Year 8	Term 1					
Unit Title	Ratio and scale	Multiplicative change	Multiplying and dividing fractions	Working in the Cartesian plane	Representing data	Tables and probability
Approximate Number of Lessons	6	6	6	9	6	3
Curriculum Content	• Understand and use ratio notation • Solve problems involving ratio in the form 1:n or n:1 • Solve proportional problems • Share in a ratio • Express ratios in their simplest integer form • Use unitary form • Compare ratios and related fractions • Understand π as the ratio between diameter and circumference • Express ratios in the form 1:n • Understand gradient of a line as a ratio • Work fluently with the formulae for the circumference of a circle	• Solve problems involving direction proportion • Explore conversion graphs • Convert between currencies • Explore relationships between similar shapes • Understand scale factors as multiplicative representations • Draw and interpret scale diagrams • Interpret maps using scale factors and ratios • Explore direct proportion graphs • Work with inscribed similar shapes	• Represent multiplication of fractions • Multiply a fraction by an integer • Find the product of a pair of fractions • Divide an integer by a fraction • Divide any pair of fractions • Understand and use reciprocals • Multiply and divide improper and mixed fractions • Multiply and divide algebraic fractions	• Work with coordinates in all four quadrants • Identify and draw lines that are parallel • Recognise and use lines of the form $y = x$ and $y = kx$ • Link $y = kx$ to direct proportion questions • Recognise and use lines of the form $y = x + a$ • Explore graphs with negative gradients $(y = -kx, y = a - x, x + y = a)$ • Link graphs to linear sequences • Plot graphs of the form $y = mx + c$ • Explore non-linear graphs • Find the midpoint of a line segment	• Draw and interpret scatter graphs • Understand and describe linear correlation • Draw and use a line of best fit • Identify non-linear relationships • Identify different types of data • Read and interpret ungrouped and grouped frequency tables • Represent grouped discrete and continuous data grouped into equal classes • Represent data in two-way tables • Recognise outliers • Calculate proportion from frequency tables	• Construct sample space diagrams for one or more independent events • Find probability from sample space diagrams • Find probabilities from two-way tables • Find probabilities from Venn diagrams • Use the product rule for finding the total number of possible outcomes
Links to prior learning	• Represent ratios pictorially • Key ratio language and vocabulary e.g. 'for every 4, there are 3' • Simplifying ratios • Gradients	• Similar shapes • Shapes in different orientations • Metric conversions • Using scale factors • Calculating scale factors • Four quadrants of a graph	• Represent proper and improper fractions • Compare, order and simplify fractions • Add and subtract fractions • Fraction of an amount • Four operations with fractions and integers	• Four quadrants of a graph • Read and interpret line graphs • Draw line graphs • Use line graphs to solve problems • Draw and measure line segments	• Two-way tables • Read and interpret tables • Pie charts and pictograms • Read and interpret line graphs	• Two-way tables • Interpret and create Venn diagrams • Identify and represent sets • Know and use the language of probability e.g. likely, unlikely, certain.
Cultural Capital Opportunities	[Cook at home recipes](#)	[Using scale for architecture](#)	[Countdown Game with Fractions](#)	[Will the pool be empty in time?](#)	[Oh You Beauty! How graphs are used in football](#)	[What are the chances video](#)
Assessment Focus	Formative assessment on the half term's content covering a full variety of fluency, application and problem-solving questions, lasting approximately 45 minutes.			Whiterose end of term assessment on the full term's content, lasting approximately 45 minutes-90 minutes depending on Maths set.		
Name of Knowledge Organiser/Link to Organiser	📄 PDF Unit-01---Ratio-and-Scale-KO.pdf	📄 PDF Unit-02---Multiplicative-change-KO.pdf	📄 PDF Unit-03---Multiplying-and-Dividing-Fraction	📄 PDF Unit-04---Working-in-the-cartesian-plane-k	📄 PDF Unit-05---Representing-Data.pdf	📄 PDF Unit-06---Tables-and-Probability-KO.pdf

Year 8	Term 2					
Unit Title	Brackets, equations and inequalities	Sequences	Indices	Fractions and percentages	Standard index form	Number sense
Approximate Number of Lessons	12	3	3	9	6	3
Curriculum Content	• Form algebraic expressions • Use directed number within algebra • Multiply and factorise simple expressions • Expand multiple single brackets and simplify • Form and solve equations, including with brackets • Form and solve inequalities • Identify and use formulae, expressions, identities and equations • Expand a pair of binomials • Form and solve equations and inequalities with unknowns on both sides	• Generate sequences given a rule in words • Generate sequences given a simple algebraic rule • Generate sequences given a complex algebraic rule, involving brackets, squares and cubes. • Find the rule for the nth term of a linear sequence	• Adding and subtracting expressions with indices • Simplify algebraic expressions by multiplying indices • Simplify algebraic expressions by dividing indices • Use the addition and subtraction laws for calculating with indices • Explore powers of powers	• Convert fluently between key fractions, decimals and percentages, including greater than 100% or 1 • Calculate key fractions, decimals and percentages of an amount with and without a calculator • Increase and decrease using a multiplier • Express one number as a fraction or percentage of another • Work with percentage change • Choose appropriate methods to solve problems • Find the original amount given the percentage, less than or greater than 100%	• Investigate positive and negative powers of 10 • Work with numbers greater than 1 and between 0 and 1. • Compare and order numbers in standard form • Mentally calculate with numbers in standard form • Add and subtract numbers in standard form • Multiply and divide numbers in standard form • Use a calculator to work with numbers in standard form • Understand and use negative indices • Understand and use fractional indices	• Round numbers to powers of 10 and significant figures • Round numbers to a given number of decimal places • Estimate the answer to a calculation • Calculate using the order of operations • Calculate with money • Convert metric measures of length • Convert metric units of weight and capacity • Solve problems involving time and the calendar • Understand and use error interval notation • Convert metric units of area and volume
Links to prior learning	• BIDMAS or BODMAS • Inequalities key language • Ordering integers • Understanding place value	• Describe, continue and check terms in sequences • Recognise linear and non-linear sequences	• Calculations across zero • Collecting like terms • Substitution • Function machines	• Fractions of number lines • Convert between fractions, decimals and percentages • Interpret pie charts	• Writing integers and decimals in the form $A \times 10^n$	• Know and use mental strategies for four operations with integers and decimals • Estimating and rounding • Converting units of measure
Cultural Capital Opportunities	Manga history algebra game	Sequences and patterns	Tennis tournament indices activity	Fractions Match them up activity	Standard form activities	How the French Revolution caused a space orbiter to crash
Assessment Focus	Formative assessment on the half term's content covering a full variety of fluency, application and problem-solving questions, lasting approximately 45 minutes.			Whiterose end of term assessment on the full term's content, lasting approximately 45 minutes-90 minutes depending on Maths set.		
Name of Knowledge Organiser/Link to Organiser	PDF Unit-07---Brackets--Equations-and-Inequali|	PDF Unit-08---Sequences-KO.pdf	PDF Unit-09---Indices-KO.pdf	PDF Unit-10---Fractions-and-Percentages-KO.p(	PDF Unit-11---Standard-Form-KO.pdf	PDF Unit-12---Number-sense-KO.pdf

Year 8	Term 3				
Unit Title	Angles in parallel lines and polygons	Area of trapezia and circles	Line symmetry and reflection	The data handling cycle	Measures of location
Approximate Number of Lessons	9	6	3	12	6
Curriculum Content	• Understand and use angle rules and notation • Angles in parallel lines • Construct triangles and special quadrilaterals • Investigate properties of special quadrilaterals • Understand and use the sum of exterior and interior angles of any polygon • Understand and use the properties of diagonals of quadrilaterals • Prove simple geometric facts • Construct an angle bisector • Constructor a perpendicular bisector of a line segment	• Calculate the area of triangles, rectangles, parallelograms and trapezia • Calculate the perimeter and area of compound shapes • Investigate the area of a circle by using geometric proof • Calculate the area of a whole and part circles with and without a calculator • Calculate the perimeter and area of complex compound shapes including part circles, trapezia and other polygons. • Understand how to derive the formula for calculate the area of a trapezium	• Recognise line symmetry • Reflect a shape in a horizontal or vertical line, with variant and invariant points • Reflect a shape in a diagonal line, with variant and invariant points • Understand and use y-axis and x = 0, and x-axis and y = 0 interchangeably • Reflect in the line y = x and y = -x on a graph	• Set up a statistical enquiry • Design and criticise questions and response boxes in questionnaires • Draw and interpret pictograms, bar charts and vertical line charts • Draw and interpret multiple bar charts, pie charts and line graphs • Choose the most appropriate diagram for a given set of data • Represent and interpret grouped quantitative data • Find and interpret range • Compare distributions using charts • Identify misleading graphs • Recognise and extrapolate using line graph trends • Create grouped frequency tables using inequality signs and find the range	• Understand and use the mean, median and mode • Choose the most appropriate average, relative to the data set • Identify outliers • Compare distributions using averages and the range • Find the mean from an ungrouped frequency table • Find the mean from a grouped frequency table
Links to prior learning	• Identify, compare and measure angles • Calculating angles using known angle facts, including in parallel lines • Regular and irregular polygons • Use of geometric notation • Triangle constructions	• Area and perimeter of triangles, polygons, parallelograms and compound shapes • Volume of shapes • Drawing nets • Use of geometric notation	• Describe movement on a grid • Key vocabulary e.g. horizontal and vertical	• Interpreting charts • Comparison, sum and difference • Line graphs introduced and interpreted	• Mean, median and mode from a set of data
Cultural Capital Opportunities	A nonagon	Area of a circle = πr SQUARED?	Car wheel lines of symmetry game	Famous Women in Maths	Find the averages games
Assessment Focus	Formative assessment on the half term's content covering a full variety of fluency, application and problem-solving questions, lasting approximately 45 minutes.			Whiterose end of term assessment on the full term's content, lasting approximately 45 minutes-90 minutes depending on Maths set.	
Name of Knowledge Organiser/Link to Organiser	PDF Unit-13---Angles-in-parallel-lines-and-poly	PDF Unit-14---Area-of-Tr apezia-and-circles-KO	PDF Unit-15---Line-symm etry-and-reflection-KO	PDF Unit-16---Data-handl ing-cycle-KO.pdf	PDF Unit-17---Measures-of-location-KO.pdf