

Subject: Mathematics KS3 and KS4

Academic Year: Year 7 - 11

	Year 7	Year 8	Year 9	Year 10	Year 11
Autumn term 1	Whole numbers, negative numbers and decimals Calculator Skills Decimals Calculations Probability Fractions, decimals & percentages	Whole numbers & decimals Expressions and Formulae Sequences Fractions, decimals & percentages (1) 3D shapes	Whole numbers & decimals Expressions & Formulae Statistics and sampling - Part 1 Equations	Calculations, Checking and Rounding Indices, Roots, Reciprocals, hierarchy of operations. Factors, Multiples, Prime Standard Form and Surds.	Simultaneous Equations Inequalities Linear Graphs & Coordinate Geometry. Quadratic, Cubic & other graphs.
	Assessment		Assessment	Assessment	Assessment
Autumn term 2	Statistics and Data Handling Angles geometry and properties of 2D shapes Transformations and Tessellation Expressions and formulae	Graphs Statistics and Data handling Geometry and Pythagoras Theorem Angles in 2D shapes	Ratio & Proportion Statistic – Part 2 Geometry (Pythagoras)	Algebra – The basics. Setting up, rearranging and solving equations Sequences. Averages and Range.	Vectors and Scalars 3D forms & volume, cylinders, cones and spheres Transformation Congruence and similarity Construction, Loci & Bearings
	Assessment		Assessment	Assessment	Assessment
Spring term 1	Ratio and Proportions and graphs Metric and Imperial Measures Area and Perimeter of 2D shapes Transformations	Ratio and Proportion Measures, perimeter and area Transformations	Sequence Construction and Loci Trigonometry	Representing & Interpreting Data Scatter Graphs. Fractions	Graphs of trigonometry functions (other types of graphs) Further trigonometry
	Assessment		Assessment	Assessment	Assessment

Spring term 2	Sequences Construction and 3D shapes Ratio and Proportion (2) Percentages	Mental Calculations Constructions and Loci Fractions, decimals and percentages (2)	Statistic – Part 3 Angles & 2D shapes Fractions, decimals & percentages	Percentages. Ratio Proportion	Circle Theorems Units measuring and estimating Compound measures
	Assessment		Assessment	Assessment	Assessment
Summer Term 1	Measures, Perimeter and Area Factors and multiples Graphs Equations Revision and recap	Expressions and Equations Probability Revision and recap	Powers & Roots Transformation	Polygons, Angles & Parallel Lines. Pythagoras' Theorem & Trigonometry.	Revision - Skills
	Assessment		Assessment	Assessment	Assessment
Summer Term 2	Everyday maths End of year revision and recap for Transition to year 8	Everyday maths End of year revision and recap for Transition to year 9	Straight line graphs Everyday maths	Linear Graphs & Coordinate Geometry. Quadratic, Cubic & other graphs. Perimeter, Area and Circles	GCSE Exam's
	Assessment		Assessment	Assessment	

Year group	Resources
7	My Maths textbook, Eedi Online, TES, PowerPoints, Oak Academy
8	My Maths textbook, Eedi Online, TES, PowerPoints, Oak Academy
9	My Maths Textbooks, CGP revision books Eedi online, Tes, PowerPoints, MathsBot, Craig Barton and numerous other online websites.
10	AQA GCSE Maths Textbooks, 10 – minute CGP Exam Style Questions, AQA Targeted graded AQA questions, CGP AQA Revision guide books, Eedi online, Tes, Hegarthy Maths, Craig Barton and numerous other online websites.
11	AQA GCSE Maths Textbooks, 10 – minute CGP Exam Style Questions, AQA Targeted graded AQA questions, CGP AQA Revision guide books, Eedi online, Tes, Hegarthy Maths, Craig Barton and numerous other online websites.

Cross curricular links

Year 7

Art: All of these areas of Art rely quite heavily on the learner being able to measure and use spatial skills and the properties of shapes including the use of symmetry and tessellations. Designs may require enlarging or reducing and the use of ratios and proportions may be required in the context of modifying recipes. Both metric and imperial measurements and conversions may be taught and used. The need for plans in D&T requires students to be able to produce scale drawings and be able to draw 2D and 3D shapes and elevations as well as scale work.

Science: Every part of scientific enquiry requires some mathematical skills. This involves classifying, counting, measuring, calculating, estimating and recording in charts, tables or graphs. It also involves the use of mathematical equations and formulae, where the learners have to use and manipulate various formulae.

History: Learners may collect data by measuring or counting and record results in the form of charts, tables or graphs. They will also need to interpret data presented in the form of charts or graphs. Historical ideas require an understanding of time and time lines similar to the number line. Map skills require the understanding of coordinates and ideas of angles, directions, position, scale and ratios, height, length movement

Year 8

English: Mathematics lessons help to develop literacy skills by teaching mathematical vocabulary and technical terms and by requiring learners to read and interpret problems and identify the mathematics necessary to solve the problem. It also requires learners to explain their methods and strategies to others and present their findings and conclusions. English lessons may provide non-fiction texts in which mathematical information in the form of graphs, tables or charts may need to be interpreted and explained.

Physical education: Students use maths to calculate with time, speed and space. They need to interpret data to be able to analyse improvement in progress and achievement through their performance. Most students will be able to use calculations to analyse acceleration and deceleration. Some students will also be able to use advanced maths such as trajectories to improve their performance. Students will also be able to use graphs and excel spread sheets to scrutinise progress and achievement

Year 9

Law: In the food and drink industries it is important to be able to work within restrictions on ingredients, which are often imposed by health legislation. In the Pharmaceutical Industry, it can be critical as too much of one chemical can have harmful effects.

History: Mathematics applied in different cultures and historical aspects of mathematical development are developed through investigating the Fibonacci sequence.

Art: Understanding of proportion is essential for artist in ensuring that the elements of their artwork are in the 'right proportions'.

Science - Students will learn to develop a sense of purpose, through the ability to investigate a hypothesis, consider other viewpoints and ethical issues, discuss their work logically and get their findings and opinions across sensibly.

GCSE – Year 10

ICT: This is working on modern cryptography and encryption. In the modern day, illegally computer – based syndicates use increasingly sophisticated techniques to access sensitive digitally held information, including bank accounts. Prime number encryption increases the cyber security of stored data, making it harder for hackers.

Geography: Availability of data helps us to understand the world around. Whether it is scientist looking for trend global warming on consumers looking at cost comparison data to help inform purchasing decisions.

Media: These statistics-based topics provide opportunities for students to work together and allows for discussion and debate on the use and abuse of statistics in the media and how data is best presented to eliminate bias.

Science: Awareness of what you are eating and drinking (dietician) is important in achieving a healthy, balanced diet (general nurse) and percentages allow you to monitor this.

GCSE – Year 11

ICT: 3D geometry allows us to describe the wonderful things that we see in the natural world. It is an essential element in professions such as surveying, navigation and astronomy.

Art: Multi-cultural links to carpet designs using transformations can be made. The use of formal mathematical language is encouraged when describing transformations.

Science: An appreciation of quadratic equations and their graphs enables us to understand how an object moves under gravity and tells us where it is likely to land.

English: The importance of persistence and taking responsibility for their private study. Students should be aware of the correlation between effort and outcomes.