Subject: Maths

Year 11: Foundation Year Overview

Unit of Learning	1	2	3	4	5	6
Topic	• FDP • Probability Trees and Venn • Diagrams • Indices and Standard Form • Sequences	• Arcs and Sectors • Inequalities • Simultaneous Equations • Ratio and Proportion	• Constructions and Loci • Quadratics • Pythagoras • Trigonometry	• Averages • Real-life Graphs • Vectors • Graphs	• Revision • GCSE Exams	• Revision • GCSE Exams
To strengthen and fully embed the following skills	• To break down problems into a series of simpler steps. • To develop a rich and accurate mathematical vocabulary. • Present a mathematical justification, argument or proof, making their thinking clear to themselves and others. • To develop connections between knowledge from different topics.	• To break down problems into a series of simpler steps. • To develop a rich and accurate mathematical vocabulary. • Present a mathematical justification, argument or proof, making their thinking clear to themselves and others. • To develop connections between knowledge from different topics.	• To break down problems into a series of simpler steps. • To develop a rich and accurate mathematical vocabulary. • Present a mathematical justification, argument or proof, making their thinking clear to themselves and others. • To develop connections between knowledge from different topics.	• To break down problems into a series of simpler steps. • To develop a rich and accurate mathematical vocabulary. • Present a mathematical justification, argument or proof, making their thinking clear to themselves and others. • To develop connections between knowledge from different topics.	• To break down problems into a series of simpler steps. • To develop a rich and accurate mathematical vocabulary. • Present a mathematical justification, argument or proof, making their thinking clear to themselves and others. • To develop connections between knowledge from different topics.	• To break down problems into a series of simpler steps. • To develop a rich and accurate mathematical vocabulary. • Present a mathematical justification, argument or proof, making their thinking clear to themselves and others. • To develop connections between knowledge from different topics.

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	• Check their answers are sensible. • Apply knowledge to both routine and non-routine problems. • Fluent application of arithmetic. • The ability to work alone or to collaborate with others. • Written and oral communication skills.	• Check their answers are sensible. • Apply knowledge to both routine and non-routine problems. • Fluent application of arithmetic. • The ability to work alone or to collaborate with others. • Written and oral communication skills.	• Check their answers are sensible. • Apply knowledge to both routine and non-routine problems. • Fluent application of arithmetic. • The ability to work alone or to collaborate with others. • Written and oral communication skills.	• Check their answers are sensible. • Apply knowledge to both routine and non-routine problems. • Fluent application of arithmetic. • The ability to work alone or to collaborate with others. • Written and oral communication skills.	• Check their answers are sensible. • Apply knowledge to both routine and non-routine problems. • Fluent application of arithmetic. • The ability to work alone or to collaborate with others. • Written and oral communication skills.	• Check their answers are sensible. • Apply knowledge to both routine and non-routine problems. • Fluent application of arithmetic. • The ability to work alone or to collaborate with others. • Written and oral communication skills.
Knowledge	• Four operations with decimals • Four operations with fractions • Calculate a fraction of a quantity • Reverse fractions • FDP conversions • Percentage of a quantity • Percentage increase/decrease • Repeated percentage change • Calculate what percentage change has taken place • Reverse percentages • Use probability tree diagrams	• To recognise and label parts of circles. • Calculate the area and circumference of circles. • Calculate the area and perimeter of compound shapes. • Calculate the length of an arc. • Calculate the area of a sector. • Rearrange to find the radius or angle. • Volume of a cylinder • Graph linear graphs • Calculate the gradient and y-	• Basic angle facts • Interior and exterior angles • Bearings • Constructing triangles • Congruent shapes • Similar shapes • Perpendicular bisector • Angle bisector • Loci • Expanding brackets • Factorising • Solving quadratics by factorisation • Drawing linear graphs • Drawing quadratic graphs • Finding roots and turning points for a quadratic graph	• Averages and range • Advantages and disadvantages of each average • Averages from a frequency table • Averages from a grouped frequency table • Averages from a graph or stem and leaf diagram • Understand column vectors • Calculations with column vectors • Basic vector geometry • Plot linear and quadratic graphs • Recognise and sketch cubic and reciprocal functions	• Revision based on QLA findings and reoccurring topics.	• Revision based on QLA findings and reoccurring topics.

	• Use and describe a Venn diagram • Basic set theory • BIDMAS • Rewrite numbers as powers of a given number • Basic laws of indices • Simplify expressions • Standard form • Recognise $\sqrt{2} \times \sqrt{2} = 2$ • Generate and use the nth term • Fibonacci sequence • Is a term in a sequence?	intercept for a linear graph • Solve linear equations • Solve simultaneous equations • Find integer solutions for an inequality • Represent an inequality on a number line • Solve inequalities • Write a ratio as a fraction • Share a quantity in a given ratio • Combine two ratio • Write a ratio in the form 1:n • Use direct proportion • Best value • Converting currencies	• Pythagoras' theorem • Finding missing lengths using trigonometry • Finding angles using trigonometry • Exact trigonometric values • Angles of elevation and depression	• Revision based on QLA findings and reoccurring topics.		
Assessment	AP1, starters, AfL, progress checkers, self and peer feedback, home works, questioning, live marking	AP2, starters, AfL, progress checkers, self and peer feedback, home works, questioning, live marking	Starters, AfL, progress checkers, self and peer feedback, home works, questioning, live marking	AP3, starters, AfL, progress checkers, self and peer feedback, home works, questioning, live marking	QLA, starters, AfL, self-assessment, home works, questioning	QLA, starters, AfL, self-assessment, home works, questioning
Ecco Values / SMSC / Cultural Capital Links	• Develop team working and leadership skills • Identify and access appropriate advice and support • Empathy • Resilience	• Develop team working and leadership skills • Identify and access appropriate advice and support • Empathy • Resilience	• Develop team working and leadership skills • Identify and access appropriate advice and support • Empathy • Resilience	• Develop team working and leadership skills • Identify and access appropriate advice and support • Empathy • Resilience	• Develop team working and leadership skills • Identify and access appropriate advice and support • Empathy • Resilience	• Develop team working and leadership skills • Identify and access appropriate advice and support • Empathy • Resilience

Literacy / Numeracy Links	• To develop a rich and accurate mathematical vocabulary. • Reading questions for understanding • High-lighting key words • Written and oral communication skills	• To develop a rich and accurate mathematical vocabulary. • Reading questions for understanding • High-lighting key words • Written and oral communication skills	• To develop a rich and accurate mathematical vocabulary. • Reading questions for understanding • High-lighting key words • Written and oral communication skills	• To develop a rich and accurate mathematical vocabulary. • Reading questions for understanding • High-lighting key words • Written and oral communication skills	• To develop a rich and accurate mathematical vocabulary. • Reading questions for understanding • High-lighting key words • Written and oral communication skills	• To develop a rich and accurate mathematical vocabulary. • Reading questions for understanding • High-lighting key words • Written and oral communication skills

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Subject: Maths

Year 11: Higher Year Overview

Unit of Learning	1	2	3	4	5	6
Topic	• Accuracy and Bounds • Surds • Indices • Histograms, box plots and cumulative frequency	• Solving quadratics • FDP conversions • Percentages • Quadratic and cubic graphs • Simultaneous equations • Construction and Loci	• Circle theorems • Sine and cosine rule • Pythagoras • Trigonometry • Ratio and proportion	• Proportionality • Functions • Iteration • Simultaneous equations • Vectors	• Transformation of graphs • Equation of a circle • Trigonometric graphs • Revision • GCSE exams	• Revision • GCSE exams
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Knowledge	• Rounding • Estimation • Truncation • Discrete and continuous data • Upper and lower bounds for discrete and continuous data • Error intervals for rounded and truncated values • Calculations with bounds • Simplify surds • Simplify expressions involving surds • Expand brackets involving surds • Rationalise the denominator • Basic laws of indices	• Expanding triple brackets • Factorising quadratics, coefficient of x^2 is 1 • Factorising quadratics, coefficient of x^2 greater than 1 • Solving quadratics via factorisation • Difference of two squares • Using the quadratic formula • Completing the square • Four operations with mixed numbers • FDP conversions • Convert recurring decimals to fractions	• Angles made with parallel lines - Co-interior - Corresponding - Alternate • Interior and exterior angles • Circle theorems - Angle in a semi-circle is 90º - Angle at the centre is twice the angle at the circumference - Opposite angles in a cyclic quadrilateral add to 180º - Angles in same segment are equal - A tangent meets a radius at 90º - Tangents of equal length	• Use direct proportion • Use inverse proportion • Recognise and sketch graphs that represent direct and inverse proportion • Interpret the gradient of a straight line as a rate of change • Understand and use function notation, f(x) • Substitute values into a function, f(3) • Solve equations that use function notation • Understand, interpret and use	• Plot cubic graphs and exponential functions • Sketch graphs of trigonometric functions • Use the graphs to find angles for given sine or cosine values • Transform trigonometric graphs • Transform function • Equation of a circle • Find the equation of a tangent to a circle at a given point • Revision based on QLA findings and reoccurring topics.	• Revision based on QLA findings and reoccurring topics.

	• Fractional and negative indices • Standard form • Draw a cumulative frequency diagram • Read medium and interquartile range from a cumulative frequency graph • Draw a box plot for a data set or from a cumulative frequency graph • Compare two sets of data from cumulative frequency graphs and box plots • Calculate frequency density • Draw a histogram • Estimate values from a histogram	• Percentage increase/decrease • Reverse percentages • Reverse fractions • Simple and compound interest • Exponential growth and decay • Find the roots of a quadratic equation • Solve a quadratic equation graphically • Solve $ax^2 + bx + c = mx + d$ graphically • Find the turning point by completing the square • Shade or describe a region using inequalities • Solve quadratic inequalities • Plot and draw cubic graphs • Constructions • Loci	- Alternate segment theorem - Perpendicular chord bisector • 2D Trigonometry • 3D Trigonometry • 2D Pythagoras • 3D Pythagoras • Sine rule to find angles and lengths • Cosine rule to find angles and lengths • Area rule • Bearings • Write a ratio to describe a situation • Write a ratio as a fraction • Write a ratio as a linear equation • Problem solve with ratio	composite functions, $gh(x)$ • Understand, interpret and use inverse functions, $f^{-1}(x)$ • Trial and improvement • Rearrange an equation to form an iterative formula • Solve equations using an iterative formulae • Solve linear simultaneous equations • Solve simultaneous equations where one is linear and the other is a quadratic or circle • Understand column vectors • Use diagrammatic representations for vectors • Calculations with column vectors • Basic vector geometry • Show that two vectors are collinear		
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