

Year: 8

Subject: Mathematics

Term	Week	Focus	Summary	Learning Outcomes	Parental Support	Independent Learning
1A	1	Ratio	In the first week of year 8 students explore how ratio is used to represent multiplicative relationships between two or more values, and they are introduced to the colon in the context of a ratio.	Understand what a ratio is Solve sharing in a ratio problems with the whole given Solve sharing in a ratio problems with a part of the whole given Solve sharing in a ratio problems with the difference between shares given	Detailed topic overview including examples of the techniques children are taught	Lesson Resources in case you want to finish something at home
	2	Ratio	In this week pupils develop their knowledge of ratio to include simplifying ratios, expressing ratios in the form 1:n and comparing ratios and fractions.	Simplify ratios Express ratios in the form 1:n and n:1 Compare ratios and fractions Solve more complex problems with ratio	Detailed topic overview including examples of the techniques children are taught	Lesson resources in case you want to finish something at home
	3	Proportion and scale	In this topic pupils explore multiplicative relationships between quantities that are in direct proportion. This week sees pupils introduced to the concept of direct proportion using a double number line before their skills to currency conversions.	Using a double number line to solve proportion problems Use a conversion graph to convert between units Convert between currencies Use graphs to represent direct proportion	Detailed topic overview including examples of the techniques children are taught	Lesson resources in case you want to finish something at home
	4	Proportion and scale	This week pupils at applying their skills of direct proportion to a range of real life scenarios such as converting metric units and interpreting the scale a map is drawn to.	Find missing lengths of similar shapes Convert between metric units Draw and interpret scale diagrams	Detailed topic overview including examples of the techniques children are taught	Lesson resources in case you want to finish something at home

				Interpret maps using scales and ratios		
5	Algebraic manipulation	For their next topic pupils develop their ability to form, recognise and simplify algebraic expressions. At the end of the week they revisit their negative number skills by applying them to algebra	Form algebraic expressions Identify and use formulae, expressions, identities and equations Simplify expressions Use directed number with algebra	Detailed topic overview including examples of the techniques children are taught	Lesson resources in case you want to finish something at home	
6	Algebraic manipulation	This week pupils begin to manipulate algebra learning how to expand and factorise linear expressions progressing to them end of the week applying their negative number skills to simplifying multiple expressions after expansion	Substitute into expressions including directed numbers Expand a single bracket Factorise into a single bracket Expand a single bracket and simplify	Detailed topic overview including examples of the techniques children are taught		
7	Algebraic manipulation	Pupils are now introduced to quadratic expressions and the techniques required to expand and factorise them.	Expand double brackets in the form $(x \pm a)(x \pm b)$ Factorise quadratic expressions Expand more complicated double brackets simplifying the result.	Detailed unit overview including examples of the techniques children are taught		

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1B	1	Coordinates and graphs	This week pupils start to learn how plot simple straight line graphs by recapping their knowledge of coordinates and learning how to plot lines parallel to the axis and the graph of $y = x$	Coordinates in all four quadrants Plot lines parallel to the axes Generate a table of values given a rule Recognise and use the line $y = x$		
	2	Coordinates and graphs	This week pupils build towards being able to plot and interpret lines in the form $y = mx + c$ including the gradient given and equation.	Plot lines in the form $y = mx$ Link $y = mx$ to direct proportion Introduce gradient $y = mx$ Identify an plot lines with a negative gradient		
	3	Coordinates and graphs	In the final week of this topic pupils will			
	4	Multiply and divide fractions	Pupils learn to multiply and divide fractions during this unit. They start with simple cases of a fraction by an integer before moving on to multiplying fractions. At the end of the week pupils are introduced to the concept of a reciprocal in preparation for written methods of dividing by fractions.	Divide a fraction by an integer Multiply a fraction by an integer Multiply two fractions Understand and be able to find reciprocals		

5	Multiply and divide fractions	During this week pupils progress to applying their knowledge reciprocals to be able to divide fractions. They then progress to multiply and dividing mixed numbers. More able groups will progress to multiplying and dividing algebraic fractions	<p>Divide and integer by a fraction</p> <p>Divide a fraction by a unit fraction</p> <p>Divide fractions</p> <p>Multiply and divide mixed numbers</p> <p>Multiply and divide algebraic fractions</p>			
6	Symmetry and reflection	This week pupils complete a short topic on symmetry and reflection. More able pupils will link this topic to prior learning by reflecting a shape by a given equation of a line	<p>Identify and use line symmetry</p> <p>Identify the order of rotational symmetry</p> <p>Reflect a shape in a horizontal or vertical line</p> <p>Reflect a shape in a diagonal line</p> <p>Reflect a shape given the equation of a line</p> <p>Describe a reflection</p>			
7	End of term Test					

Term	Week	Focus	Summary	Learning Outcomes	Parental Support	Independant Learning
2A	1	Area, volume and density	In the topic of this term pupils start by looking at how to identify and find the area of a 2D shapes before moving on to identifying the properties of various prisms	<p>Name 2D and 3D shapes</p> <p>Find the area of a 2D shape</p> <p>Find the area of compound shapes</p> <p>Recognise prisms including faces, edges and verities</p>		
	2	Area, volume and density	This week pupils learn how to find the volume of a 3D shape and then extending their understanding to solving problems involving density and mass.	<p>Volume of cubes and cuboids</p> <p>Convert metric units of mass and capacity</p> <p>Understand the units of mass, density and volume</p> <p>Solve problems with density, mass and volume</p> <p>Solve problems involving the area and volume of similar shapes</p>		
	3	Equations and inequalities	During the first week of this topic pupils learn how to solve a range of linear equations using both bar models and formal written methods	<p>Solve simple 1 and 2 step equations</p> <p>Solve more complex multi-step equations</p> <p>Solve fractional equations</p> <p>Form and solve equations</p> <p>Solve equations with unknown on both sides</p>		

4	Equations and inequalities	In the second part of this topic pupils learn how to apply their knowledge of solving equations to inequalities. More able pupils will reach the point where they can solve inequalities with variables on both sides.	<p>Understand and use inequalities</p> <p>Represent inequalities on a number line</p> <p>Solve simple inequalities</p> <p>Form and solve inequalities</p> <p>Solve inequalities with unknowns on both sides</p>		
5	Percentages	During the first week of this topic pupils are introduced to the relationship between fractions, decimals and percentages. They are then introduced to using a multiplier to find percentages of an amount.	<p>Find a percentage of an amount</p> <p>Convert between percentages and decimals</p> <p>Use multipliers to find percentages</p> <p>Convert between fractions decimals and percentages greater than 1</p>		
6	Percentages	This week pupils apply on their knowledge of how to convert between fractions decimal and percentages greater than 1 to a variety of context including percentage increases and expressing one amount as a percentage of another.	<p>Find a percentage increase using a multiplier</p> <p>Find a percentage decrease using a multiplier</p> <p>Percentage increase and decrease using a multiplier</p> <p>Express one number as a fraction or percentage of another using a calculator</p>		
7	Percentages	In the final week of the topic pupils continue to build upon their knowledge of to find a percentage change and begin to be able to solve reverse percentage problems	<p>Express one number as a fraction or percentage of another</p> <p>Find a percentage change</p> <p>Find the original value given a percentage change</p> <p>Choose appropriate methods to solve percentage problems</p>		

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2B	1	Indices	In the first week of their topic on indices pupils concentrate on problems involving the four operations and indices	<p>Add and subtract expressions with indices</p> <p>Multiply and divide expressions with indices</p> <p>Addition law for indices</p> <p>Subtraction law for indices</p>		
	2	Indices	During the final week of this topic pupils move on to learning how to simplify expressions with negative and fractional powers	<p>Solve problems involving addition and subtraction laws for indices</p> <p>Solve problems involving powers of powers</p> <p>Simplify Negative indices</p> <p>Simplify Fractional indices</p>		
	3	Standard form	This week pupils apply their knowledge of indices to writing numbers in standard form	<p>Positive and negative powers of 10</p> <p>Write numbers greater than 1 in standard form</p> <p>Write numbers between zero and 1 in standard form</p> <p>Use a calculator to solve problems in standard form</p>		

4	Interpret and represent data	During the first part of this topic pupils are introduced to different types of data and how to analyse data using averages and the range	<p>Identify different types of data</p> <p>Be able to identify outliers and errors in data sets</p> <p>Find averages and the range</p> <p>Choose the most appropriate average</p> <p>Compare distributions using averages and the range</p>			
5	Interpret and represent data	Pupils now apply their knowledge of types of data and averages to finding averages in frequency tables	<p>Averages from an ungrouped frequency table</p> <p>Represent and interpret grouped discrete data</p> <p>Represent and interpret continuous data grouped into equal classes</p> <p>Find the mean and the mode from a grouped frequency table</p>			
6	End of term test					
7	Angles in parallel lines and polygons	This unit starts with refreshing pupils' knowledge of basic angle facts. They then progress to solving simple problems involving angles in parallel lines	<p>Know basic angle rules and notation</p> <p>Solve problem with angles between parallel lines and transversals</p> <p>Solve problems with Alternate and corresponding angles</p> <p>Solve problems with Alternate, corresponding and co – interior angles</p>			

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3A	1	Angles in parallel lines and polygons	Pupils now move on to solving more complex problems in parallel lines before moving on to looking at the properties of quadrilaterals	<p>Solve complex problems with angles in parallel lines</p> <p>Properties of special quadrilaterals and their diagonals</p> <p>Find sides and angles in special quadrilaterals</p> <p>Solve problems involving the exterior angles of a polygon</p>		
	2	Angles in parallel lines and polygons Tables and probability	In the final week of the unit pupils further develop their knowledge external and interior angles of polygons including the formula for angle sum of a polygon. The most able pupils will progress to producing simple algebraic proofs of angle facts	<p>Solve problem involving the Interior angles of a polygon</p> <p>Solve problems involving the interior angles of a regular polygon</p> <p>Prove simple geometric facts.</p>		
	3	Tables and probability	The first week of the tables and probability unit sees refresh their knowledge of probability vocabulary and then learning to solve basic probability problems	<p>Know basic probability vocabulary</p> <p>Understand the probability scale</p> <p>Find the probability of a single event</p> <p>Use the sum of probability being equal to 1 to solve problems</p>		

4	Tables and probability	In the second week of this topic pupils progress to using sample space diagrams and two-way tables to find probabilities	<p>Conduct probability experiments</p> <p>Draw sample space diagrams for one or more events</p> <p>Find probabilities from sample space diagrams</p> <p>Draw to way tables</p>			
5	Tables and probability	During the final week of this topic pupils progress to drawing frequency trees and using them to find probabilities	<p>Find probability from two-way tables</p> <p>Draw frequency trees</p> <p>Find probabilities from frequency trees</p>			
6	Circles	In the first week of the topic on circles pupils learn the basics of circle vocabulary, to understand π as a ratio and finding the circumference of a circle	<p>Know basic circle vocabulary</p> <p>Understand π as a ratio</p> <p>Find the circumference of a circle</p> <p>Find the perimeter of parts of a circle</p>			
7	Circles	During the second week of the unit pupils progress to finding the area of a circle and solving problems involving the areas of compound shapes involving circles	<p>Calculate the area of a circle</p> <p>Solve problems involving the area of parts of a circle</p> <p>Find the perimeter of compound shapes with circles</p>			

				Calculate the perimeter and area of compound shapes with circles		

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3B	1	Graphs and charts	The first week of this topic concentrates on drawing and interpreting a variety of charts including Pictograms, bar charts and pie charts	<p>Draw and interpret pictograms and bar charts</p> <p>Draw and interpret vertical line graphs</p> <p>Draw pie charts</p> <p>Interpret pie charts</p>		
	2	Graphs and charts	In this week's lessons pupils learn how to draw and interpret line graphs and then progress to comparing distributions using graphs	<p>Draw and interpret line graphs</p> <p>Choose the most appropriate graph or chart</p> <p>Comparing distributions using graphs</p> <p>Identifying misleading graphs and charts</p>		
	3	Sequences	The final unit of the year see pupils refresh their knowledge of sequences from last years scheme and further develop their fluency at finding the nth term of a sequence	<p>Generate and describe a sequence given a rule in words</p> <p>Generate a sequence given a simple algebraic rule</p> <p>Find the nth term of a linear sequence</p> <p>Generate a sequence given a more complex algebraic rule</p>		

	4	Revision for end of year test				
	5	End of year test				
	6	Spare Week				