Year 8

Mathematics Curriculum Overview

Autumn 1

Topic	Big Questions
Estimation	How do we round numbers to powers of 10, 1 significant figure & decimal places? How do we estimate the answer to a calculation? What do we understand about using error interval notation?
FDP Fluency	How do you convert fluently between fractions, decimals and percentages? How do you express a number as a fraction of another number? How do you express a number as a percentage of another number? What method can we use to calculate any percentage change? How do you fluently calculate with fractions?
Simplifying Algebra	How do we talk like a mathematician regarding algebra? How do we expand a single bracket? How do we expand multiple single brackets and simplify? How do we factorise into a single bracket? What do we recall about substituting into expressions and formulae?
Ratio and Proportion	How do we express ratios in their simplest integer and unit ratio form and how do we share in a ratio? How do we draw and interpret scale diagrams and maps using scale factors and ratios? How do we use multiplication and division to convert between currencies?

	What methods can we use to solve problems involving direct proportion including conversion graphs? How do we solve problems involving recipes? How do we approach best buy problems?

Autumn 2

Topic	Big Questions
Area and Perimeter	What do we recall about calculating the area of 2D shapes? What do we recall about calculating the perimeter of 2D shapes? What are the names of the different parts of a circle? How do you calculate the circumference of a circle? How can we show that we understand pi as a ratio? What method do you use to calculate the area of a circle? How do we calculate the perimeter and area of compound shapes? How can we use algebra to solve problems involving area and perimeters? What do we notice about the relationships between similar shapes and their scale factors?
Representing data	What are the different types of data? How do we construct and interpret two-way tables? How do we represent grouped discrete and continuous data? How do we read and interpret ungrouped and grouped frequency tables? What is a frequency tree and how do we use it to represent data?

	What is the difference between a dual and composite bar chart? How do we draw and interpret scatter graphs and correlation using a line of best fit? What do we recall about calculating averages and the range? How do we compare distributions using averages and the range? How do we identify misleading graphs?

Spring 1

Topic	Big Questions
Index Form	What skills are required for adding and subtracting expressions with indices? How do we use the addition and subtraction laws for indices? How do we simplify algebraic expressions by multiplying and dividing indices? What can we discover by exploring powers of powers? How do we write a number as a product of its prime factors? How do we use a Venn diagram to calculate the HCF and LCM?
Sequences	What do I need to do to generate sequences given a rule in words? How do I find the nth term of a linear sequence? How can I use the nth term of a linear sequence? What is the difference between a linear and non-linear sequence? How do we use our understanding to find missing terms in any type of sequence?
Linear Graphs	How do we plot graphs in the form y=mx+c? How do we find the midpoint of a line segment?

	How do we calculate the gradient of a line between two coordinates? How do we calculate the equation of a line graphically? How do we draw and interpret line graphs? How do we work with direct proportion graphs (inc conversion graphs)? How do we model real-life graphs involving inverse proportion?

Spring 2

Topic	Big Questions
Angle reasoning	What do we understand about basic angle rules and notation? What can we discover if we investigate angles between parallel lines and the transversal? What do we understand about the sum of interior and exterior angles of any polygon? How do we calculate missing interior angles in polygons? How can we construct triangles and special quadrilaterals? What can we discover if we investigate the properties of special quadrilaterals? How can we construct an angle bisector or perpendicular bisector of a line segment?
Volume and Surface Area	What are the names of 2-D and 3-D shapes and how do we recognise a prism? How do we sketch, recognise and draw accurate nets of cuboids and other 3-D shapes? What do we understand about plans and elevations? How do we calculate the surface area of cubes and cuboids? How do we calculate the surface area of triangular prisms?

	How do we calculate the surface area of a cylinder? How do we calculate the volume of cubes and cuboids? How do we calculate the volume of prisms and cylinders? What can we discover if we explore volumes of cones, pyramids and spheres? What do we notice about the relationships between 2D and 3D similar shapes and their scale factors? What calculations do we use to convert metric measures of area and volume?

Summer 1

Topic	Big Questions
Standard Form	How do we work with numbers greater than 1 in standard form? How do we work with numbers between 0 and 1 in standard form? What skills do we need to compare and order numbers in standard form? What do we need to do to calculate with numbers in standard form? How do we use a calculator to work with numbers in standard form? What skills are required to understand and use negative indices? What skills are required to understand and use fractional indices?
Solving Equations	How do we form and solve equations including brackets? How do we solve equations with unknowns on both sides? How do we solve and represent simple inequalities?

	How do we solve inequalities with unknowns on both sides? How do we form and solve equations and inequalities with unknowns on both sides?

Summer 2

Topic	Big Questions
Transformations	How do we compare and contrast rotational symmetry with line symmetry? How do we rotate a shape about a point on a coordinate grid? How do we compare rotation and reflection of shapes? How do we translate points and shapes by a given vector? How can we find the result of a series of transformations? How do we enlarge a shape by a positive scale factor? How do we enlarge a shape by a negative scale factor?
Compound Measures	How do we solve speed, distance and time problems with and without a calculator? How do we use distance time graphs? How do we solve problems with density, mass and volume? How do we use rates of change and their units?