KS4 Curriculum Overview (Mathematics)

YEAR 9

TERM 1 TOPIC/s	*Key Skills/Subject Links	*Career links & BV
• **Percentages** • **Angles in parallel lines** • **Square and cubed numbers** • **Laws of Indices** • **Circumference of a circle** • **Stem and a leaf diagram** • **Coordinates** • **Perimeter** • **Probability** • **Averages** • **Cumulative Frequency Graph**	• Real life application of percentages: VAT, simple/Compound interest etc • Calculate the size of missing angles in parallel lines. • Use square numbers and recognize them as a power of 2. Use √ to undo a square no. Use cube numbers and recognize them as a power of 3. Use $\sqrt[3]{}$ to undo a cubic no. • Use the index rule for multiplication and division (indices with the same base). • Calculate the length of an arc of a circle. Calculate the perimeter of a sector. • Construct a back-to-back stem and leaf diagram. Calculate the mode, median, range and quartiles to compare both sides of the diagram. • Find the coordinates of the mid-point of a line segment. • Find the perimeter of compound shapes. • Find an estimate of a probability from the results of an experiment. • Using a frequency table of discrete data and grouped data calculate the mean, median, mode (or modal class) and range. • Solve problems using Pythagoras' theorem. • Draw cumulative frequency diagrams, and from them calculate median and IQR.	Percentages, Circumference of circles, coordinates, perimeter and probability have links to careers such as: Business, Finance, conveyance, Manufacturing etc.

TERM 2 TOPIC/s	*Key Skills/Subject Links	*Career links & BV
• Area • Probability • Circles • Solving equation • Compound Measures	▪ Recall formula to calculate area for both parallelogram and trapezium. ▪ Find probabilities from a two-way table and frequency tree. ▪ Recall parts of a circle, and use (and rearrange) the area of a circle given a radius or diameter. ▪ Solve equations with two operations, including those with brackets, and more complicated linear equations. ▪ Use Distance Speed, Time triangle to calculate all three measures. ▪ Use the MDV triangle to calculate Density, mass, and volume.	Percentages, area of circles, coordinates, compound measures and probability have links to careers such as: Engineering Business, Finance Manufacturing etc
TERM 3 TOPIC/s	*Key Skills/Subject Links	*Career links & BV
• Solving Equations • Equation of Parallel Lines • Circle • Distance Time graph • Compound Measures • Solving Linear inequalities • Scatter Graphs • Box Plots	▪ Recap solving equations and going into equations with fractions. ▪ Use gradients to find equations of parallel lines. ▪ Recap area of circles and calculate area of a half and quarter circle. ▪ Draw and interpret Distance-time graphs and calculate average speed from the gradient. ▪ Problems with force, pressure, area. ▪ Solve linear inequalities. ▪ Plot scatter graphs, determine correlation of data, use line of best fit to predict outcomes. ▪ Draw box plots and compare distributions.	Distance time graphs, scatter graphs, compound measures, box plot and inequalities have links to careers such as: Engineering Business, Finance Manufacturing etc

TERM 4 TOPIC/s	*Key Skills/Subject Links	*Career links & BV
• Volume • Rearranging formulae • Solve inequalities. • Sequences • Indices • Expressions, Formulae and • Linear Equations • Enlargement • Percentages	• Calculate volume of a prisms and a cylinders • Change the subject of a formula. • Solve inequalities with two inequality signs. • Work out terms in sequences including Fibonacci sequence and solve problems in a geometric sequence. • Indices: Simplify an expression containing negative powers. Find the value of a positive number raised to a fractional power. • Identify an expression, identity, equation, and formulae and correctly use symbols. Derive an algebraic formula from information given. • Set up and solve linear equations from mathematical and practical situations. • Enlarge a shape with a positive scale factor from a centre of enlargement. • Calculate percentage change and express numbers as percentages.	Volume, sequences, enlargement, percentages, expressions, and inequalities have links to careers such as: Engineering, Finance Manufacturing, Business administrators etc.
TERM 5 TOPIC/s	*Key Skills/Subject Links	*Career links & BV

• Distance Time Graph • Area • Misconceptions/Graphs • Transformation • Surface Area	▪ Calculate average speed from a distance time graph. ▪ Calculate area of more complicated compound shapes and circles ▪ Recognise misleading graphs and explaining reasoning. Choose an appropriate diagram to display data with reasoning. ▪ Single Transformations: Reflection, Translation and Rotation ▪ Surface area of a pyramid / cone	Area is linked with careers such as architect, builders, operation managers etc.
TERM 6 TOPIC/s	▪ ***Key Skills/Subject Links**	***Career links & BV**
• Angles in Polygons • Percentage • Proofs • Interpreting Graphs • Area Problems • Vectors • Simultaneous equations	• Solve problems involving interior and exterior angles of a polygon. • Calculate a percentage profit and percentage loss. • Prove a statement is not true by finding a counterexample. • Draw and interpret graphs from real data. • Problem solving using area i.e. tiling, laying paths - functional questions • Use vector notations and drawing vectors. • Calculate vector magnitude, add, and subtract two vectors and show resultant vector. • Solve through elimination simultaneous linear equations with matching coefficients for one variable and those with no matching coefficients. **(The year 9 maths topics have links to many other subjects, find some examples below. Sciences, computer Science, Business studies computer**	Interpreting graphs, vectors, proofs and percentages have links to careers such as: legal services, Finance Manufacturing, Business administrators and solicitors etc.

	studies, Geography home economics etc)	