YEAR 8 COURSE GUIDE

(Objectives in **bold** are optional 'higher' objectives)

	Selected Success Criteria, from this year's course (Higher objectives in bold)	
UNIT 1: RATIO AND SCALE	• Understand the meaning and representation of ratio and ratio notation • Solve problems involving ratios in the form 1:n (or n:1) and m:n • Divide a value into a given ratio • Express ratios in their simplest integer 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**	
UNIT 2: MULTIPLICATIVE CHANGE	• Solve problems involving direct proportion • Explore conversion graphs and convert between currencies • Explore relationships between similar shapes • Understand scale factors (include enlarging shapes) • Draw and interpret scale diagrams and interpret map using scale and ratio • **Explore direct proportion graphs**	
UNIT 3: MULTIPLYING AND DIVIDNG FRACTIONS	• Represent multiplication of fractions • Multiply a fraction by an integer and find the product of any pair of fractions • Divide an integer by a fraction and divide any pair of fractions • Understand and use the reciprocal • **Multiply and divide improper and mixed fractions** • **Multiply and divide algebraic fractions**	
UNIT 4: WORKING IN THE CARTESIAN PLANE	• Work with coordinates in all four quadrants • Identify and draw lines that are parallel to the axes • Recognise and use the line y =x and y = x + a • Recognise and use lines of the form y = kx and link to direct proportion • Explore graphs with negative gradient • Link graphs to linear sequences • Plot graphs of the form y = mx + c • **Explore the gradient of the line y = kx** • **Explore non-linear graphs** • **Find the mid-point of a line sequence**	
UNIT 5: REPRESENTING DATA	• Draw and interpret scatter graphs including correlation and lines of best fit • Identify non-linear relationships • Identify different types of data • Read and interpret ungrouped and grouped frequency tables • Represent grouped discrete data and grouped continuous data • Represent data in two-way tables	
UNIT 6: TABLES AND PROBABILITY	• Construct sample spaces for 1 or more events • Find probabilities from a sample space, Venn diagrams and two way tables • **Use the product rule for finding the total number of possible outcomes**	

UNIT 7: BRACKETS, EQUATIONS AND INEQUALITIES	• Form algebraic expressions and use directed number with algebra • Multiply out a single bracket and multiple single brackets • Factorise into a single bracket • Form and solve equations 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 in both sides**	
UNIT 8: SEQUENCES	• Generate sequences from rules in words and algebra • **Find the nth term of a sequence**	
UNIT 9: INDICES	• Adding and subtract expressions with indices • Multiply and divide algebraic expressions containing indices • Using the addition and subtraction law containing indices • **Explore powers of powers**	
UNIT 10: FRACTIONS AND PERCENTAGES	• Convert fluently between key fractions, decimals and percentages. (FDP) • Calculate key FDP's of an amount with and without a calculator. • Convert between decimals and percentages greater than 100% • Calculate percentage increase and decrease using a multiplier • Write one number as a fraction or percentage of another • **Find the original amount given the percentage (including over 100%)** • **Choose appropriate methods to solve complex percentage problems**	
UNIT 11: STANDARD FORM	• Work with numbers in standard form, including writing and ordering. • +. – x and ÷ numbers in standard form with and without a calculator • Understand and use negative and fractional indices	
UNIT 12: NUMBER SENSE	• Round numbers to a given number of decimal places, powers of 10 and 1s.f. • Calculate using the order or operations and estimate an answer • Solve problems involving money, time and the calendar • Convert using metric measures of length, mass and capacity • **Understand and use error interval notation** • **Convert metric units of area**	
UNIT 13: ANGLES IN PARALLEL LINES AND POLYGONS	• Understand and use basic angles rules and notation • Identify and use co-interior, alternate and corresponding angles • Construct triangles and special quadrilaterals and use their properties. • Calculate and use the sum of the exterior angles and interior of any polygon • **Understand and use the properties of diagonals of quadrilaterals** • **Construct a perpendicular bisector of a line segment. And an angle bisector**	
UNIT 14: AREA OF TRAPEZIA AND CIRCLES	• Calculate the area of triangles, rectangles, parallelograms and trapeziums. • Calculate the area of a circle and parts of a circle with/without a calculator • Calculate the perimeter and area of compound shapes	
UNIT 15: REFLECTION	• Recognise line symmetry • Reflect a shape in a horizontal, vertical or diagonal line	
UNIT 16: THE DATA HANDLING CYCLE	• Set up a statistical enquiry and design and criticise questionnaires • Draw and interpret pictograms, bar charts and vertical line charts • Draw and interpret pie charts, line graphs and multiple bar charts • Find and interpret the range • Compare distributions using graphs and identify misleading graphs.	
UNIT 17: MEASURES OF LOCATION	• Understand and use the mean, median and mode • Compare distributions using averages and the range and identify outliers • **Find the mean from grouped and ungrouped frequency tables.**	