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
			Statistics	Number		Algebra	Geometry and Measures	Number	Probability	Ratio & Proportion	Geometry and Measures	algebra	Geometry and Measures
	Units of Work		Maths Progress 1 Analysing & Displaying Data	Maths Progress 1 Number Skills	Gap Filling	Maths Progress 1 Expressions, functions & formulae	Maths Progress 1 Decimals & Measures	Maths Progress 1 Fractions & Percentages	Maths Progress 1 Probability	Maths Progress 1 Ratio & Proportion	Maths Progress 1 Lines & Angles	Maths Progress 1 Sequences & Graphs	Maths Progress 1 Transformations
Cultural Transmission	National Curriculum area – KS3		Statistics	Number		Algebra	Number Geometry and Measures	Number	Probability	Ratio, proportion	Geometry and Measures	algebra	Geometry and Measures
	Substantive Knowledge	*The What!*	Mode,median and range Displaying data Grouping data Averages and comparing data Line graphs and bar charts	Mental maths Addition and subtraction Multiplication division Money & Time Negative Numbers Factors, multiples & Primes Square numbers		Functions Simplifying expressions Writing expressions Substituting into formulae Writing formulae	Decimals & Rounding Length,mass and capacity scales & Measures Working with decimals perimeter area	Comparing fractions simplifying fractions working with fractions fractions and decimals understanding percentages percentages of amounts	The language of probability calculating probability experimental probability Expected outcomes	Direct proportion Writing ratios Using ratios Ratios, proportions & fractions Proportions & Percentages	Measuring & Drawing angles Lines, angles and triangles Drawing triangles accurately Calculating angles Angles in a triangle Quadrilaterals	Sequences Pattern Sequences Coordinates and Midpoints extending sequences Straight line graphs Position to term rule	Congruency & enlargements Symmetry Reflection Rotation Translations & combined transformations
	Disciplinary knowledge	*The How!*	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). Students will develop fluency when moving freely between different numerical, algebraic, graphical and diagrammatic representations.	Use the four operations, including formal written methods, applied to integers, decimals, all both positive and negative. Use standard units of time, money. Use the concepts and vocabulary of prime numbers, factors (or divisors), multiples. Use integer powers -square numbers. Students will develop fluency by consolidating their numerical and mathematical capability from key stage 2 and extend their understanding of the number system and place value to include decimals, fractions, powers and roots		Use and interpret algebraic notation, including: - ab in place of a × b -3y in place of y + y + y or 3×y -a2 in place of a × a, a3 in place of a × a × a; a2b 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. Students will develop fluency by using algebra to generalise the structure of arithmetic, including to formulate mathematical relationships, substitute values in expressions, rearrange and simplify expressions, and solve equations	Understand and use place value for decimals, measures and integers of any size. Round numbers and measures to an appropriate degree of accuracy [for example, to a number of decimal places or significant figures] Use standard units of mass, length, and other measures, including with decimal quantities. Derive and apply formulae to calculate and solve problems involving: perimeter and area of triangles.	Order positive and negative fractions Use the four operations, including formal written methods, applied to proper and improper fractions, and mixed numbers, all both positive and negative. Work interchangeably with terminating decimals and their corresponding fractions (such as 3.5 and 7/2 or 0.375 and 3/8) Define percentage as 'number of parts per hundred', interpret percentages and percentage changes as a fraction or a decimal, interpret these multiplicatively, express one quantity as a percentage of another, compare two quantities using percentages, and work with percentages greater than 100%	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. Students will develop mathematical reasoning through exploring what can and cannot be inferred in probabilistic settings, and begin to express their arguments formally.	Solve problems involving direct proportion. Use ratio notation, including reduction to simplest form. Understand that a multiplicative relationship between two quantities can be expressed as a ratio or a fraction. Relate the language of ratios and the associated calculations to the arithmetic of fractions. Solve problems involving percentage change. Students will develp mathematical reasoning by extending and formalising their knowledge of ratio and proportion in formulating proportional relations algebraically.	Draw and measure line segments and angles in geometric figures. Derive and use the sum of angles in a triangle. Derive and illustrate properties of triangles & quadrilaterals. Students will develop fluency with using language and properties precisely to analyse 2-D and 3-D shapes.	Generate terms of a sequence from either a term-to-term or a position-to-term rule - recognise arithmetic sequences -recognise geometric sequences and appreciate other sequences that arise. Work with coordinates in all four quadrants Recognise, sketch and produce graphs of linear functions with appropriate scaling. Students will develop their mathematical reasoning by making and testing conjectures about patterns and relationships.	Identify and construct congruent triangles, and construct similar shapes by enlargement, with and without coordinate grids. Describe, sketch and draw using conventional terms and notations: points, lines, parallel lines, perpendicular lines, right angles, regular polygons, and other polygonsthat are reflectively and rotationally symmetric. Identify properties of, and describe the results of, translations, rotations and reflections applied to given figures. Students will develop fluency with using language and properties precisely to analyse 2-D and 3-D shapes.
	Sequencing (Flow)	*Retrieval & Extension*	Builds from their knowledge of different data representations to include interpreting and constructing pie charts (using their knowledge of angles, fractions and percentages) and line graphs (e.g. miles to km conversion). They will know when it is appropriate to use the mean as an average and how to calculate it (Year 6) Further develops in Y8 when they will learn about stem and leaf diagrams and comparing data.	Builds upon their knowledge of place value for numbers up to and beyond one million (including decimals and negative numbers) in a variety of situations. Special numbers are extended to include common factors, common multiples and a deeper understanding of prime numbers. They will be able to round numbers and identify what degree of accuracy is appropriate (Y6). Further develops in Y7 February when students will be asked to order positive and negative fractions and apply the four operations to fractions.		Builds upon Year 6 learning when they will confidently use symbols and letters to represent variables and unknowns in mathematical situations that they already understand, for example, simple formula and equivalent expressions a+b = b+a Further develops in June Y7 when students will describe number sequences.	Builds upon Y6 where they will learn how to calculate the perimeter and area of shapes.They will apply their knowledge of place value for numbers up to and beyond one million. Further develops in May when students will derive and use the sum of angles in a triangle. They will also derive and illustrate properties of triangles & quadrilaterals.	Builds upon an understanding of equivalent fractions where they have learned how to order, add and subtract fractions (including mixed numbers and those with different denominators -Year 6 Further develops in May Y8 when students will use the four operations, including formal written methods, applied to integers, decimals, proper and improper fractions, and mixed numbers, all both positive and negative.	Builds upon some problem solving in Year 6 involving the calculation of percentages linked to real life situations. Further develops in June Y9 where studentd explore. Experimental and theoretical probability as well as mutually exclusive events.	Builds upon Y6 where students explore ratio and proportion through real life experiences such as changing the quantities in recipes (scaling), scale drawings and maps. Further develops in March Y8 where they learn to use direct and inverse proportion.	Builds upon Y6 where students consolidate their knowledge of angles within shapes and extend it to find missing angles in triangles, quadrilaterals and regular polygons Further develops in July Year 7 where students learn to identify and construct congruent triangles, calculate enlargements , identify regular polygons and reflections.	Builds upon December Year 7 when students will have learnt how to simplify expressions and substitute into formulae Further develops in Year 8 when students learn about: Expressions and brackets Factorising expressions One-step equations Two-step equations The balancing method	Builds upon May Y7 when students cover: Measure & Draw angles,Lines, angles and triangles Drawing triangles accurately Calculating angles Angles in a triangle Quadrilaterals Further develops in October Y8 when stidents learn how to find: Area of a triangle Area of a parallelogram and a trapezium Volume of cubes and cuboids 2D representations of 3D solids Surface area of cubes and cuboids Measures
	Summative Assessment		Lesson 10: Check Up Test One Deep Mark	Lesson 10: Check Up Test One whole class feedback	AP1 Assessment - Whole School Data Collection	Lesson 10: Check Up Test One Deep Mark	Lesson 10: Check Up Test One Deep Mark	Lesson 10: Check Up Test One whole class feedback	AP 2 Assessment - Whole School Data Collection	Lesson 10: Check Up Test One whole class feedback	Lesson 10: Check Up Test One Deep Mark	Lesson 10: Check Up Test One whole class feedback	AP 3 Assessment - Whole School Data Collection
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		As we tackle mathematical problems being friendly and civil will enable us to work with our peers and support each other in our learning.	Students will consider whether there is such a thing as a Just War. Students will discuss if it is ever just and fair for companies to make large profits from their customers	Students will need courage to tackle their weaknesses leading up to AP1.	As we tackle mathematical problems we should be generous with our time and encouragement when supporting others	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		Listening- Level 2: Students can listen to adults, follow instructions and tell you what I heard. Listening- Level 3: students can follow a conversation and tell somebody else what it was about.	Leadership- Level 1 - Students can describe how they are feeling about the questions to their partner and the teacher	Students will apply their new skills to solve problems in the AP1 assessment.	Creativity Level 2: Students can share what they imagine a function machine to do by drawing it out. Creativity Level 3: Students can use their imagination to use letters to represent unknowns 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 curent 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 discuss why punctuality is important to encourage mutual respect and social awareness.	Students will discuss the moral reasoning behind the inequitable sharing of wealth in the world.	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 revise topics relevant to their own personal learning gaps.		Students will need to use their social skills 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 activtes. 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.