

Curriculum and Skills Mapping Template

Subject: Mathematics

Key Stage: 3 Year: 7

Term	Topic	Objectives	Assessment	Academic Skills	Personal Skills
Autumn Term 1	<ul style="list-style-type: none"> Sequences Understand and use Algebraic Notation Equality and Equivalence 	<ul style="list-style-type: none"> Describe and continue a sequence given diagrammatically Represent sequences in tabular and graphical forms Continue linear and non-linear sequences Find the nth term of a linear sequence Find numerical inputs and outputs of one and two step function machines Use letters to generalise number operations and to populate a function machine Substitute values into expressions Generate sequences given an algebraic rule Represent one and two step functions graphically Solve one-step equations using inverse operations Simplify algebraic expressions by collecting like terms 	End of Topic test after each unit	<ul style="list-style-type: none"> Problem Solving Calculator Methods Select and apply methods 	<ul style="list-style-type: none"> Resilience Making connections Numerically confident
Autumn Term 2	<ul style="list-style-type: none"> Place Value Ordering Integers and Decimals Fractions, Decimals and Percentages 	<ul style="list-style-type: none"> Recognise, write and compare integers up to one billion Position integers and decimals on a number line Round integers to nearest power of ten Compare two numbers using signs of inequality Find the range and median of a set of numbers Round to one significant figure Investigate positive and negative powers of ten 	End of Topic test after each unit	<ul style="list-style-type: none"> Problem Solving Interpret Select and apply methods Reasoning mathematically 	<ul style="list-style-type: none"> Resilience Reflectiveness Making connections Numerically confident Analysis Mental arithmetic

		<ul style="list-style-type: none"> • Write decimals and integers in Standard Index Form • Convert fluently between fractions, decimals and percentages • Use and interpret pie charts 			
Spring Term 1	<ul style="list-style-type: none"> • Solving problems with addition and subtraction • Solving problems with multiplication and division • Fractions and Percentages of Amounts 	<ul style="list-style-type: none"> • Use mental and formal methods of addition and subtraction • Solve problems in the context of perimeter • Solve financial maths problems • Solve statistical problems • Add and subtract numbers given in standard form • Understand and use factors and multiples • Multiply by positive and negative powers of ten • Convert metric units • Use formal methods of multiplication and division including algebraic expressions • Understand and use order of operations • Solve problems using the area of triangles and quadrilaterals • Solve problems using the mean • Find a fraction of an amount • Use a given fraction to find the whole and /or other fractions • Find the percentage of an amount using mental and calculator methods 	End of Topic test after each unit	<ul style="list-style-type: none"> • Fluency Problem Solving • Calculator Methods • Select methods • Construct arguments 	<ul style="list-style-type: none"> • Resilience • Reflectiveness • Making connections • Numerically confident • Analysis • Mental arithmetic
Spring Term 2	<ul style="list-style-type: none"> • Operations and Equations with directed number • Addition and Subtraction of Fractions 	<ul style="list-style-type: none"> • Order directed numbers • Perform arithmetic with directed numbers using mental and calculator methods • Evaluate algebraic expressions with directed number • Solve two-step equations • Explore powers and roots • Convert between mixed numbers and fractions • Add and subtract fractions and mixed numbers with any denominator 	End of Topic test after each unit	<ul style="list-style-type: none"> • Fluency Problem Solving • Non-Calculator Methods • Calculator Methods 	<ul style="list-style-type: none"> • Resilience • Reflectiveness • Making connections • Numerically confident • Analysis • Mental arithmetic

		<ul style="list-style-type: none"> Add and subtract decimals and fractions using equivalence Add and subtract simple algebraic fractions 			
Summer Term 1	<ul style="list-style-type: none"> Constructing, Measuring and using Geometric Notation Developing Geometric Reasoning 	<ul style="list-style-type: none"> Understand and use geometrical labelling conventions Classify angles Draw and measure angles up to 360 degrees Identify perpendicular and parallel lines Identify polygons up to a decagon Construct triangles and more complex polygons Draw and interpret pie charts Understand and use angle facts Solve complex angle problems Find and use the angle sum of any polygon Understand and use parallel line angle rules Use known facts to obtain simple proofs 	End of Topic test after each unit	<ul style="list-style-type: none"> Select and apply methods Reasoning mathematically Construct arguments Communicate mathematically Develop and refine strategies 	<ul style="list-style-type: none"> Resilience Reflectiveness Making connections Numerically confident Analysis Mental arithmetic
Summer Term 2	<ul style="list-style-type: none"> Developing Number Sense Sets and Probability Prime Numbers and Proof 	<ul style="list-style-type: none"> Know and use mental and arithmetic strategies for integers, decimals and fractions Use estimation as a method for checking mental calculations Identify and represent sets Interpret and create Venn diagrams Understand and use basic set notation (\cup, \cap, \setminus) Generate sample spaces for single events Calculate the probability of a single event Understand and use the probability scale Recognise and identify prime, square and triangular numbers Write a number as a product of its prime factors Find the HCF and LCM of a set of numbers using a Venn diagram Make, test and disprove conjectures 	End of Topic test after each unit	<ul style="list-style-type: none"> Fluency Problem Solving Non-Calculator Methods Reasoning mathematically 	<ul style="list-style-type: none"> Resilience Reflectiveness Making connections Numerically confident Analysis Mental arithmetic

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Curriculum and Skills Mapping Template

Subject : Maths Key Stage: 3 Year: 8

Term	Topic	Objectives	Assessment	Academic Skills	Personal Skills
Autumn A	<ul style="list-style-type: none"> Ratio and Scale Multiplicative Change Multiplying and dividing fractions 	<ul style="list-style-type: none"> To understand, represent and apply ratio notation. To solve problems involving ratios To express ratios in their simplest form and in the form 1:n To compare ratios and fractions To apply proportion and conversion graphs to solve problems To explore the relationship between similar shapes and as a result develop an understanding of scale factors To draw and interpret scale diagrams To multiply and divide fractions without a calculator Understand and apply a reciprocal 	<p>End of topic formative homework (test A)</p> <p>End of half term assessment (test B)</p>	<ul style="list-style-type: none"> Problem Solving Calculator Methods Select and apply methods 	<ul style="list-style-type: none"> Resilience Making connections Numerically confident
Autumn B	<ul style="list-style-type: none"> Working in the Cartesian Plane Representing data Tables & Probability 	<ul style="list-style-type: none"> Identify and draw lines in all four quadrants including the use of $y=mx+c$ Recognise and use lines in the form $y=x$, $y=kx$ and $y=x+a$ Explore the gradients of lines Draw and interpret scatter graphs to develop an understanding of linear correlation and line of best fit Read and interpret data from a variety of different formats Calculate probabilities from tables and diagrams Use of the product rule 	<p>End of topic formative homework (test A)</p> <p>End of half term assessment (test B)</p>	<ul style="list-style-type: none"> Problem Solving Interpret Select and apply methods Reasoning mathematically 	<ul style="list-style-type: none"> Resilience Reflectiveness Making connections Numerically confident Analysis Mental arithmetic

Spring A	<ul style="list-style-type: none"> • Brackets, equations and inequalities • Sequences • Indices 	<ul style="list-style-type: none"> • Manipulation of expressions with brackets, leading to solving equations with brackets • Formation of and solving of equations involving inequalities • Generate sequences from words and algebraic rules • Calculating an algebraic rule for a sequence • Applying the laws of indices to simplify expressions 	<p>End of topic formative homework (test A)</p> <p>End of half term assessment (test B)</p>	<ul style="list-style-type: none"> • Fluency Problem Solving • Calculator Methods • Select methods • Construct arguments 	<ul style="list-style-type: none"> • Resilience • Reflectiveness • Making connections • Numerically confident • Analysis • Mental arithmetic
Spring B	<ul style="list-style-type: none"> • Fractions and percentages • Standard Index form • Number sense 	<ul style="list-style-type: none"> • Calculate percentage increase and decrease to include the use of a multiplier • Calculate percentage change • Calculate one number as a percentage of another • To solve percentages problems including reverse percentage • Covert numbers into standard form and ordinary numbers • Calculate with numbers in standard index form • Rounding numbers to a given degree of accuracy • Understanding and application of error intervals • Conversion between different types of units 	<p>End of topic formative homework (test A)</p> <p>End of half term assessment (test B)</p>	<ul style="list-style-type: none"> • Fluency Problem Solving • Non-Calculator Methods • Calculator Methods 	<ul style="list-style-type: none"> • Resilience • Reflectiveness • Making connections • Numerically confident • Analysis • Mental arithmetic
Summer A	<ul style="list-style-type: none"> • Angles in parallel lines and polygons • Area of trapezia and circles • Line symmetry and reflection 	<ul style="list-style-type: none"> • Investigate and apply angles in parallel lines to calculate missing angles • To calculate the interior and exterior angles of a polygon • Construction of bisectors • Calculate the area and perimeter of compound shapes • Calculate the area of circles and trapezium • Reflect shapes in horizontal and diagonal lines 	<p>End of topic formative homework (test A)</p> <p>End of half term assessment (test B)</p>	<ul style="list-style-type: none"> • Select and apply methods • Reasoning mathematically • Construct arguments • Communicate mathematically • Develop and refine strategies 	<ul style="list-style-type: none"> • Resilience • Reflectiveness • Making connections • Numerically confident • Analysis • Mental arithmetic

Summer B	<ul style="list-style-type: none"> • The data handling cycle • Measures of location 	<ul style="list-style-type: none"> • Design and set up a statistical enquiry • Draw and interpret bar charts, line graphs and pie charts and identify the most appropriate representation for a data set • Compare the distribution of a data set using charts • Find the range of a data set • Understand and apply the mean, median and mode • Calculate the mean from frequency tables • Compare distribution using averages and the range 	<p>End of topic formative homework (test A)</p> <p>End of half term assessment (test B)</p>	<ul style="list-style-type: none"> • Fluency Problem Solving • Non-Calculator Methods • Reasoning mathematically 	<ul style="list-style-type: none"> • Resilience • Reflectiveness • Making connections • Numerically confident • Analysis • Mental arithmetic

Curriculum and Skills Mapping Template

Subject : Maths Key Stage: 3 Year: 9

Term	Topic	Objectives	Assessment	Academic Skills	Personal Skills
Autumn Term A Reasoning with Algebra	* Straight Lines Graphs * Forming and Solving Equations * Testing Conjectures	* To understand and write equations in the form of $y=mx+c$ * To interpret gradients and intercepts of real life graphs * To be able to solve one and two step equations and inequalities * To be able to substitute into formulae and equations * To be able to rearrange formulae * To be able to make and test conjectures about patterns and relationships * To begin to reason deductively in geometry, number and algebra * To be able to use the concepts and vocabulary of different types of numbers * To be able to simplify and manipulate algebraic expressions	End of topic tests at the end of term	* Understanding * Problem Solving * Reasoning Mathematically	* Resilience * Reflectiveness * Making Connections * Numerically Confident * Analysis * Mental Arithmetic
Autumn Term B Constructing in 2 and 3 Dimensions	* Three-Dimensional Shapes * Construction and Congruency	* To be able to recognise 2-D and 3-D shapes * To be able to recognise and draw accurate nets of 3-D shapes * To be able to calculate the surface area and volume of 3-D shapes * To be able to construct the loci from a given rule * To be able to explore and identify congruent triangles	End of topic tests at the end of term	* Problem Solving * Understanding	* Resilience * Reflectiveness * Making Connections * Numerically Confident * Analysis * Mental Arithmetic
Spring Term A Reasoning with Number	* Numbers * Using Percentages	* To be able to use and solve problems using different types of numbers. * To be able to calculate percentage increase and decrease. * To be able to express a change as a percentage	End of topic tests at the end of term	* Calculator Methods * Non-Calculator Methods * Understanding	* Resilience * Reflectiveness * Making Connections * Numerically Confident

	* Maths and Money	<ul style="list-style-type: none"> * To be able to solve reverse percentage problems * To be able to solve problems with repeated percentage change * To be able to calculate simple and compound interest * To be able to solve real life problems using percentages 		* Problem Solving	* Analysis * Mental Arithmetic
Spring Term B Reasoning with Geometry	<ul style="list-style-type: none"> * Deduction * Rotation and Translation * Pythagoras' Theorem 	<ul style="list-style-type: none"> * To be able to identify angles in parallel lines * To be able to solve angle problems * To be able to identify the rotational symmetry of a shape * To be able draw and describe rotations and translations * To be able to calculate the missing sides in a right angled triangle using Pythagoras' Theorem * To be able to use Pythagoras' Theorem to find missing sides in a 3-D shape. * To explore proofs of Pythagoras' Theorem. 	End of topic tests at the end of term	<ul style="list-style-type: none"> * Understanding * Problem Solving * Reasoning Mathematically * Calculator Methods 	<ul style="list-style-type: none"> * Resilience * Reflectiveness * Making Connections * Numerically Confident * Analysis * Mental Arithmetic
Summer Term A Reasoning with Proportion	<ul style="list-style-type: none"> * Enlargement and Similarity * Solving Ratio and Proportion Problems 	<ul style="list-style-type: none"> * To be able to draw and describe enlargements by a given scale factor * To be able to work out the missing sides and angles in a pair of given similar triangles * To be able to solve problems using ratio, direct or indirect proportion * To be able to solve best buy problems 	End of topic tests at the end of term	<ul style="list-style-type: none"> * Understanding * Problem Solving * Reasoning Mathematically 	<ul style="list-style-type: none"> * Resilience * Reflectiveness * Making Connections * Numerically Confident * Analysis * Mental Arithmetic
Summer Term B Representations and Revision	<ul style="list-style-type: none"> * Probability * Algebraic Representation 	<ul style="list-style-type: none"> * To be able to solve problems using probability * To be able to draw and interpret quadratic or reciprocal graphs * To be able to investigate graphs of simultaneous equations 	End of topic tests at the end of term	<ul style="list-style-type: none"> * Understanding * Problem Solving * Reasoning Mathematically 	<ul style="list-style-type: none"> * Resilience * Reflectiveness * Making Connections * Numerically Confident

						<ul style="list-style-type: none">* Analysis* Mental Arithmetic
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Curriculum and Skills Mapping Template

Subject: Mathematics Key Stage: 4 Year: 10

Term	Topic	Objectives	Assessment	Academic Skills	Personal Skills
Autumn A	<ul style="list-style-type: none"> Congruence, Similarity and Enlargement Trigonometry 	<ul style="list-style-type: none"> To draw and describe enlargements To identify and find missing sides using similarity To use trigonometry to calculate missing sides and angles 	<p>End of topic formative homework</p> <p>End of half term assessment</p>	<ul style="list-style-type: none"> Problem Solving Calculator Methods Select and apply methods 	<ul style="list-style-type: none"> Resilience Making connections Numerically confident
Autumn B	<ul style="list-style-type: none"> Representing solutions of equations and inequalities Simultaneous Equations 	<ul style="list-style-type: none"> To form and solve equations and inequalities Draw and use straight line graphs to solve equations To solve and form a pair of simultaneous linear equations using a variety of methods 	<p>End of topic formative homework</p> <p>End of half term assessment</p>	<ul style="list-style-type: none"> Problem Solving Interpret Select and apply methods Reasoning mathematically 	<ul style="list-style-type: none"> Resilience Reflectiveness Making connections Numerically confident Analysis Mental arithmetic
Spring A	<ul style="list-style-type: none"> Angles and Bearings Working with Circles 	<ul style="list-style-type: none"> To draw and interpret scale diagrams To understand, represent, draw and measure bearings To calculate area of circles and sectors To calculate circumference and lengths of arcs To calculate missing angles using angle facts and circle theorems 	<p>End of topic formative homework</p> <p>End of half term assessment</p>	<ul style="list-style-type: none"> Fluency Problem Solving Calculator Methods Select methods Construct arguments 	<ul style="list-style-type: none"> Resilience Reflectiveness Making connections Numerically confident Analysis Mental arithmetic

		<ul style="list-style-type: none"> To calculate the volume and surface area of 3d solids 			
Spring B	<ul style="list-style-type: none"> Ratio and Fractions Percentages and Interest Probability 	<ul style="list-style-type: none"> To compare quantities using a ratio To share in a given ratio To solve problems involving currency conversion and 'best buy problems Calculate percentage of amounts (with and without calculator) To express one number as a percentage of a another To calculate simple and compound interest To solve reverse percentage problems To calculate probability from events, tables, Venn diagrams To calculate probabilities for combined events 	<p>End of topic formative homework</p> <p>End of half term assessment</p>	<ul style="list-style-type: none"> Fluency Problem Solving Non-Calculator Methods Calculator Methods 	<ul style="list-style-type: none"> Resilience Reflectiveness Making connections Numerically confident Analysis Mental arithmetic
Summer A	<ul style="list-style-type: none"> Collecting, Representing and Interpreting Data Non-Calculator Methods 	<ul style="list-style-type: none"> To construct and interpret a variety of charts for data analysis To fluently demonstrate a use of mental and written methods for integers, fractions To estimate and round numbers accurately 	<p>End of topic formative homework</p> <p>End of half term assessment</p>	<ul style="list-style-type: none"> Select and apply methods Reasoning mathematically Construct arguments Communicate mathematically Develop and refine strategies 	<ul style="list-style-type: none"> Resilience Reflectiveness Making connections Numerically confident Analysis Mental arithmetic
Summer B	<ul style="list-style-type: none"> Types of Number and Sequences Indices and Roots 	<ul style="list-style-type: none"> To be able to demonstrate understanding of types of numbers To calculate HCF and LCM of a set of numbers To explore sequences To use rules for indices 	<p>End of topic formative homework</p> <p>End of Year 10 Mocks</p>	<ul style="list-style-type: none"> Fluency Problem Solving Non-Calculator Methods Reasoning mathematically 	<ul style="list-style-type: none"> Resilience Reflectiveness Making connections Numerically confident Analysis

	<ul style="list-style-type: none">• Manipulating Expressions	<ul style="list-style-type: none">• To calculate numbers in standard form• To simplify algebraic expressions including expanding and factorising			<ul style="list-style-type: none">• Mental arithmetic
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Curriculum and Skills Mapping Template

Subject : Mathematics Key Stage: 4 Year: 11

Term	Topic	Objectives	Assessment	Academic Skills	Personal Skills
Autumn Term A	Gradients and Lines Non-Linear Graphs Using Graphs	<ul style="list-style-type: none"> To interpret and use $y=mx+c$ To plot linear graphs To plot non-linear graphs 	End of topic formative homework Calculator Paper	<ul style="list-style-type: none"> Problem Solving Calculator Methods Select and apply methods 	<ul style="list-style-type: none"> Resilience Making connections Numerically confident
Autumn Term B	Expanding and Factorising Changing the Subject	<ul style="list-style-type: none"> Expand and factorise expressions Factorise and solve quadratic expressions Solve more complicated equations Solve linear equations and inequalities Form and solve equations and inequalities in context Change the subject of a formula 	End of topic formative homework Mock Exams 1 x Non Calculator Paper 1 x Calculator Paper	<ul style="list-style-type: none"> Problem Solving Interpret Select and apply methods Reasoning mathematically 	<ul style="list-style-type: none"> Resilience Reflectiveness Making connections Numerically confident Analysis Mental arithmetic
Spring Term A	Multiplicative Reasoning Geometric Reasoning	<ul style="list-style-type: none"> Use of scale factors Understand direct and indirect proportion To be able to solve ratio problems To calculate exterior and interior angles of polygons To understand and use circle theorem properties 	End of topic formative homework	<ul style="list-style-type: none"> Fluency Problem Solving Calculator Methods Select methods 	<ul style="list-style-type: none"> Resilience Reflectiveness Making connections Numerically confident Analysis

	Algebraic Reasoning	<ul style="list-style-type: none"> To find and use the nth term of linear and quadratic sequences To solve simultaneous equations 		<ul style="list-style-type: none"> Construct arguments 	<ul style="list-style-type: none"> Mental arithmetic
Spring Term B	<p>Transforming and Constructing</p> <p>Listing and Describing</p> <p>Show that</p>	<ul style="list-style-type: none"> To draw and describe the 4 transformations To perform standard construction and loci problems To use sample space diagrams for probability To complete Venn diagrams Use of show that problems through a variety of contexts eg. number, algebra shape and angles 	End of topic formative homework	<ul style="list-style-type: none"> Fluency Problem Solving Non-Calculator Methods Calculator Methods 	<ul style="list-style-type: none"> Resilience Reflectiveness Making connections Numerically confident Analysis Mental arithmetic
Summer Term A	Study Leave and Examinations	Revision program in place including: Use of Past Papers 6 week revision program through MathsWatch			
Summer Term B	Examinations				

Curriculum and Skills Mapping Template

Subject : Mathematics Key Stage: 5 Year: 12

Term	Topic	Objectives	Assessment	Academic Skills	Personal Skills
Autumn Term A	<p>Surds and Indices</p> <p>Quadratic Functions</p> <p>Trigonometry</p> <p>Binomical Expansion</p>	<ul style="list-style-type: none"> To understand and use laws of indices To be able to manipulate Surds To be able to work with quadratic functions and graphs To be able to use the discriminant of a quadratic function To be able to solve trigonometric problems involving sine and cosine rule To understand and use trigonometric identities To solve trigonometric equations To understand and use the binominal expansion 	Exam Questions based on topics covered	<ul style="list-style-type: none"> Problem Solving Calculator Methods Select and apply methods 	<ul style="list-style-type: none"> Resilience Making connections Numerically confident
Autumn Term B	<p>Equations and Inequalities</p> <p>Coordinate Geometry</p> <p>Polynomials</p> <p>Graphs</p>	<ul style="list-style-type: none"> To be able to solve equations and inequalities Apply equations to modelling contexts To be able to find gradients and equations of lines To understand and use the equation of a circle To manipulate polynomials algebraically To use and apply the factor and remainder theorem to solve cubic equations To understand the graphs of a variety of functions and sketch To apply graph transformations and draw the resulting graph 	Exam Questions based on topics covered	<ul style="list-style-type: none"> Problem Solving Interpret Select and apply methods Reasoning mathematically 	<ul style="list-style-type: none"> Resilience Reflectiveness Making connections Numerically confident Analysis

	Differentiation	<ul style="list-style-type: none"> To understand the principles of differentiation To differentiation a variety of functions To apply differentiation to the context of gradient, max and min problems and optimisation modelling 			
Spring Term A	Integration Exponential and Logs Proof Vectors Probability Data Collection	<ul style="list-style-type: none"> To understand the principles of integration To integrate a variety of functions To apply integration to area problems <ul style="list-style-type: none"> To understand the exponential and log function To apply log rules and solve equations involving logs To sketch the graph of the exponential and log function To apply the exponential and log function to modelling scenarios <ul style="list-style-type: none"> To understand and use the structure of mathematical proof under a variety of conditions <ul style="list-style-type: none"> To be able to use vectors in 2-dimensions To use vectors to solve problems in context <ul style="list-style-type: none"> To understand and use mutually exclusive and independent events for probability <ul style="list-style-type: none"> To understand and use the terms population and samples To understand and use sampling techniques 	Full AS Pure Paper	<ul style="list-style-type: none"> Fluency Problem Solving Calculator Methods Select methods Construct arguments 	<ul style="list-style-type: none"> Resilience Reflectiveness Making connections Analysis
Spring Term B	Data Process Present and Interpret Kinematics	<ul style="list-style-type: none"> To interpret data using central tendency and measures of spread To understand and use appropriate statistical diagrams <ul style="list-style-type: none"> To understand, use and interpret kinematics graphs To understand, use and derive the formulae for constant acceleration I 	Exam Questions based on topics covered	<ul style="list-style-type: none"> Fluency Problem Solving Non-Calculator Methods Calculator Methods 	<ul style="list-style-type: none"> Resilience Reflectiveness Making connections Analysis

	Variable Acceleration	<ul style="list-style-type: none"> To understand and use motion in a horizontal and vertical direction under gravity To use calculus in kinematics for motion in a straight line using variable acceleration 			
Summer Term A	Binominal Distribution Forces Begin Year 13 Course Partial Fraction Binominal Expansion	<ul style="list-style-type: none"> To calculate probabilities using the Binominal Distribution To understand and apply the language of hypothesis testing To conduct a hypothesis test using binominal distribution and interpret the results in context To understand and use the concept of a force and use of Newton's first, second and third law To be able to express fractions in terms of partial fractions To understand and use the binominal expansion for negative and fractional powers 	Exam Questions based on topics covered	<ul style="list-style-type: none"> Select and apply methods Reasoning mathematically Construct arguments Communicate mathematically Develop and refine strategies 	<ul style="list-style-type: none"> Resilience Reflectiveness Making connections confident Analysis
Summer Term B	Differentiation Sequences	<ul style="list-style-type: none"> To differentiate trigonometric functions, exponential and log functions To use and apply methods of product, quotient and chain rule To understand and use sigma notation To understand and work with arithmetic sequences and series To understand and work with geometric sequences and series To be able to use geometric series to find the sum to infinity for convergent series 	AS Level Assessment 3 Papers Pure Statistics Mechanics	<ul style="list-style-type: none"> Fluency Problem Solving Non-Calculator Methods Reasoning mathematically 	<ul style="list-style-type: none"> Resilience Reflectiveness Making connections Analysis

Curriculum and Skills Mapping Template

Subject : Mathematics Key Stage: 5 Year: 13

Term	Topic	Objectives	Assessment	Academic Skills	Personal Skills
Autumn Term A	Sequences Differentiation Trigonometry Normal Distribution	<ul style="list-style-type: none"> To use and understand recursive functions and periodic sequences To differentiate functions in an implicit form To understand and use radian measure within sectors and arcs To derive and apply a variety of trigonometric identities To solve trigonometric equations and modelling problems To understand and use the normal distribution to solve problems To use normal distribution as an approximation for binominal distribution 	Exam Questions based on topics covered	<ul style="list-style-type: none"> Problem Solving Calculator Methods Select and apply methods 	<ul style="list-style-type: none"> Resilience Making connections Numerically confident
Autumn Term B	Integration Parametric Equations Functions	<ul style="list-style-type: none"> To integrate a variety of functions including trigonometric, exponential and log functions To integrate using methods such as substitution and by parts To use numerical integration using the trapezium rule To understand and use parametric equations To differentiate and integrate parametric equations 	Mock Exams 2 Pure Papers	<ul style="list-style-type: none"> Problem Solving Interpret Select and apply methods Reasoning mathematically 	<ul style="list-style-type: none"> Resilience Reflectiveness Making connections Numerically confident Analysis

	Probability	<ul style="list-style-type: none"> To use the modulus function and solve equations To understand and use composite functions and inverses To use graph transformations To model functions in context <ul style="list-style-type: none"> To understand and use conditional probability notation To solve probability problems including modelling scenarios 			
Spring Term A	Differentiation Equations Numerical Methods Vectors Kinematics Projectiles, Forces and Motion	<ul style="list-style-type: none"> Construct and solve differential equations in context <ul style="list-style-type: none"> Locate roots of functions using a variety of numerical methods including iterative methods, Newton-Raphson, cobweb and staircase diagrams <ul style="list-style-type: none"> To solve problems with vectors in 3-dimensions <ul style="list-style-type: none"> To extend the constant acceleration formulae of motion to 2-dimensions To use calculus for variable acceleration in 2-dimensions <ul style="list-style-type: none"> To understand solve problems involving equilibrium of a particle <p>To solve statics problems for a system of forces</p>	Full Pure Paper	<ul style="list-style-type: none"> Fluency Problem Solving Calculator Methods Select methods Construct arguments 	<ul style="list-style-type: none"> Resilience Reflectiveness Making connections Analysis
Spring Term B	Proof Hypothesis Testing Friction Moments	<ul style="list-style-type: none"> To understand and construct mathematical proof including proof by contradiction <ul style="list-style-type: none"> To conduct a hypothesis test using normal distribution and interpret the results To conduct a hypothesis test using correlation and regression and interpret the results <ul style="list-style-type: none"> To understand and use moments in simple static contexts 	Statistics and Mechanics Paper when ready to complete	<ul style="list-style-type: none"> Fluency Problem Solving Non-Calculator Methods Calculator Methods 	<ul style="list-style-type: none"> Resilience Reflectiveness Making connections Analysis

Summer Term A	Revision	Revision Tasks using past papers and other resources		<ul style="list-style-type: none"> • Select and apply methods • Reasoning mathematically • Construct arguments • Communicate mathematically • Develop and refine strategies 	<ul style="list-style-type: none"> • Resilience • Reflectiveness • Making connections • confident • Analysis
Summer Term B	Examinations			<ul style="list-style-type: none"> • Fluency Problem Solving • Non-Calculator Methods • Reasoning mathematically 	<ul style="list-style-type: none"> • Resilience • Reflectiveness • Making connections • Analysis

Curriculum and Skills Mapping Template

Subject : Additional Mathematics Key Stage: 4 Year: 11

This course is studied alongside the 'normal' Mathematics curriculum. Students opt into the course based on their performance throughout Year 10. The session is either delivered through one of their maths lessons or at lunchtime.

Term	Topic	Objectives	Assessment	Academic Skills	Personal Skills
Summer Term Year 10	Indices Surds	To manipulate indices To rationalise the denominator		<ul style="list-style-type: none"> • Problem Solving • Calculator Methods • Select and apply methods 	<ul style="list-style-type: none"> • Resilience • Making connections • Numerically confident
Autumn Term A	Quadratics Identities Completing the square Algebraic Fractions Simultaneous Equations	Factorise and solve more complicated quadratics Demonstrate equality throughout an algebraic expression Factorise and solve by completing the square on a quadratic and state the minimum or maximum coordinate Simplify algebraic fractions Solve simultaneous equations with one linear and one quadratic equation	Homework assignment on topics covered	<ul style="list-style-type: none"> • Problem Solving • Calculator Methods • Select and apply methods 	<ul style="list-style-type: none"> • Resilience • Making connections • Numerically confident
Autumn Term B	Factor and Remainder Theroem	Use the factor and remainder theorem to solve cubic equations	Mock exam based on topics covered	<ul style="list-style-type: none"> • Problem Solving • Interpret 	<ul style="list-style-type: none"> • Resilience • Reflectiveness • Making connections

	Coordinate Geometry Intersection of Lines and Curve Differentiation	Find the gradient and equation of a line given various information Calculate the intersection point of a line and curve Differentiate an expression using power rule Differentiate from first principles Calculate the gradient of a tangent		<ul style="list-style-type: none"> • Select and apply methods • Reasoning mathematically 	<ul style="list-style-type: none"> • Numerically confident • Analysis • Mental arithmetic
Spring Term A	Differentiation Volume and Surface Area Arcs and Sectors Integration	Calculate maximum and minimum points using differentiation Calculate the volume and surface area of 3d solids Calculate arcs and sectors of 2d circular shapes Integrate an expression using the power rule	Homework assignment on topics covered	<ul style="list-style-type: none"> • Fluency Problem Solving • Calculator Methods • Select methods • Construct arguments 	<ul style="list-style-type: none"> • Resilience • Reflectiveness • Making connections • Numerically confident • Analysis • Mental arithmetic
Spring Term B	Integration Trigonometry	Integrate an expression using boundary values Calculate integrals from area problems Solve 3d trigonometric problems including Pythagoras and sohcahtoa Use non calculator methods to calculate key angles and simplify expressions involving these angles Demonstrate graph transformations using trig graphs	Set informal paper for students to complete	<ul style="list-style-type: none"> • Fluency Problem Solving • Non-Calculator Methods • Calculator Methods 	<ul style="list-style-type: none"> • Resilience • Reflectiveness • Making connections • Numerically confident • Analysis • Mental arithmetic
Summer Term A	Study Leave and Examinations	Revision program in place including: Use of Past Papers 6 week revision program through MathsWatch			
	Examinations				

Summer Term B					
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