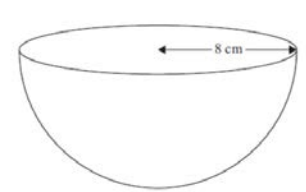
Academic Overview 2018-19

Maths						
	Term 1.1	**Term 1.2**	**Term 2.1**	**Term 2.2**	**Term 3.1**	**Term 3.1**
Year 7	Place Value Calculations	Decimal Calculations Directed Numbers Units	Properties of 2D Shapes Areas	Types of Numbers Sequences Language of Algebra	Angles Fractions	Reading and Interpretting Tables and Graphs Percentages Medians Perimeters
Year 8	Estimation Ratio and Proportion Fractions Percentage Change	Angles Equations and Formulae	Probability Area	Mean and Comparing Data Coordinates Sequences	Transformations Constructions and Bearings	Plotting Linear Graphs Conversion Graphs Plans, Nets and Elevations
Year 9	Number Properties Rounding & Estimation FDP Fractions	Ratio Percentages 2D & 3D Shapes Angle Properties Angles & Polygons	Algebraic Expressions Algebraic Formulae Linear Equations Inequalities	Units of Measurements Perimeter & Area Populations and Samples Summary Statistics and Outliers	Coordinates and Functions Straight Line Graphs Pythagoras' Theorem Maps and Scale	Transformations 3D shapes Real life graphs
Year 10	Powers, roots & indices Standard Form Circumference & Area of a circle Surface Area & Volume of 3D shapes	Constructions and Loci Compound Measures Statistical Charts and Graphs	Exact form and Surds Trigonometry Sequences	Quadratic Equations Bounds Congruency nnd Similarity Graphs for grouped data (H)	Probability Manipulating Formulae Areas Under Graphs (H) Revision: Coordinates and Graphs (F)	Simultaneous Equations Circle Theorems (H) Equation of a cirlce (H) Revision: Angles (F) Revision : Areas (F) Revision Solving Equations (F)
Year 11	Surface Area & Volume of complex shapes Proportion Polynomials & Functions Pythagoras and Trigonometry (F) Trigonometry in non-right-angled triangles	Transforming Functions (H) Vectors (H) Algebraic Fractions (H) Iteration (H) Fractions (F) Symmetry and Transformations	Revision	Revision		

Year 11 (Higher) Curriculum Content Overview 2017-18

Maths Year 11 (Higher) Autumn Term 1				
Knowledge and Skills Students will be taught to….	**Reading, Oracy, Literacy and Numeracy**	**Formative Assessment**	**Summative Assessment**	**Linked to**
•Calculate the surface area and volume of spheres, cones and simple composite solids •Calculate the surface area and volume of a pyramid •Solve simple problems involving quantities in direct proportion including algebraic proportions or currency conversion problems. •Solve simple word problems involving quantities in inverse proportion or simple algebraic proportions. •Calculate simple interest including in financial contexts. •Recognise and sketch the graphs of simple linear and quadratic functions. •Know and apply the sine rule to find lengths and angles. •Know and apply the cosine rule to find lengths and angles. •Know and apply the fomrula: area=½abSinC •Recognise and sketch the graphs of y =sin x , y = cos x and y = tan x .	Reading • Reading for meaning on problem solving questions. • Identifying the maths from a written question Oracy and Literacy • Key words and definitions • Explaining reasoning and methodology when solving mathematical problems	Questioning in lessons Whole class feedback during lessons Topic check-ins Individual questioning in lessons Individual verbal feedback in lessons	5 assessments throughout the academic year Topic check-ins	Surface Area & Volume of 3D Shapes, Ratio & Formulae, Coordinates & Functions, Trigonometry

Assessment Skills, Knowledge and Concepts Map

Maths Year 11 (Higher) Autumn Term 1		
Key Learning Questions	**Surface Area & Volume of complex shapes**	**Reading**
Work out the volume of the hemisphere  	•Calculate the surface area and volume of spheres, cones and simple composite solids •Calculate the surface area and volume of a pyramid	• Reading for meaning on problem solving questions. • Identifying the maths from a written question
	Proportion	**Oracy and Literacy**
A car worth £15 000 new depreciated by 30%, 20% and 15% respectively in three years. How much is it now worth? y is inversely proportional to the square of x. When x is 4 y is 10. What is the value of y when x is 8?	•Solve simple problems involving quantities in direct proportion including algebraic proportions. •Solve simple word problems involving quantities in inverse proportion or simple algebraic proportions. •Calculate simple interest including in financial contexts. •Formulate equations and solve problems involving a quantity in direct proportion to a power or root of another quantity. •Formulate equations and solve problems involving a quantity in inverse proportion to a power or root of another quantity. •Solve and interpret answers in growth and decay problems.	Literacy Area, volume, surface, vertex, volume, units, face, edage, proportion, inverse, reciprocal, interest, simple, compound, exponent, growth, decay, quadratic, function, plot, sketch, gradient, minimum, maximum,
	Polynomials and Functions	
Draw the graph of $y=x+\frac{1}{x}$ Sketch the graph of labelling coordinates were the graph crosses the axes $y=2^x$	•Recognise and sketch the graphs of simple linear and quadratic functions. •Use a table of values to plot exponential graphs e.g. $y=3\times1.1^x$ •Sketch graphs of quadratic functions, identifying the turning point by completing the square. •Recognise and sketch graphs of exponential functions in the form $y = k^x$ for positive k.	Oracy Explaining reasoning and methodology when solving mathematical problems
	Trigonometry in non-right-angled triangles	
State the formulas for Sine and Cosine rules. Expalin how you know when to use the Sine rule and when to use the Cosine rule.	•Know and apply the sine rule to find lengths and angles. •Know and apply the cosine rule to find lengths and angles. •Know and apply the fomrula: area=½abSinC •Recognise and sketch the graphs of y =sin x , y = cos x and y = tan x .	

Year 11 (Higher) Curriculum Content Overview 2017-18

Maths Year 11 (Higher) Autumn Term 2				
Knowledge and Skills Students will be taught to….	**Reading, Oracy, Literacy and Numeracy**	**Formative Assessment**	**Summative Assessment**	**Link to**
•Identify and sketch translations and reflections of a given graph (or the graph of a given equation). •Interpret the reverse process as the 'inverse function'. •Interpret the succession of two functions as a 'composite function'. •Use vectors in geometric arguments and proofs. •Simplify and manipulate algebraic fractions. •Find approximate solutions to equations numerically using iteration, including rearranging equations into a given form.	Reading • Reading for meaning on problem solving questions. • Identifying the maths from a written question Oracy and Literacy • Key words and definitions • Explaining reasoning and methodology when solving mathematical problems	Questioning in lessons Whole class feedback during lessons Topic check-ins Individual questioning in lessons Individual verbal feedback in lessons	5 assessments throughout the academic year Topic check-ins	Polynomials and Functions, Transformations, Fractions, Quadratics, Equations

Assessment Skills, Knowledge and Concepts Map

Maths Year 11 (Higher) Autumn Term 2		
Key Learning Questions	**Transforming Functions**	**Reading**
Sketch the graph of $y = \sin x + 2$ $y = (x + 2)^2 - 1$ $y = -x^2$	•Identify and sketch translations and reflections of a given graph (or the graph of a given equation). •Interpret the reverse process as the 'inverse function'. •Interpret the succession of two functions as a 'composite function'.	• Reading for meaning on problem solving questions. • Identifying the maths from a written question **Oracy & Literacy** Oracy • Explaining reasoning and methodology when solving mathematical problems
	Vectors	Literacy • Transformation, translate, inverse, composite, proof, denominator, equivalent, numerator, iterate, estimate, significant
Draw the vector $\begin{pmatrix} 4 \\ -2 \end{pmatrix}$ If a= $\begin{pmatrix} 3 \\ -1 \end{pmatrix}$ and b=$\begin{pmatrix} -5 \\ 6 \end{pmatrix}$ What is 3a, -b, 2a+4b?	•Use vectors in geometric arguments and proofs. •Understand addition, subtraction and scalar multiplication of vectors. •Represent a 2-dimensional vector as a column vector, and draw column vectors on a square or coordinate grid.	
	Algebraic Fractions	
Simplify $\frac{2}{x+1} + \frac{5}{x-2}$ Simplify $\frac{3x+3}{x^2+x-6} \div \frac{2x^2+3x1}{x-2}$	•Simplify and manipulate algebraic fractions.	
	Iteration	
What does the iterative process solve? How can you improve your extmation when using iteration?	Find approximate solutions to equations numerically using iteration, including rearranging equations into a given form.	