Maths Year 10 Curriculum End Points and key vocabulary

	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
Unit of Work	• Indices and Standard Form • Angles and bearings • Rounding, estimation and bounds • Brackets (expanding and factorising)	• Equations • Rearranging equations • Fractions, Decimals, and Ratio • Percentages, growth, and decay	• Area, surface area and volume (including circles) • Compound units and real-life graphs • Plans and elevations	• Similar shapes • Enlargement • Pythagoras • Trigonometry	• Sequences (including quadratic) • Linear graphs • Inequalities (including plotting) • Functions	• Charts and graphs • Probability and probability diagrams • Systematic listing and product rule • Statistical measures and averages
Ethos Links	STEM – Use of bearings in many different STEM careers	STEM – application of real-life graphs to car racing Milton Keynes – application of real-life graphs to car racing and Silverstone	STEM – growth and decay and applications to bacteria	STEM – Application of trigonometry to engineering	Milton Keynes and STEM – use of linear graphs to plot trajectories within MK business	STEM, Sustainability and Milton Keynes – all used in relation to charts and graphs and statistical measures and averages. Use values within context
Knowledge	By the end of this unit students will know and understand: Indices and Standard Form	By the end of this unit students will know and understand: Equations	By the end of this unit students will know and understand:	By the end of this unit students will know and understand: Similar shapes	By the end of this unit students will know and understand:	By the end of this unit students will know and understand: Charts and graphs

	By the end of this unit students will know and understand: • How to apply the laws of indices to simplify expressions • ***How to use fractional indices with expressions and numerical values*** • How to convert between real numbers and standard index form • How to add, subtract, multiply and divide with numbers in standard index form Angles and bearings By the end of this unit students will know and understand: • Basic angle rules and how to use them to solve problems	By the end of this unit students will know and understand: • The concepts and language of expressions, equations, formulae, and identities • How to solve linear equations with one unknown • How to solve linear equations with unknowns on both sides • How to form and solve linear equations Rearranging equations and substitution By the end of this unit students will know and understand:	Area, Surface area and Volume (including circles) By the end of this unit students will know and understand: • Properties of 2D shapes • How to calculate the area of 2D shapes • How to calculate the area of a circle including exact calculations • How to calculate the perimeter of 2D shapes • How to calculate circumference of a circle including exact calculations • Properties of 3D shapes • How to calculate the volume and	By the end of this unit students will know and understand: • How to identify congruent shapes • How to recognise similar shapes • The basic congruence criteria for triangles (SSS, SAS, ASA, RHS) • How to calculate missing lengths in similar shapes using scale factors • ***The relationship of similarity with lengths, area and volumes*** Enlargements By the end of this unit students will know and understand: • How to enlarge shapes • How to fully describe enlargements	Sequences (including quadratic) By the end of this unit students will know and understand: • Common sequences including geometric progression • Fibonacci sequences and be able to apply and use them • How to deduce the nth term of linear sequences • ***How to deduce the nth term of quadratic sequences*** Linear graphs By the end of this unit students will know and understand: • How to plot straight line graphs	By the end of this unit students will know and understand: • The difference between discrete and continuous data • How to construct tables and charts including bar charts, pie charts, pictograms, and line graphs for ungrouped discrete data • How to construct time series graphs • How to construct and interpret histograms for grouped continuous data • Scatter graphs and

	• Angles on parallel lines and how to solve problems involving parallel lines • How to calculate the angles in polygons – using both formulae and triangles • How to measure bearings and apply angle rules to solve problems without measuring • How to apply bearings to scale diagrams, maps, and scale factors Rounding, estimation and bounds By the end of this unit students will know and understand: • How to round numbers to the appropriate	• How to change the subject of a formula • How to substitute numerical values into expressions and formulae Fractions, Decimals, and Ratio By the end of this unit students will know and understand: • How to order positive and negative integers, decimals, and fractions • How to apply addition, subtraction, multiplication and division to decimals and fractions • How to convert between fractions,	surface area of prisms • *How to calculate the volume and surface area of spheres, pyramids and cones* • *Properties of circles* • *How to calculate arc lengths and areas of sectors* Compound units and real-life graphs By the end of this unit students will know and understand: • How to use standard units of mass, length, time, and other measures • How to convert between compound units	• How to enlarge a shape using fractional scale factors • ***How to enlarge using negative scale factors*** • ***Invariance*** Pythagoras By the end of this unit students will know and understand: • Pythagoras Theorem • How to solve problems with Pythagoras theorem • ***How to calculate in 3D using Pythagoras*** Trigonometry By the end of this unit students will know and understand: • Trigonometry in right angled triangles • How to calculate lengths and	• Parallel lines and how to identify them • *How to find the equation of a line given 2 points* • ***How to use y=mx+c to identify perpendicular lines*** • Gradients and intercepts and how to interpret them Inequalities (including plotting) By the end of this unit students will know and understand: • Inequality symbols • How to solve linear inequalities in one variable • How to represent inequalities or	how to identify correlation • Extrapolation and interpolation Probability and probability diagrams By the end of this unit students will know and understand: • Probability and the outcome of probability experiments • Frequency trees and how to complete them • Relative frequency • Mutually exclusive events • How to calculate and interpret conditional probabilities with tree diagrams

	degree of accuracy • How to estimate by rounding to 1 significant figure • How to use inequality notation for limits • ***Upper and lower bounds and how to calculate with them*** Brackets (expanding and factorising) By the end of this unit students will know and understand: • How to expand a single bracket • How to use common factors to factorise a single bracket • How to expand double brackets • How to factorise	decimals, and percentages • ***How to change recurring decimals into fractions*** • Ratio notation • How to share in ratios • How to solve ratio problems • ***How to simplify algebraic fractions*** • ***How to solve algebraic fractions*** Percentages, growth, and decay By the end of this unit students will know and understand: • How to write percentages as decimals and use them as multipliers • How to calculate	• How to read timetables • How to calculate speed, distance, and time • How to calculate density, mass and volume • How to calculate pressure • Plot and interpret real life graphs (reciprocal and ***exponential***) • ***How to calculate or estimate gradients of graphs and areas under graphs and interpret results*** Plans and elevations By the end of this unit students will know and understand:	angles using Trigonometry • How to solve problems with Trigonometry • How to solve problems linking Pythagoras and Trigonometry • ***How to calculate in 3D using Trigonometry*** • Exact values and apply them • ***Sine rule*** • ***Cosine rule*** • ***Area of a triangle formula***	solution sets on a number line • ***How to solve inequalities with 2 variables*** • ***Set notation*** • ***How to plot inequalities on a graph*** Functions By the end of this unit students will know and understand: • Function machines • Expressions as functions with inputs and outputs • ***The inverse function and be able to calculate the inverse function*** • ***Composite functions***	and Venn diagrams • Set notation of Venn diagrams Systematic listing and product rule By the end of this unit students will know and understand: • How to apply systematic listing strategies • The product rule for counting Statistical measures and averages By the end of this unit students will know and understand: • Sample size and limitations of sampling • How to calculate and interpret mean, mode,

	quadratics including the difference of two squares • ***How to factorise quadratics with coefficient greater than 1*** • ***How to expand triple brackets***	percentage of an amount • How to calculate percentage increases and decreases • How to calculate percentage change • Reverse percentages • Compound interest • ***Growth and decay***	• Plans and elevations of 3D shapes • How to construct plans and elevations of 3D shapes			median and range • Quartiles and inter-quartile range • How to draw and interpret box plots • How to draw and interpret cumulative frequency diagrams
Key Vocabulary	Index Base Power Factors Factorise Expand Parallel Alternate Corresponding Co-Interior Bearings Estimate Limits Bounds	Expressions Equations Formula Identity Inverse Density Mass Volume Units Acceleration Deceleration Recurring Terminating	Growth Decay Compound interest Original Change Subject Area Volume Exact Circumference Arc Sector Front Side Plan	Scale factor Congruence Similar Hypotenuse Opposite Adjacent Sine Cosine Exact	Fibonacci Geometric Arithmetic Linear Quadratic Parallel Perpendicular Gradient Intercept Region Greater than Less than	Frequency Frequency density Class width Proportion Product rule Correlation Frequency tree Intersection Complement Mutually exclusive Averages Spread Cumulative Quartiles Inter-quartile range