: Brackets: Students revisit the skill of expanding double so that they can secure the understanding of how to solve or factorise quadratics where a = 1.
Unit 19: Handling Data and Statistical Diagrams: Students develop their understanding of averages in tables and also how to record data collected in various charts and diagrams.

Post May half term – Students specialise at Higher or Foundation Level.

Year 11 Legacy Curriculum

11.1 Percentage: Students practice calculating percentage increase and decrease, moving into calculations involving profit/loss and compound interest.

11. 2 Algebraic Skills: Students ensure confidence in substitution, solving simple equations and develop into simultaneous equations.

11.3 Data Interpretation Students practice finding averages of small and grouped data. Furthermore, how to draw various diagrams.

11.4 Transformations: Recap the four skills of transformation ad develop knowledge to combining transformations and negative transformations.

11.5 Vectors: Students learn how to write and show express vectors. Students learn how to calculate with vectors.
11.6 3D Shapes: Students learn how to find the volume and surface area of prisms including cuboids, triangular prism and cylinders.
11.7 Proof: Students learn how to prove if statements are true using algebra.
11. 8 Further Algebra: Students develop their equation knowledge to solve algebraic simultaneous equations and rearranging formulae.

1. **Autumn PPE Exams**

Students will sit three papers that replicate the full exams that they will sit in the summer term. This will be OCR J560F.

Paper 1: 90 minutes Calculator

Paper 2 90 Minutes Non-Calculator

Paper 3: 90 Minutes Calculator

Spring Term: Students complete a mock exam before Christmas and the results are shared with students and a short sprint strategy is shared to show how to close the gap.

Summer Term: Students use Spring PPEs to identify gaps in knowledge and have an opportunity to push pupils' grades for final examinations.

YEAR 11 – GCSE Curriculum

FORTIS Academy