

Year 7	Careers in Mathematics	Throughout Year 7, we will learn about which careers use the topics we are learning about, such as work in data analysis, journalism, carpentry, garden design and finance. We will also complete a project on traffic management on motorways, learning about how roadworks are carefully calculated to keep drivers and construction workers safe.	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	
Autumn			Sequences		Algebraic notation		Expressions and equations		Place value and ordering integers and rounding			Four operations		Averages and range	Rounding	
			In this topic, we will describe and find terms in sequences, look at linear and non-linear sequences, describe term-to-term rules and look at sequences on graphs.		In this topic, we will work with function machines, finding inputs and outputs in numerical and algebraic form. We will also begin substituting into expressions to generate sequences.		In this topic, we will solve one and two step linear equations using bar modelling as well as using inverse operations and we will simplify expressions by collecting like terms.		In this topic, we will use place value to order or compare numbers and place numbers on a number line. We will also round numbers, find the range and median of a set of numbers and begin looking at numbers in standard form.			We will be adding, subtracting, multiplying and dividing with integers and decimals, as well as applying order of operations to calculations.		We will be calculating mean, median, mode and range with lists and tables of data.	We will be rounding to decimal places, significant figures and looking at error intervals.	
Spring			Graphing data			Fractions, decimals and percentages			Directed Number		Fractions and percentages of amounts		Perimeter and area			
			We will be looking at bar charts, scatter graphs, correlation and time series. We will plot and analyse data from these representations, considering how we can use the data and making comparisons and inferences.			In this topic, we will look at representations of fractions, decimals and percentages, convert between them and calculate equivalent fractions. We will also look at representation of fractions, find equivalent fractions and add or subtract fractions, including mixed numbers and improper fraction. We will also begin to look at adding and subtracting algebraic fractions.			We will look at positive and negative integers and decimals, representations on number lines, adding, subtracting, multiplying and dividing with negative numbers and order of operations.		In this topic, we will find the fraction or percentage of a given amount using written and calculator methods.		We will be calculating the perimeter and area of various shapes, including rectangles, triangles and trapezia, as well as compound shapes and application to solve problems.			
Summer			Speed, distance, time			Properties of number		Add and subtract fractions		PPE week	Angles and polygons (1)		Challenge week	Angles (2)		
	We will begin calculating conversions of time, distance and speed, then going on to look at timetables, calculate speeds, times and distances, and interpret distance time graphs.			We will look at various types of numbers, including primes, squares and cubes, factors, multiples and triangle numbers. We will use prime decomposition to calculate HCF and LCM from Venn diagrams.		We will be converting between mixed numbers and improper fractions, adding and subtracting fractions including with different denominators and after conversion from mixed numbers or decimals.			We will look at a wide range of angle problems, beginning with drawing and measuring line segments and angles, as well as looking at geometric notation. We will establish rules for angles around a point, in polygons and angles between parallel lines.			The angle rules established will form the basis of application to proofs and geometric problems using these rules.				

Year 8	Careers in Mathematics	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13
Autumn		Ratio		Proportion and scale		Algebraic manipulation		Coordinates and graphs			Multiply and divide fractions		Symmetry and reflection	
		In this topic we will learn how to simplify and use ratios to solve questions including real world problems.		In this topic, we will solve proportion and scale problems and convert between different metric units.		In this topic we will be collecting like terms, simplifying, factorising and expanding different mathematical expressions.		In this topic we will look at coordinate geometry and lines parallel to the axes, as well as learning how to find the equation of different linear graphs and use them to solve real world problems.			In this topic we will learn how to multiply and divide with fractions and mixed numbers, considering how we can simplify to make calculations easier.		In this topic we will learn about rotational symmetry and line symmetry and reflect shapes in a mirror line.	
Spring		Area, volume and density		Equations and inequalities		Percentages			Revision	Assessment weeks		Indices		Standard form
		In this topic, pupils will learn how to find the area and volume of 2D shapes, as well as learning how to find surface area and volume of 3D shapes. After this, pupils will work with capacity and density calculations.		In this topic, pupils will work with equations and inequalities, ranging from one-step equations to inequalities with unknowns on both sides.		Pupils will work with percentages, finding percentages of an amount, converting percentages into decimals to be used as a multiplier, percentage increase and decrease, percentage change, and other percentage questions						In this topic, pupils will learn how indices work, what the three laws of indices are and how to work with negative and fractional powers, as well as a power of 0.		This topic has a focus on converting between ordinary numbers and standard form.
Summer		Representing and interpreting data		Angles in parallel lines and polygons			Tables and probability		Assessment week	Circles		Graphs and charts		Sequences
		In this topic we will learn about different averages and spreads from listed data and tables. We will also learn how to compare different data.		In this topic we will be looking at alternate, corresponding and co-interior angles. After this pupils will look at solving angle problems in parallel lines and interior and exterior angles in polygons.			In this topic we will be looking at the probability of an event occurring. After this we will be looking at completing sample space diagrams, two way tables and frequency trees, then being able to calculate probabilities from these.			In this topic we will be looking at how to find the area and circumference of a circle and parts of a circle. After this pupils will spend some time looking at how to work out the area of compound shapes with circles.		In this topic pupils will be looking at data and different ways of representing these. This includes pictograms, bar charts, line charts and pie charts. They will also look at how to interpret data from each.		We will be looking at describing and generating sequences as well as finding the n th term.

Throughout Year 9, we will learn about which careers use the topics we are learning about, such as work in finance, architecture, art, construction and building work, engineering and astronomy. We will also complete a project on how to record scientific data using scatter graphs, drawing lines of best fit to make inferences from the data we gather.

Year 9	Careers in Mathematics														
Autumn	Throughout Year 9, we will learn about which careers use the topics we are learning about, such as work in finance, architecture, art, construction and building work, engineering and astronomy. We will also complete a project on finance, learning about mortgages and how banks and mortgage brokers calculate affordability.														
	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13		
	Numbers		Using percentages		Area and Volume			Equations, Inequalities and Formulae			Fractions	Rates			
	In this topic, we will look at types of numbers, including integers, real and rational numbers. We will find HCFs and LCMs, calculate with fractions and look at surds.		In this topic, we will convert between fractions, decimals and percentages, calculate percentage changes and reverse percentages with or without a calculator.		In this topic, we will create nets of 3D shapes, draw plans and elevations, calculate surface areas of some prisms and calculate volumes of cubes, cuboids, cones, pyramids and spheres.			In this topic, we will solve one and two step equations and inequalities, including those with the unknown on both sides. We will also be rearranging formulae.			In this topic, we will complete calculations with fractions, using all four operations and finding fractions of an amount.	In this topic, we will look at speed, distance, time problems and calculate with density.			
Spring	PPE week	Standard Form	Maths and money	Straight line graphs		Ratio and proportion		Constructions and congruency		Similarity	Algebraic manipulation				
		We will be converting into and out of standard form and applying all four operations to numbers in standard form.	In this topic, we will look at spending and money as well as VAT.	In this topic, we will look at gradients and intercepts of straight line graphs, rearrange and plot straight lines given in the form $y=mx+c$ and write the equation of a straight line from a graph.		In this topic, we will solve problems involving direct and inverse proportion, look at graphs, calculate with ratios and consider 'best buy' problems.		In this topic, we will be constructing loci, drawing perpendicular bisectors, angles bisectors and identifying congruent triangles.		We will enlarge shapes as well as looking at similar shapes and right angled triangles.	In this topic, we will be expanding and factorising expressions including quadratics, solve quadratic equations and using identities.				
Summer	Pythagoras' Theorem		Non linear graphs		Sets and probability		Transformations		Simultaneous equations	Challenge week	Trigonometry				
	In this topic, we will use Pythagoras' Theorem to find missing side lengths in right angled triangles, including looking at proofs of the theorem and looking at using it in 3D shapes.		We will be drawing and interpreting curved graphs, including quadratics, cubics and reciprocals. We will also look at roots and intercepts for all of these.		In this topic, we will calculate relative frequency, expected outcomes and independent events, as well as drawing probability trees and using them to calculate probabilities with and without replacement.		We will be applying translations, reflections, rotations and enlargements with positive, negative and fractional scale factors as well as combined transformations.		This will be an introduction to simultaneous equations, finding solutions algebraically and on graphs.		We will be identifying the hypotenuse, adjacet and opposite sides, as well as finding unknown lengths and angles in right angled triangles.				

Year 10 Foundation		Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13
Autumn	Careers in Mathematics	Algebraic Manipulation		Equations, inequalities and formulae		Quadratic equations and Expressions		Percentages		Ratio and Scale		Work with Fractions		PPE Week
		In this topic, we will look at substitution, collecting like terms, simplifying expressions, index laws, expanding and factorising single brackets.		We will develop techniques for solving equations including those with fractional expressions and unknowns on both sides. We will then move onto understanding and solving inequalities before changing the subject of formulae.		In this topic, we will move onto expanding and factorising double brackets with positive and negative values, before solving quadratic equations by factorisation and other methods. We will then explore quadratic graphs.		We will calculate percentages of an amount, percentage increase or decrease and repeated percentage change. We will then move onto expressing a change as a percentage and reverse percentages. Finally, we will explore simple and compound interest.		In this topic, we will work with equivalent ratios, sharing in a ratio given a whole and sharing when given a part of difference. We will then move onto linking ratios and fractions, combining a set of ratios before exploring ratio and scales.		We will look at calculating fractions of amount, increase or decreasing an amount by a fraction and using a fraction to find a whole. We will explore equivalent and mixed numbers, and solving problems with fractions using the four operations.		
Non-Calculator methods		Straight line graphs		Probability		Rounding and Estimation	Perimeter, area and volume		Pythagoras' Theorem and Trigonometry		Simultaneous equations			
In this topic, we will look at place value for integers and decimals, comparing and ordering numbers and the four operations with integers and decimals. We will then look at the four operations with directed number before solving multi-step problems.		In this topic, we will draw straight line graphs, finding solutions to equations using graphs and exploring gradients. We will then move onto using the equation of a straight-line $y=mx+c$ and finding it from a graph, from a point and the gradient or from two points.		In this topic, we will look at probability for a single event and explore the property of probabilities summing to 1. We will learn about lists of outcomes and relative frequency before drawing sample spaces as well as looking at two-way tables, frequency trees and independent events.		In this topic, we will look at rounding to decimals places and significant figures before estimating answers to calculations.	In this topic, we will look at perimeters and areas of 2D shapes including compound shapes. We will then move onto recognising and labelling parts of circles, calculating circumference and area of circles. Finally, we will explore volume of a prism, nets and surface area of prisms.		In this topic, we will look at Pythagoras's Theorem to find sides. We will then identify hypotenuse, opposite and adjacent and explore ratios in right-angled triangles. We will then move onto using tangent, sine and cosine to find unknown sides before using them to find angles.		In this topic, we will be using graphs to solve simultaneous equations. We will then move onto solving them with no adjustment before manipulating equations to solve simultaneous equations with adjusting one then both equations.			
Non-linear graphs		Revision	PPE		Angles		Graphs and diagrams		Vectors	Factors, power and surds		Interpret and represent data		
We will explore quadratic and cubic graphs. From there, we will look at the use of intercepts and intersection for roots and approximate solutions.					In this topic, we will look at the angle rules around a point, straight lines and vertical opposite angles. We will explore angles in triangles, quadrilaterals as well as exterior and interior angles of any polygons. From here we will look at angles in parallel lines.		In this topic, we will look at pictograms, vertical line and bar charts as well as dual and composite bar charts. From here, we will draw pie charts, interpret pie charts. Finally we will look at time series, frequency polygons and stem-and-leaf diagrams.		We will look at understanding and representing vectors, vector notation and vectors multiplied by a scalar, followed by adding and subtracting vectors.	In this topic, we will look at factors, multiples and prime numbers. From here, we will explore prime factorisation, HCF and LCM as well as square and cube numbers. Then we look at powers and roots, rational and irrational number including surds.		In this topic, we will look at averages and range from a list, before doing averages from grouped and ungrouped tables. From here, we will explore types of data, sampling methods and scatter graphs.		
Spring		Throughout Year 10, we will learn about which careers use the topics we are learning about, such as work in finance, statistics, architecture, construction and building work, engineering and astronomy.												
Summer														

Throughout Year 10, we will learn about which careers use the topics we are learning about, such as work in finance, statistics, architecture, construction and building work, engineering and astronomy.

Year 11 Foundation		Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13
Autumn	Careers in Mathematics	Ratio and proportion		Area and volume		Similarity and congruence		PPE week	Sequences and proof	Standard form	Work with circles		Set notation and Venn diagrams	Functions and graphs (1)
		Ratio and proportion involve comparing amounts and sharing quantities in a given ratio. You will learn how to simplify ratios, divide amounts into parts, and solve problems involving direct proportion and scale drawings.		Area and volume focus on measuring shapes and solids. You will calculate the area of 2D shapes such as triangles and circles, and find the volume of 3D shapes such as cuboids, prisms, and cylinders using the correct units.		Similarity and congruence are used to compare shapes. Congruent shapes are identical in size and shape, while similar shapes have the same shape but different sizes and are linked by a scale factor and a common ratio.			Sequences involve finding patterns in numbers and writing rules such as the nth term. Proof uses logical reasoning and algebra to demonstrate a mathematical statements' validity.	Standard form is a way of writing very large or very small numbers using powers of ten. You will learn how to convert numbers into standard form and perform calculations with them.	Working with circles includes calculating the circumference and area using formulas involving π . You will also solve problems involving radii, diameters, arcs, and sectors.		Set notation and Venn diagrams are used to organise information and calculate probabilities. You will use symbols to describe groups and their relationships and interpret information shown in Venn diagrams.	Functions and graphs involve using algebraic rules to generate outputs from inputs and representing these relationships visually. You will plot coordinates, draw graphs, and interpret what they show in different contexts.
Functions and graphs (2)		PPE weeks		Equations and formulae		Angles, bearings and trigonometry		Constructions and loci		Transformations				
Functions and graphs involves writing expressions for formula from fuction machines. You will learn to plotting and sketching quadratic, cubic and recipricol graphs.				Equations and formulae involves forming and solving equations and inequalities. You will learn how to solve simultaneous equations and apply this to problem solving.		Angles includes learning about angles in lines and shapes, solving problems with parallel lines and also algebraic angle problems. Bearings relates to compass direction and involves reading and measuring bearings. You will learn how to calculate bearings and apply bearings to scale drawings. Bearing problems will be linked to pythagoras and trigonometry, choosing appropriate methods to solve problems involving right angled triangles.		We will be constructing accurate drawings of triangles, bisectors and loci from a point and around shapes.		We will be revisiting all transformations, including enlargements with positive, negative and fractional scale factors, reflections, rotations, translations and rotations. We will apply this to describe transformations and look at invariant points.				
Revision														
During revision time, we will use data from PPEs to create a bespoke revision plan for each class that addresses any topics of difficulty. We will also use time in lessons to consider specific revision and examination techniques that will support pupils to achieve their best in GCSE examinations.														
Summer		Throughout Year 11, we will learn about which careers use the topics we are learning about, such as work in construction, achitecture, aerospace and aeronautical engineering, manufacturing and data analysis.												

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