

Curriculum Content Map

Subject: Maths Y8

		Month	Term 1				Term 2				Term 3			
			September	October	November	December	January	February	March	April	May	June		
			Ratio and Proportion	Fractions	Geometry and Graphs	Representation	Expand Brackets	Sequences and Indices	Fractions, Percentages, Decimals	Standard form and Measures	Geometry	Transformations and Data Handling		
			ALGEBRA	NUMBER	SHAPE AND DATA	DATA	ALGEBRA	ALGEBRA	NUMBER	NUMBER	SHAPE	SHAPE AND DATA		
Cultural Transmission	Units of Work		<p>Understand the meaning and representation of ratio</p> <p>Understand and use ratio notation</p> <p>Solve problems involving ratios of the form 1:n or n:1</p> <p>Solve proportional problems involving the ratio m:n</p> <p>Divide a value into a given ratio</p> <p>Express ratios in their simplest integer form</p> <p>Express ratios in the form 1:n</p> <p>Compare ratios and related fractions</p> <p>Understand as the ratio between diameter and circumference</p> <p>Understand gradient of a line as a ratio</p> <p>Solve problems involving direct proportion</p> <p>Explore conversion graphs</p> <p>Convert between currencies</p> <p>Explore direct proportion graphs</p> <p>Explore relationships between similar shapes</p> <p>Understand scale factors as multiplicative representations</p> <p>Draw and interpret scale diagrams</p> <p>Interpret maps using scale factors and ratios</p>	<p>Represent multiplication of fractions</p> <p>Multiply a fraction by an integer</p> <p>Find the product of a pair of unit fractions</p> <p>Find the product of a pair of any fractions</p> <p>Divide an integer by a fraction</p> <p>Divide a fraction by a unit fraction</p> <p>Understand and use the reciprocal</p> <p>Divide any pair of fractions</p> <p>Multiply and divide improper and mixed fractions</p> <p>Multiply and divide algebraic fractions</p>	<p>Work with coordinates in all four quadrants</p> <p>Identify and draw lines that are parallel to the axes</p> <p>Recognise and use the line $y=x$</p> <p>Recognise and use lines of the form $y=kx$</p> <p>Link $y=kx$ to direct proportion problems</p> <p>Explore the gradient of the line $y=kx$</p> <p>Recognise and use lines of the form $y=x+a$</p> <p>Explore graphs with negative gradient $y=-kx$, $y=a-x$, $x+y=a$</p> <p>Link graphs to linear sequences</p> <p>Plot graphs of the form $y=mx+c$</p> <p>Explore non-linear graphs</p> <p>Find the midpoint of a line segment</p> <p>Draw and interpret scatter graphs</p> <p>Understand and describe linear correlation</p> <p>Draw and use line of best fit</p> <p>Identify non-linear relationships</p> <p>Identify different types of data</p> <p>Read and interpret ungrouped frequency tables</p> <p>Read and interpret grouped frequency tables</p> <p>Represent grouped discrete data</p> <p>Represent continuous data grouped into equal classes</p> <p>Represent data in two-way tables</p>	<p>Construct sample spaces for 1 or more events</p> <p>Find probabilities from a sample space</p> <p>Find probabilities from two-way tables</p> <p>Find probabilities from Venn diagrams</p> <p>Use the product rule for finding the total number of possible outcomes</p>	<p>Form algebraic expressions</p> <p>Use directed number with algebra</p> <p>Multiply out a single bracket</p> <p>Factorise into a single bracket</p> <p>Expand multiple single brackets and simplify</p> <p>Expand a pair of binomials</p> <p>Solve equations, including with brackets</p> <p>Form and solve equations with brackets</p> <p>Understand and solve simple inequalities</p> <p>Form and solve inequalities</p> <p>Solve equations and inequalities with unknowns on both sides</p> <p>Form and solve equations and inequalities with unknowns on one side</p> <p>Identify and use formulae, expressions, identities and equations</p>	<p>Generate sequences given a rule in words</p> <p>Generate sequences given a simple algebraic rule</p> <p>Generate sequences given a complex algebraic rule</p> <p>Find the rule for the nth term of a linear sequence</p> <p>Adding and subtracting expressions with indices</p> <p>Simplifying algebraic expressions by multiplying indices</p> <p>Simplifying algebraic expressions by dividing indices</p> <p>Using the addition law for indices</p> <p>Using the addition and subtraction law for indices</p> <p>Exploring powers of powers</p>	<p>Convert fluently between key fractions, decimals and percentages</p> <p>Calculate key fractions, decimals and percentages of an amount without a calculator</p> <p>Calculate fractions, decimals and percentages of an amount using calculator methods</p> <p>Convert between decimals and percentages greater than 100%</p> <p>Percentage decrease with a multiplier</p> <p>Calculate percentage increase and decrease using a multiplier</p> <p>Express one number as a fraction or a percentage of another without a calculator</p> <p>Express one number as a fraction or a percentage of another using calculator methods</p> <p>Work with percentage change</p> <p>Choose appropriate methods to solve percentage problems</p> <p>Find the original amount given the percentage less than 100%</p> <p>Find the original amount given the percentage greater than 100%</p> <p>Choose appropriate methods to solve complex percentage problems</p>	<p>Investigate positive powers of 10</p> <p>Work with numbers greater than 1 in standard form</p> <p>Investigate negative powers of 10</p> <p>Work with numbers between 0 and 1 in standard form</p> <p>Compare and order numbers in standard form</p> <p>Mentally calculate with numbers in standard form</p> <p>Add and subtract numbers in standard form</p> <p>Multiply and divide numbers in standard form</p> <p>Use a calculator to work with numbers in standard form</p> <p>Understand and use negative indices</p> <p>Understand and use fractional indices</p> <p>Round numbers to powers of 10, and 1 significant figure</p> <p>Round numbers to a given number of decimal places</p> <p>Estimate the answer to a calculation</p> <p>Understand and use error interval notation</p> <p>Calculate using the order of operations</p> <p>Calculate with money</p> <p>Convert metric measures of length</p> <p>Convert metric units of weight and capacity</p> <p>Convert metric units of area</p> <p>Convert metric units of volume</p> <p>Solve problems involving time and the calendar</p>	<p>Understand and use basic angles rules and notation</p> <p>Investigate angles between parallel lines and the transversal</p> <p>Identify and calculate with alternate and corresponding angles</p> <p>Identify and calculate with co-interior, alternate and corresponding angles</p> <p>Solve complex problems with parallel line angles</p> <p>Construct triangles and special quadrilaterals</p> <p>Investigate the properties of special quadrilaterals</p> <p>Identify and calculate with sides and angles in special quadrilaterals</p> <p>Angles in parallel lines and polygons</p> <p>Understand and use the properties of diagonals of quadrilaterals</p> <p>Understand and use the sum of exterior angles of any polygon</p> <p>Calculate and use the sum of the interior angles in any polygon</p> <p>Calculate missing interior angles in regular polygons</p> <p>Prove simple geometric facts</p> <p>Construct an angle bisector</p> <p>Construct a perpendicular bisector of a line segment</p> <p>Calculate the area of a triangle, rectangles and parallelograms</p> <p>Calculate the area of a trapezium</p> <p>Calculate the perimeter and area of compound shapes (1)</p> <p>Investigate the area of a circle</p> <p>Calculate the area of a circle and parts of a</p>	<p>Line symmetry and reflection</p> <p>Recognise line symmetry</p> <p>Reflect a shape in a horizontal or vertical line 1 (shapes touching the line)</p> <p>Reflect a shape in a horizontal or vertical line 2 (shapes not touching the line)</p> <p>Reflect a shape in a diagonal line 1 (shapes touching the line)</p> <p>Reflect a shape in a diagonal line 2 (shapes not touching the line)</p> <p>Set up a statistical enquiry</p> <p>Design and criticise questionnaires</p> <p>Draw and interpret pictograms, bar charts and vertical line charts</p> <p>Draw and interpret multiple bar charts</p> <p>Draw and interpret pie charts</p> <p>Draw and interpret line graphs</p> <p>Choose the most appropriate diagram for given set of data</p> <p>Represent and interpret grouped quantitative data</p> <p>The Data Handling Cycle</p> <p>Find and interpret the range</p> <p>Compare distributions using charts</p> <p>Identify misleading graphs</p>		
		Substantive Knowledge	<i>The What!</i>	Find ratios Proportion Use scale factor	Use Draw maps	Perform all four operations with fractions	Plot coordinates Explore graphs and linear equations Draw and use line of best fit Represents data	Draw venn diagrams Construct sample space diagrams Find probabilities	Simplify Expressions, Factorise algebra, solve equations and inequalities Use formula	Find nth term, use index laws	Convert between fractions decimals and percentages. Find percentage change and original amounts	Convert from standard form to ordinary numbers. Use rounding. Use BIDMAS. Convert measures.	Explore angles in different shapes. Find missing angles.	Complete and describe transformations. Draw and interpret diagrams representing data.
		Disciplinary knowledge	<i>The How!</i>	Understand ratio, proportion and scales	Understanding how to add, subtract, multiply and divide fractions.	Understand how to work with coordinates Understand how to plot graphs using linear equations Understand methods to represent data	Understand how to use sample space diagrams and how to draw venn diagrams Understand how probabilities are found	Understand how to simplify expression, factorise, solve equations and solve inequalities.	Understand nth term and understand how to add, subtract powers and raise a power to a power.	Understand fraction, percentage, decimal equivalence. Understand percentage change.	Understand standard form, rounding, order of operations and measures.	Understand all the different angles and the reasons for them. Use the correct reasons to find missing angles	Understand transformations and data in diagrams.	
		Sequencing (Flow)	<i>Retrieval & Extension</i>	<u>Builds from KS3:</u> Work with scale factors and enlargement. Share in a given ratio <u>Further develops in Y11:</u> Indirect proportion involving quadratics	<u>Builds from KS3:</u> Times tables <u>Further develops in Y11:</u> Algebraic Fractions	<u>Builds from KS3:</u> Plot points and draw bar charts <u>Further develops in Y11:</u> Plot points and draw reciprocal graphs	<u>Builds from KS3:</u> Sort data <u>Further develops in Y11:</u> Probability of something not happening	<u>Builds from KS3:</u> Solve simple equations <u>Further develops in Y11:</u> Solve simultaneous equations	<u>Builds from KS3:</u> Squares and cubes <u>Further develops in Y11:</u> Simplifying algebraic fractions using index laws	<u>Builds from KS3:</u> Convert basic FDP <u>Further develops in Y11:</u> Simple and Compound Interest	<u>Builds from KS3:</u> Talk about very big and very small numbers. Introductions to BIDMAS <u>Further develops in Y11:</u> Word problems involving measures	<u>Builds from KS3:</u> Draw shapes <u>Further develops in Y11:</u> Circle theorems	<u>Builds from KS3:</u> Representing Data, Reflection <u>Further develops in Y11:</u> Draw Histograms	
		Summative Assessment		Deep Mark 1: Homework End of Topic Test - Ratio, Proportion and Scales	Deep Mark 2: Homework End of Topic Test - Fractions	Deep Mark 1: AP1 Assessment - Whole School Data Collection End of Topic Test - Algebra and data	Deep Mark 2: Homework End of Topic Test - Probability	Deep Mark 1: Homework End of Topic Test - Algebra	Deep Mark 2: Homework End of Topic Test - Sequences and Indices	Deep Mark 1: AP2 Assessment - Whole School Data Collection End of Topic Test - Number	Deep Mark 1: Homework End of Topic Test - Angles	Deep Mark 2: AP3 Assessment - Whole School Data Collection End of Topic Test - Transformations and Data		
Personal Empowerment	Virtue		Friendliness & Civility	Justice & Truthfulness	Courage	Generosity	Gratitude	Good Speech	Good Temper & Humour	Self-Mastery		Compassion		
	Link to Virtue	<i>The opportunity to reflect, think deeply and critically about an issue.</i>	Students will need to ensure they demonstrate friendliness and civility as they support each other in consolidating and extending their ratio knowledge.	Students will look at the truthfulness of fractions. Students will also look at how fractions are used to hide the truth.	Students will need to demonstrate courage to extend their knowledge of data and build upon this to tackle more difficult linear graphs.	Students will need to be generous with their time in terms of retrieval as this will need to be secure in order to understand how to write probability	Students will need to demonstrate their gratitude for the time spent securing their knowledge in algebra.	Students will need to demonstrate good temper and humour	Students will need to demonstrate good temper and humour	Students have learned BIDMAS in KS3 so this topic is about mastering these skills and developing them further.	Students have learned how to use angle facts, but will now be mastering these skills and learning to use them.	Students will need to show compassion for each other as they help and support each other in tackling more difficult data skills.		
Preparation for Work	Skill	<i>Transferable skills</i>	Listening	Leadership	Problem-Solving	Creativity	Staying Positive	Speaking	Staying Positive	Aiming High		Speaking		
	Link to Skill		Students will need to listen to each other and be able to explain another students' opinion. Students will also need to be listen to the teacher to pull out consistency underlying themes or use of previous skills. This unit links to careers in statistics and HR	Students will lead their learning to ensure they are secure in building on previous knowledge. This unit links to careers in Insurance.	Students will need to use their problem-solving skills to be able to draw graphs. This unit links to careers in statistics and data analysis	Students will demonstrate creativity as they look at the different ways of explaining venn diagrams. This unit links to careers in business models and Actuaries	Students will need to stay positive as they encounter factorisation and ensure they feel secure in their knowledge. This unit links to careers in retail sector	Students will need to use their speaking skills as they explain their working and also explain how to transform shapes. This unit links to careers as a tiling and pattern making	Students will need to stay positive as they encounter percentage change and ensure they feel secure in their knowledge. This unit links to careers in science.	Students will need to stay positive as they extend their number knowledge to develop to use standard form. This unit continues to look at careers in design, construction and photography.	Students will need to aim high when finding missing angles in problem solving. This unit links to careers in constructions and interior design	Students will need to use their speaking skills as they explain their working and also explain the mistakes others have made. This unit links to careers in sport and business.		
Preparation for Citizenship	SMSC & British Values	<i>Developing opinions on current issues</i>	Social Mutual Respect	Social Moral Rule of Law	Social Moral Democracy	Social Tolerance	Social Cultural Rule of Law	Social Democracy	Social Cultural Individual Liberty	Social Cultural Mutual Respect	Social Rule of Law			
	Link to SMSC & British Values		Students will use their social skills during paired and group work, with a particular focus on the virtue of friendliness & civility as they interact. Mutual respect goes hand-in-hand with friendliness & civility so students will practice both the british value and virtue as they progress through this topic.	Students will look at the social skills they need in order to work together in pairs and grouped work. Students will look at the moral consequences of manipulation to hide information. Students will understand the 'rules of law' in terms of processes and methods linked to fractions.	Students will use social skills to work together in pairs and groups. Students will look at the moral repercussions of ethical science applications	Students will need to use their social skills to retrieve and extend their learning in paired and group activities. Students will need to demonstrate tolerance for each other and support each other rather than get frustrated when peers find work more difficult.	Students will need to use their social skills as they work together in group activities. Students will look at different cultures and their contribution to mathematics. Students will need to understand the rules and processes associated with using different methods solve inequalities.	Students will use their social skills as they work together in pairs and groups. Students will discuss, debate and make decisions in a democratic way in order to ensure they use the appropriate words to describe combinations of FDP.	Students will use their social skills to investigate enlargement of shapes and similarity. Students will look at how different cultures use numbers and religion. Students will demonstrate individual liberty by developing the confidence in their freedom to select the correct operation sequence in BIDMAS for the question.	Students will need to use their social skills as they work together to understand different angles. Students will look at how different cultures use patterns. Students will need to show mutual respect as they help each other to make progress throughout this topic.	Students will need to use their social skills as they complete paired and group work. Students will understand the data represented in diagrams and use the information from there.			

July
Averages
DATA
<p>Understand and use the mean, median and mode</p> <p>Choose the most appropriate average</p> <p>Find the mean from an ungrouped frequency table</p> <p>Find the mean from a grouped frequency table</p> <p>Identify outliers</p> <p>Compare distributions using averages and the range</p>
Use averages and calculate them. Work with spread of data.
Understand mean, median, mode and range
<p>Builds from KS3: Collect data</p> <p>Further develops in Y11: Estimate mean from a grouped frequency table</p>
End of Topic Test - Averages
Good Sense
Students will need to use good sense to ensure that their averages make sense – and that they remember to check the answers!
Teamwork
Students will work together and use teamwork to solve problems in various forms. This unit links to careers in Acturial Science.
Social Moral
Individual Liberty
<p>Students will use their social skills as they demonstrate the skill of teamwork and find the correct way to find averages in pairs and groups.</p> <p>Students will discuss the moral repercussions of assuming in terms of information gained from data to predict events.</p> <p>Students will use their individual liberty to choose the appropriate method of finding the range for each problem.</p>