Year 7 ~ Curriculum Map for Maths

What are the intended aims for this year's curriculum? To ensure that students have at least a basic understanding of Numbers, Geometry, Algebra and Statistics and that they develop their problem solving skills

	Term 1		Term 2		Term 3		Term 4		Term 5		Term 6	
	Topic(s): Statistics - Working with Data Numbers – Four Operations	Aim of A&R	Topic(s): Geometry – Perimeter, area and units Numbers – Place Value	Aim of A&R	Topic(s): Numbers – Fractions Numbers – Fractions, decimals and percentages	Aim of A&R	Topic(s): NEGATIVE NUMBERS Algebra – Introduction Algebra – Coordinates and graphs	Aim of A&R	Topic(s): Numbers – Order of operations Numbers – Ratio and proportion	Aim of A&R	Topic(s): Geometry – Angles and 2D Shapes	Aim of EoY exam
'Big idea(s)' / fundamental concepts	**Statistics**: - Presenting data accurately - Interpreting data using averages and spread **Numbers**: - Mathematical fluency with integers and decimals using addition, subtraction, multiplication and division - Manipulate integers using factors and multiples	BASELINE ASSESSMENT	**Geometry**: - Measuring and calculating dimensions - Using appropriate units and converting between units - Key geometric 2D shapes **Numbers**: - Understand and use place values to order numbers and to round integers and decimals - Link place values with powers of 10	Review of Term 1 (20%) and Term 2 (80%)	**Numbers**: Fractions, decimals and percentages are different representations of numbers that can be added together, subtracted and compared	Review of Term 1 (20%), Term 2 (20%) and Term 3 (60%)	**Algebra**: Understand how to substitute different values for variables (input) and calculate the corresponding output Use algebraic notation including brackets Understand and use the link between numbers in a sequence Plot algebraic relationships on a graph using x and y coordinates and interpret them	Review of Term 1 (20%), Term 2 (20%), Term 3 (20%) and Term 4 (40%)	**Numbers:** Priority of operations/ BIDMAS Use and interpret relationships between values as ratios Link ratios to fractions Applying ratios to best value problems, direct proportion problems and recipes	N/A	**Geometry**: Use a protractor to measure angles accurately Classify angles Key properties of 2D shapes including angles and symmetry Angles in triangles and quadrilaterals	Review of Term 1-5 (20%) on each term
Knowledge to be learnt	**Statistics**: To use and interpret: Mean, median, mode and range Frequency tables and grouped frequency tables Two way tables Stem and leaf diagrams Pictograms Bar charts Scatter graphs and corelation **Numbers**: Multiplication tables and number bonds To be able to add, subtract, multiply and divide including using formal written methods for integers and in problem solving To use factors and multiples to solve problems including HCF and LCM		**Geometry**: - Length/ perimeter, area, volume and mass measurements and calculations - Units of measurements and conversions of different length units - Key geometric 2D shapes, their properties and how to calculate their perimeter and area (triangles, rectangles, parallelograms, trapeziums, circles) **Numbers**: - How numbers are written using place values - How place values can be used to compare and order numbers - How place values can be used to round numbers - To multiply and divide by powers of 10		**Numbers**: Recognise and link fractions with graphical representations Simplify and find equivalent fractions Add, subtract and convert fractions between mixed number and improper fractions Link fractions, decimals and percentages Increase and decrease a quantity by a percentage or a fraction		**Algebra**: Understand that a letter represents a variable. Use and interpret algebraic notation, including: - ab in place of a × b - 3y in place of y + y + y and 3 × y - a2 in place of a × a, a3 in place of a × a × a; a2b in place of a × a × b - in place of b ÷ a - coefficients written as fractions rather than as decimals - brackets Use sequences to understand relationships between numbers Use a coordinate grid to plot data and show and understand a linear relationship		**Numbers**: BIDMAs notations Ratio notations and how to use them to share a quantity and link quantities Use and understand equivalent ratios Simple direct proportion		**Geometry**: Names and key properties of 2D shapes including polygons and angles Key angle facts in shapes	
Key vocabulary	**Statistics**: mean, median, mode, range, average, frequency, key, grouped data, correlation, line of best fit **Numbers**: addition, subtraction, multiplication, division, integer, digit, factor, multiple, HCF, LCM		**Geometry**: perimeter, area, volume, mass, triangle, rectangle, parallelogram, trapezium, circle, radius, diameter, circumference **Numbers**: place value, decimal places, power, compare, greater than, smaller than, round		**Numbers**: numerator, denominator, common factors, equivalent fractions, mixed numbers, improper fractions, percentage, increase, decrease		**Algebra**: function machine, input, output, expressions, like terms, powers, formulae, brackets, common factors, factorise, sequence, term, linear, coordinates, quadrants, plot, horizontal, vertical, equation, gradient, y-intercept		**Numbers**: brackets, indices, division, multiplication, addition, subtraction, ratio, share, parts, total		**Geometry**: acute angle, obtuse angle, reflex angle, right angle, quadrilateral, square, rectangle, parallelogram, trapezium, rhombus, polygon, isosceles triangle, equilateral triangle, right angle triangle, irregular polygon	

The role of reading and comprehension	Interpret data and present it in the format requested Identify operations required to solve worded problems Access reasoning and problem solving questions		Interpret data on diagrams Understanding command words: round, compare, order		Decode percentage change questions Identify and link parts and wholes		Convert a worded problem into algebraic notations		Convert a worded problem into a ratio problem and understand the link between quantities		Interpret data on a diagram	
The role of independent extended writing	Interpret data Express clearly misleading chart features identified		Draw clear and complete diagrams to illustrate a problem Write and interpret numbers in words		N/A		Use algebraic terms accurately		N/A		Clearly explain reasoning and geometric proof linking to key properties used Use geometric terms accurately	
The role of maths/ numeracy	Interpret and compare sets of data Core numeracy check and extend		Improve fluency with numbers by using them in the context of shapes with links to visual interpretation of operations		Extending numeracy to different numerical representations of parts and whole		Understanding logical rules and operations in maths, the foundation of Algebra and abstract mathematics		Extend basic numeracy with priority of operations Understand relationships between quantities as ratios		Measure angles Consolidate basic numeracy	
Links to careers/ aspirations	Statistics, Data analyst, Business, Marketing and Trend analysis, Scientist		Architecture, carpentry, construction, design, Scientist, Doctor and nurse		Engineering, finance, statistics		Programming, Computer science		Cooking, Sales, Scientists		Carpentry, Architecture, Design.	
Core skills	To be able to: **Statistics**: Find measurements of averages (mean, median and mode) and spread (range) from lists and tables of data Present data in tables, stem and leaf diagrams, bar charts, pictograms, scatter graphs ***Extend:*** Find data trends and use them to interpolate or extrapolate data **Numbers:** Recall key addition, multiplication facts (number bonds, times tables and place values) Add and subtract using column method (integers and decimals) Multiply and divide using formal written methods (integer and decimals) List multiples and factors and find the HCF and LCM Use a calculator for basic operations		To be able to: **Geometry**: Measure lengths Use and convert units Find the area of a rectangle, parallelogram, triangle and compound shapes Solve problems, including missing length problems, in geometry ***Extend***: trapezium and circle **Numbers**: Understand place values in integers and decimals Compare and order integers and decimals using inequality notation Round using place values Multiply and divide by powers of 10 ***Extend***: standard form and significant figures		To be able to: **Numbers**: Present fractions using diagrams and on a number line Simplify and find equivalent fractions Add and subtract fractions Convert between mixed numbers and improper fractions Solve problems using fractions Represent and find equivalent fractions, decimals and percentages Compare fractions, decimals and percentages Find the fraction and percentage of a quantity Increase and decrease by a fraction or a percentage Solve percentage problems in context ***Extend***: simple interest		To be able to: **Algebra**: Use function machines to link inputs and outputs and interpret using algebraic notation Collect like terms and simplify expressions Expand single bracket Factorise using common factors Find missing terms, term-to-term rule and next term in a sequence Find the nth term in a linear sequence Find the next term in a diagrammatic sequence ***Extend***: Fibonacci-type sequences Use and interpret coordinate grids Identify equations of horizontal and vertical lines Plot linear functions using a table of values Identify y-intercept and gradient on a graph and in an equation Use y=mx+c representation of lines Identify parallel lines using gradient Read and interpret real life linear graphs (e.g. conversion graphs) ***Extend***: find the equation of a line		To be able to: **Numbers**: Apply priority of operations/ BIDMAS to calculations Solve BIDMAS problems including missing brackets and calculation errors Write relationship between quantities as ratios and find equivalent ratios Reduce a ratio to its simplest form Divide into a ratio given a share Divide into a ratio given the total Link ratios and fractions Solve best value problems Solve simple direct proportion problems Use proportions to adapt recipes and solve problems		To be able to: **Geometry**: Accurately measure angles Accurately draw angles Know key angle facts Find unknown angles in triangles and quadrilaterals Know key properties of special triangles and quadrilaterals and be able classify shapes	
Dept. enrichment activities	All About Me Statistics Project								G&T club for year 7		Supporting year 5 G&T day Codebreaking with year 6	
Home learning opportunities	To read or watch the news and interpret how data that is presented. To practice key number facts (multiplication tables, adding and subtracting) when they come up		To estimate and measure the size of objects, rooms, plots, gardens To identify geometric shapes all around To estimate, measure and read the mass and volume of every day objects (namely food by looking at the label and serving sizes or mass on packages) To use money to buy things (as opposed to cards) and to work out the cost and expected change.		Cutting things such as cakes/pizza's into given fractions Sharing things Understanding increases and decreases in prices or quantities when shopping or in the news		Use of different ways of expressing addition, subtraction, multiplication and division in everyday language ("3 times bigger" vs "increase by 3" vs "3 times smaller" vs "3 less") Games involving coordinate grids such as Battleship or map reading finding towns on grid		Shopping and comparing prices Baking and modifying recipes for different numbers of serving		Practice using pencil and ruler to draw shapes neatly Carpentry projects using angles	