Revision 'Must Know' Checklist: Y8 Maths Middle Upper Classes

Below is a checklist of everything you must know to be successful by the end of this year.

Number	Algebra	Geometry and Measures	Ratio and Proportion	Statistics and Probability
• Understand directed number in context and order directed numbers • Perform calculations that cross zero • Perform operations with directed numbers • Multiply fractions using diagrams • Multiply a fraction by an integer • Calculate the product of unit fractions Calculate the product of any fractions • Divide an integer by a unit fraction Divide using the reciprocal and a unit fraction • Multiply and divide algebraic fractions • Solve problems involving fractions including area and algebraic problems • Add, subtract, multiply and divide expressions with indices	• Work with coordinates in four quadrants. • Identify and draw lines that are parallel to the axes • Draw and recognise the line y = -x • Recognise and use lines in the form y=kx • Find the gradient of lines in the form y=kx • Find the gradient of a line, including negative and fractional gradients • Link graphs to sequences. • Use a table to plot a graph in the form y=mx+c • Factorise into a single bracket • Expand and simplify single brackets • Solve equations with brackets • Form and solve equations with brackets • Represent inequalities on a number line • Form and solve inequalities	• Convert metric measures of length, weight, and capacity • Convert metric units of area • Convert metric units of volume • Use angle notation correctly Review and use angle rules including problem solving • Identify equal angles on parallel lines and use correct terminology to describe them • Identify co-interior angles on parallel lines Solve problems with angles on parallel lines • Construct a triangle using a ruler, compass, and protractor • Use the properties of triangles and quadrilaterals to find missing sides and angles (including those in parallel lines) • Find and use the sum of exterior angles of a polygon	• Use ratio notation, simplify ratios, and combine unit conversion • Compare using ratio • Make links between ratio and proportion • Draw bar models to share in a given ratio • Write ratios from worded problems • Solve worded problems and divide a value into a three-part ratio. • Understand what is meant by direct proportion and solve direct proportion problems • Exchange between currencies and compare deals • Use and create conversion graphs, including currency and temperature • Understand the relationship between similar shapes, including those with a fractional scale factor	• Draw and interpret scatter graphs • Understand and describe linear correlation Recognise strong and weak correlations • Draw and use lines of best fit Understand and describe potential limitations of a line of best fit • Identify non-linear relationships and describe why these variables may have a non-linear relationship • Identify different types of data Describe the limitations of some data types • To be able to compare discrete data using mode, median, mean and range Find the mean from ungrouped frequency tables

• Understand and use the addition and subtraction laws of indices • Simplify powers of powers (both numerical and algebraic) • Review fractions skills including converting between fractions, decimals and percentages and finding fractions, decimals, and percentages of an amount with and without a calculator • Calculate percentage increase and decrease using a multiplier • Express one number as a fraction or a percentage of another • Work with percentage change • Find the original amount given a percentage less than 100% • Choose appropriate methods to solve percentage problems • Convert small and large numbers between ordinary and standard form • Compare and order numbers in standard form	• Solve equations and inequalities with unknowns on both sides • Generate a sequence given a rule in words or algebra • Generate a sequence given a complex algebraic rule • Find the rule for the nth term of a linear sequence, including descending sequences	• Understand and use the sum of interior angles in polygons • Recognise reflectional and rotational symmetry Reflect shapes in horizontal, vertical, and diagonal lines • Reflect shapes in named lines (y=x, y=-x, y=2, x=-3, etc) • Calculate the area and perimeter of triangles, quadrilaterals (including trapeziums) and compound shapes • Calculate the area and circumference of a circle with and without a calculator • Calculate area of parts of a circle and complex compound shapes	• Draw and interpret scale diagrams • Interpret maps using scale factors and ratios	• Read and interpret grouped frequency tables Estimate the mean from grouped frequency tables • Represent grouped discrete data • Represent continuous data grouped into equal classes • Represent data and interpret two-way tables Find probabilities from two-way tables • Construct sample spaces for one or more events • Find probabilities from a sample space • Find probabilities from Venn-diagrams • Use the product rule for finding the total number of possible outcomes • Design a questionnaire Collect and organise data • Represent data using dual and composite bar charts • Represent data using pie charts • Draw and interpret line graphs • Collate data into frequency and grouped frequency tables Draw a frequency polygon

• 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 and fractional indices • Round numbers to powers of 10 and one significant figure • Round numbers to a given number of decimal places • Estimate the answer to a calculation • Understand and use error interval notation • Calculate using the order of operations • Calculate with money, time, and the calendar				• Choose the most appropriate diagram for a given set of data Understand the advantages and disadvantages of different types of data representation • Choose the most appropriate average • Identify outliers and understand which measures are affected by outliers • Compare distributions using averages and the range