



Year 11 Maths Learning Map

- TERM 1 -

Graphs

Linear Equations

Students will build on their understanding of algebra and build connections between equations and more visible graphical representations. Students will bring together their understanding of sequences, equations and graphs. In this unit they will interpret and construct linear graphs.

Non-Linear Graphs

This unit consolidate the skills in the prior unit and will lead students to interpret and plot graphs that are quadratic, cubic and reciprocal, and they will work with different types simultaneously. Students will be able to identify roots and intercepts of quadratic graphs and recognise their graph shapes.

Using Graphs

This focuses on utilising prior skills to construct and interpret conversion graphs and other real life graphs such as distance/time and speed/time graphs to develop problem solving skills.

Algebra

Expanding & Factorising

Students will build on their prior understanding of algebra to solve a range of different types of expanding and factorising questions. Dealing with binomials, quadratic equations and then progressing onto more complex problems including completing the square and working with the quadratic formula.

Changing the Subject

This unit will encompass manipulating equations with one or more variables to achieve a solution, including when the variable appears more than once. Students will also begin to look at the iteration process.

Functions

This unit supports students in finding solutions to problems. Students will begin substituting into equations and learning functions notation. This will lead to functions of inequalities and representing quadratic functions graphically.



LINKS TO PRIOR LEARNING

The sequence of learning is designed to build on fundamental knowledge and allow students to make connections between content from the KS3 programme of study. Students are able to consider questions that require them to apply knowledge from different areas of the curriculum.



- TERM 2 -

Reasoning

Multiplicative Reasoning

In this unit, students will begin to work with proportional equations. They will also begin to construct their own direct and inverse proportion questions to tackle problems. This will include a revisit to a mixture of ratio problems from KS3 whilst applying their knowledge to more contextualised problems.

Geometric Reasoning

Students will consider a range of angle facts. Higher tier students will be supported to explore the proofs of these facts to further their understanding. Key elements include angles in polygons, interior and exterior angles and angles between parallel lines. Students will also be introduced to Venn diagrams and the notation require to utilise them.

Algebraic Reasoning

This unit builds on the KS3 knowledge of equations and sequences. Students will be simplifying, finding nth terms and solving simultaneous equations for a range of linear and non-linear equations.

Communication

Transforming and Constructing

Students will perform all transformations, reflections, rotations, translations and enlargements. They will then be able to describe these in detail to the point where they can perform and interpret a series of transformations of shapes. Constructions will also be utilised and students will solve loci problems.

Listing & Describing

Students will further their understanding and handling of data to produce different methods of representing data. Including sample spaces, Venn diagrams, plans and elevations and organised lists. Students will also interpret and construct different sources of data such as scatter graphs by exploring data distributions.

Show that...

This unit incorporates a collaboration of different skills. Allowing students to use number, algebra, shape, angles, data and proofs to show explicitly how situational problems can be addressed.



LINKS TO PRIOR LEARNING

HT3 is designed to give students the opportunity to apply their knowledge to the wider world. The reasoning aspect allows students to better understand the information they are exposed to. This builds on the KS3 National curriculum. HT4 is designed to extend the thinking of students. It allows opportunities to build on all areas of curriculum knowledge both in terms of interpreting and inferring and in forming and constructing.



- TERM 3 -

Responsive Teaching

DIRT - Assessment Review Paper 1

DIRT - Assessment Review Paper 2

DIRT - Assessment Review Paper 3

Additional content will be identified through the monitoring of the Assertive Mentoring materials and identification of persisting gaps in knowledge.



LINKS TO PRIOR LEARNING

The learning in this term is based completely on addressing identified gaps in prior knowledge and on supporting students to answer questions that require them to use content from more than one area of the curriculum. As such anything considered in this term will be based on prior learning.

