

## What are the aims and intentions of this curriculum?

The Year 10 curriculum is aimed at preparing students for their GCSE. The curriculum is based on an increase in complexity, depth and range compared to that of KS3 in terms of number operations, algebra, ratio, proportion, rates of change, geometry, measures, probability and statistics. Students receive homework on a weekly basis and it is expected of them to complete it both online and offline. Our vision is for students to ultimately be able to mathematical analyse situations, critically evaluate problems and to deduce plausible accurate solutions. Furthermore, they should be proficient enough in order to access professions and trainings at the highest level. To provide students with a holistic experience, prepare them for future success, help them aspire and value mathematics, **Personal Social Health and Economic (PSHE)** education and **Careers Education (CE)** are incorporated into the curriculum.

Term	Topics	Knowledge and key terms	Skills developed	Assessment
Autumn 1	Graphs	Equation, expression, variable, constant, coefficient, term, function, linear, gradient, slope, intercept, intersect, correlation, proportion, plot, compare, substitute, solve.	Use linear equations in all its forms. E.g. Function machines, tables. Determine the midpoint of a line. Describe, determine and apply the purposes of the constants and the variables in the equation $y=mx+c$ . Compare and describe the differences between two linear graphs in terms of the constants in their equations. Draw linear graphs with given equations using a table. Interpret and draw distance-time graphs. Recall and identify data correlation.  <b>CE: Electrician, engineer, engine mechanic, insurance underwriter, landscape architect</b>	End of topic review Homework Bookmarking Classroom feedback Half-term formal assessment
	Transformations	Rotate, enlarge, reflect, translate, mirror line, line of symmetry, Cartesian plane, axis, coordinate, vector notation.	Establishment of the meaning of various keywords. Name all four types of mathematical transformations related to GCSE. Apply and describe translation, reflection and rotation in all four quadrants. Use column vectors to describe translations.  <b>CE: Cartographer, fashion designer, urban planner, game developer, surveyor, mechanical engineer</b>  <b>PSHE: Constants and variables in graphs can be linked to food intake and exercise to raise awareness of eating healthily and exercising regularly.</b>	



<p><b>Spring 2</b></p>	<p><i>Probability</i></p> <p><i>Multiplicative reasoning</i></p>	<p>Universal set, set, element, number of elements, dependent event, independent event, probability, fraction, possible outcomes.</p> <p>Profit, loss, percentage, increase, decrease, original amount, final amount, simple and compound growth/decay, unit conversions, average, speed, distance, time, acceleration, linear, non-linear, proportion, fraction, inverse.</p>	<p>Interpret sets using the correct vocabulary. Use Venn diagrams to work out probabilities. Use frequency trees and tree diagrams to determine probabilities of dependent and independent events.</p> <p>CE: Market analyst, market researcher, meteorologist, operations analyst</p> <p>Determine percentage profit or loss. Determine the original amount before a percentage increase or decrease. Solve compound growth or decay problems. Convert metric units of speed. Determine average speed, distance, time and acceleration by means of formulae. Use inverse proportions.</p> <p>CE: Brazer, packaging line operator, sewer, loader, painter, clerk, sheller operator, mechanic</p> <p>PSHE: Students are made aware of harmful online behaviour by using the context of dependent events in probability.</p>	<p>End of topic review Homework Bookmarking Classroom feedback Half-term formal assessment</p>
<p><b>Summer 1</b></p>	<p><i>Constructions, loci and bearings</i></p> <p><i>Quadratic equations and graphs</i></p>	<p>Object types, shape types, object and shape properties, arc, sector, views of 3D objects, construction, congruent, scale drawing, scale factor, ratio, perpendicular bisector, angle bisector, loci, bearing, symmetry.</p> <p>Square, factor, factorize, coefficient, power, degree, solution, solve, sketch, plot, intercept, coordinate, simplify.</p>	<p>Recognise and describe 3D objects and their properties using the correct mathematical terminology. Show a comprehension of the properties of 2D shapes that make up 3D objects. Identify and sketch planes of symmetry of 3D objects. Accurately draw front, elevation and plan views of 3D objects and vice versa. Construct accurate triangles using a ruler, protractor and compass. Identify congruent triangles in terms of SSS, SAS, ASA and RHS. Use scales to convert from diagrams to actual measurements and vice versa in real life contexts. Draw accurate measurements on diagrams using a given scale. Construct polygons inside a circle. Recognise nets of common 3D objects and be able to construct them accurately. Bisect angles and lines using a ruler and a compass. Draw loci and use them to solve practical problems. Find and use three-figure bearings. Use angles at parallel lines and scale diagrams to solve problems involving bearings.</p> <p>CE: Ship captain, pilot, traffic controller, soldier, computer programmer</p> <p>Multiply double brackets and square single brackets. Identify quadratic expressions and functions. Plot quadratic functions by using tables and mirror lines. Use quadratic graphs to solve problems.</p> <p>CE: Accountant, aerospace engineer, aircraft mechanic, astronomer, auditor</p> <p>PSHE: In finding the different views of objects, students are made aware that people can also be perceived differently, so that respect for others is emphasized.</p>	<p>End of topic review Homework Bookmarking Classroom feedback End of year formal assessment</p>

