Curriculum Content Map

Subject: Year 7 Maths

			Term 1				Term 2				Term 3		
Month			September	October	November	December	January	February	March	April	May	June	July
Cultural Transmission	Units of Work		Analysing & Displaying Data DATA	Number Skills NUMBER	Expressions, Functions & Formulae ALGEBRA **During December students were re-taught content that was identified as not being secure, on Q by Q analysis documents, following AP1 assessments. Year group gaps were identified and re-visited.**		Decimals & Measures NUMBER SHAPE	Fractions & Percentages NUMBER	Probability DATA	Ratio & Proportion RATIO	Lines and Angles SHAPE	Sequences & Graphs ALGEBRA	Transformations SHAPE
	National Curriculum area – KS3		"describe, interpret and compare observed distributions of a single variable through: appropriate graphical representation involving discrete, continuous and grouped data; and appropriate measures of central tendency (mean, mode, median) and spread (range, consideration of outliers)"	"order positive and negative integers, decimals and fractions; use the number line as a model for ordering of the real numbers; use the symbols =, ≠, <, >, ≤, ≥" "use the four operations, including formal written methods, applied to integers, decimals, proper and improper fractions, and mixed numbers, all both positive and negative" "use the concepts and vocabulary of prime numbers, factors (or divisors), multiples, common factors, common multiples, highest common factor, lowest common multiple, prime factorisation, including using product notation and the unique factorisation property"	"use and interpret algebraic notation, including: - ab in place of a × b - 3y in place of y + y + y and 3 × y × a^2 in place of a × a, a^3 in place of a × a × a - a^2b in place of a × a × b - b/a in place of a ÷ b - coefficients written as fractions rather than as decimals brackets" "substitute numerical values into formulae and expressions, including scientific formulae" "understand and use the concepts and vocabulary of expressions, equations, inequalities, terms and factors" "simplify and manipulate algebraic expressions to maintain equivalence by: - collecting like terms multiplying a single term over a bracket - taking out common factors - expanding products of two or more binomials" "understand and use standard mathematical formulae; rearrange formulae to change the subject"		"derive and apply formulae to calculate and solve problems involving: perimeter and area of triangles, parallelograms, trapezia, volume of cuboids (including cubes) and other prisms (including cylinders)" "calculate and solve problems involving: perimeters of 2-D shapes (including circles), areas of circles and composite shapes" "change freely between related standard units [for example time, length, area, volume /capacity, mass]" "use scale factors, scale diagrams and maps"	"use the four operations, including formal written methods, applied to integers, decimals, proper and improper fractions, and mixed numbers, all both positive and negative" "interpret fractions and percentages as operators"	"record, describe and analyse the frequency of outcomes of simple probability experiments involving randomness, fairness, equally and unequally likely outcomes, using appropriate language and the 0-1 probability scale" "understand that the probabilities of all possible outcomes sum to 1"	"solve problems involving direct and inverse proportion, including graphical and algebraic representations" "express one quantity as a fraction of another, where the fraction is less than 1 and greater than 1" "use ratio notation, including reduction to simplest form" "divide a given quantity into two parts in a given part:part or part:whole ratio; express the division of a quantity into two parts as a ratio" "relate the language of ratios and the associated calculations to the arithmetic of fractions and to linear functions" "solve problems involving percentage change, including: percentage increase, decrease and original value problems and simple interest in financial mathematics"	"derive and use the standard ruler and compass constructions (perpendicular bisector of a line segment, constructing a perpendicular to a given line from/at a given point, bisecting a given angle); recognise and use the perpendicular distance from a point to a line as the shortest distance to the line" "apply the properties of angles at a point, angles at a point on a straight line, vertically opposite angles"	"work with coordinates in all four quadrants" "recognise, sketch and produce graphs of linear and quadratic functions of one variable with appropriate scaling, using equations in x and y and the Cartesian plane" "generate terms of a sequence from either a term-to-term or a position-to-term rule" "recognise arithmetic sequences and find the nth term" "recognise geometric sequences and appreciate other sequences that arise"	"identify properties of, and describe the results of, translations, rotations and reflections applied to given figures" "identify and construct congruent triangles, and construct similar shapes by enlargement, with and without coordinate grids"
	Substantive Knowledge	*The What!*	Grouped Data Modal Class Comparing Data using Averages Line Graphs Dual & Compound Bar Charts	Rounding to 1 significant figure Estimation Highest Common Factor Lowest Common Multiple	Simplifying Expressions Expanding Single Brackets Writing Expressions Substitution Writing Formulae		Rounding to decimal places Metric Conversions Scale Drawing Area & Perimeter of Compound Shapes (rectangles) Metric vs. Imperial measurements	Converting mixed numbers and improper fractions Adding & Subtracting Fractions Different Denominator Fractions of Amounts Percentages of Amounts	Calculating Probability Probability of something 'not' happening Experimental Probability Expected Outcomes	Direct Proportion / Unitary Method Writing & Simplifying a Ratio Using a Ratio Sharing in a Ratio Ratio & Fractions Proportion & Percentages	Constructing Triangles (SAS, ASA, SSS) Angles in special triangles Angles in quadrilaterals	Pattern sequences Position-to-term rule (Nth Term) Midpoints Linear Graphs	Congruency Enlargement Rotational Symmetry Reflection on a grid Rotation Translation
	Disciplinary knowledge	*The How!*	Using Tally Charts Grouping Data Drawing & Plotting Graphs	Understanding place value Using Rounding Using Factors and Multiples	Understanding algebraic notation Using Negative number skills Understanding mathematical vocabulary		Using Multiplication & Division by 10, 100, 1000 Using mathematical equipment Using ratio	Understanding fractions as part of a whole Using Multiplication and Division	Using Probability Scales Using Language of Probability Using Fractions and Percentages	Understanding proportion as part of a whole Using Ratio notation Linking to simplifying fractions	Using a compass Using a ruler Using a protractor	Understanding patterns with numbers Using Term-to-term rules Drawing & plotting graphs	Using Scale Factors Using tracing paper Understanding direction (anti-clockwise and clockwise) Understanding angles in a circle (rotation) Vectors - linking to co-ordinates
	Sequencing (Flow)	*Retrieval & Extension*	Builds from KS2: Tally Charts Bar Charts Further develops in Y8: Frequency Tables Two-Way Tables	Builds from KS2: Number Skills – Four Operations Negative Numbers (Add / Subtract) Types of Numbers Further develops in Y8: Negative Numbers (Four Operations) Prime Factors HCF & LCM using Venn	Builds from KS2: Function Machines Further to develops in Y8: Factorising Linear Expressions Solving Equations		Builds from KS2: Measurement Reading Scales Decimals (Four Operations) Perimeter Area of Rectangle Further develops in Y8: Area of 2D shapes Volume of Cuboids Surface Area of Cuboids Converting volume and capacity measurements	Builds from KS2: Comparing Fractions Simplifying Fractions Adding & Subtracting Fraction (same denominator) Converting Fractions, Decimals and Percentages Further develops in Y8: Multiplying & Dividing Fractions Percentage Increase and Decrease – Calculator and Non-Calculator Methods	Builds from KS2: Probability Scales Probability Language Further develops in Y8: Use of venn diagrams (HCF & LCM) Further develops in Y9: Mutually Exclusive Events Sample Space Diagrams Two-Way Tables Venn Diagrams	Builds from KS2: Understanding of proportion (through fractions) Further develops in Y8: Ratio & Decimals Ratio Problem Solving	Builds from KS2: Types of Angles Draw & Measure Angles Angle Rules (line, point, triangle) Further develops in Y8: Parallel Line Rules Angles in Polygons Exterior & Interior Angles	Builds from KS2: Term-to-term rule Co-ordinates in four quadrants Further develops in Y8: Gradient Equations of lines Investigating y=mx+c Real-Life Graphs	Builds from KS2: Symmetry Reflection (using a mirror) Further develops in Y9: Enlargement from a point, with fractional and negative scale factors
	Summative Assessment		Deep Mark 1: Homework End of Topic Test - Analysing & Displaying Data	Deep Mark 2: Homework End of Topic Test - Number Skills	Deep Mark 1: AP1 Assessment - Whole School Data Collection Homework	End of Topic Test - Expressions, Functions & Formulae Deep Mark 2: Homework	Deep Mark 1: Homework End of Topic Test - Decimals & Measures	Deep Mark 2: Homework End of Topic Test - Fractions & Percentages	Deep Mark 2: AP2 Assessment - Whole School Data Collection End of Topic Test - Probability Homework	Deep Mark 2: Homework End of Topic Test - Ratio & Proportion	Deep Mark 1: Homework End of Topic Test - Lines & Angles	Deep Mark 2: AP3 Assessment - Whole School Data Collection End of Topic Test - Sequences & Graphs Homework	End of Topic Test - Transformations
Personal Empowerment	Virtue	*The opportunity to reflect, think deeply and critically about an issue.*	Friendliness & Civility	Justice & Truthfulness	Courage	Generosity	Gratitude	Good Speech	Good Temper & Humour	Self-Mastery		Compassion	Good Sense
	Link to Virtue		Students will be conducting a project about the 'average' student and will need to demonstrate friendliness in working together and also in the data they collect	Students will look at justice of minimum wage and calculating salary	Students will need courage to tackle algebra skills properly for the first time.	Students will be generous with their time to help each other with work so everyone makes good progress.	Students will be designing a bedroom plan and will be practicing gratitude for the space in the room and for the material things they have	Students will have a lot of opportunity for discussion of fractions and percentages understanding as well as presenting their own explanations of methods	Students will look at the differences of humour and temper in dealing with probability linked to gambling addiction	Students will be mastering a new skill that they have not really seen at KS2. They will learn to master their learning through techniques for double-checking.	Students will master the skills they developed at KS2 and use this to move them forward	Students will need to have compassion for each other as they help with drawing graphs, especially as they draw graphs that are not based on data for the first time	Students will use good sense to decide which symmetrical brick-paving pattern is best. Students will also use good sense to decide how the shape changes based on the transformation being used.
Preparation for Work	Skill	*Transferable skills*	Listening	Leadership	Problem-Solving	Creativity	Staying Positive	Speaking	Staying Positive	Aiming High		Speaking	Teamwork
	Link to Skill		Students will need to listen to each other when collecting data for their project as well as when working together to produce and analyse the results. This unit links to careers in project management and data analysis.	Students will demonstrate leadership through leading on carousel tasks. This unit links to careers in leading projects and running a business.	Students will look at using their problem-solving skills to look at algebra linked to shape knowledge. This unit links to careers in architecture and construction.	Students will be creative in learning algebraic language to write their own expressions. This unit links to careers in science.	Students will need to stay positive as they tackle metric conversions to remember what measurements converts and whether it is multiply or divide. This unit links to careers in materials, interior design and constructions.	Students will have a lot of opportunity for discussion of fractions and percentages understanding as well as presenting their own explanations of methods. This unit links to careers in sales.	Students will need to stay positive during a lesson requiring problem solving and teamwork. Students will also need to stay positive during the experimental probability investigation if they make a mistake. This unit links to careers in risk analysis, insurance and casinos.	Students will aim high as they tackle a skill they have not seen before. They will be pushed to learn new techniques and skills. This unit links to careers in banking, finance and brokerage.	Students will aim high in constructions lessons as they learn new skills. This unit links to careers in architecture and construction.	Students will have many opportunities for discussion about sequences and terms of a sequence. This unit links to careers in data analysis, business and government.	Students will use teamwork during their brick-paving activity. They will also use teamwork to tackle the obstacle course in the rotation lesson. This unit links to careers in construction and design.
Preparation for Citizenship	SMSC & British Values	*Developing opinions on current issues*	Social Moral Cultural Mutual Respect	Social Moral Democracy	Social Individual Liberty		Social Cultural Rule of Law	Social Moral Cultural Tolerance	Social Moral Individual Liberty	Social Cultural Democracy	Social Mutual Respect	Social Rule of Law	Social Cultural Tolerance
	Link to SMSC & British Values		Students will need to use their social skills during the project work. Students will discuss the moral repercussions of misrepresenting or comparing data. Students will look at cultural differences in some data. Students will need to demonstrate mutual respect when working together, even during times of disagreement.	Students will use their social skills to work together in group activities. Students will discuss the moral reasoning behind minimum wage, living wage and paying salaries and how much people should earn. Students will understand that, as part of a democracy, they can vote to make change regarding salaries.	Students will need to use their social skills to work together on paired and group activities. Students will demonstrate individual liberty as they learn they have the freedom to manipulate expressions and formulae in an order that makes sense to them, as long as the final answer contains the necessary terms.		Students will need to use their social skills to work together in group activties. Students will discuss other countries / cultures and who uses what type of measurements, including why we use metric and imperial in the UK. Students will need to understand the rules and processes for converting metric measurements. As well as understand the 'law' of area.	Students will need to use their social skills to work together in paired and group activties. Students will look at the moral reasoning behind donating percentages and fractions of wages to charity and also the cultural differences in giving to charity. Students will demonstrate tolerance of others as they speak and learn to accept other students' ways of explaining or describing methods.	Students will use their social skills during group and paired work. Students will look at the moral discussions behind gambling addiction. Students will demonstrate individual liberty as they pull together their own ideas about probability. They will also look at individual liberty in the context of overcoming addiction.	Students will use their social skills for paired and group work. Students will look at how different cultures represent different proportions of the world. Students will discuss how democracy works and how voting links to proportion.	Students will use their social skills as they complete paired and group activities. Students will demonstrate mutual respect as they discuss their ideas around angles rules in special triangles and quadrilaterals, as well as help each other with constructions.	Students will use their social skills in paired and group work. Students will need to use the rule of law to understand how to find values in a table of values in order to plot a linear graph.	Students will use their social skills throughout this topic, but particularly in those activities focussed on teamwork. Students will look at the patterns used by different cultures and how they can be made using tesselations. Students will need to be tolerant of other cultures' ideas about beauty in pattern, even if they don't like them.