Revision 'Must Know' Checklist: Y10 Maths Foundation Tier (Lower)

Glenthorne High School
Achievement for all

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
• Use and order positive and negative integers, decimals. Understand < > ≠ • Add, subtract, multiply and divide positive and negative integers • Add, subtract, multiply and divide decimals - Including money problems • Use the order of operations with and without calculators for all calculations: positive and negative numbers, brackets, powers and roots, four operations • Multiply and divide numbers by powers of 10. Use one calculation to find an answer for another. • Round numbers to a given number of decimal places • Round numbers to a given number of significant figures • Estimate simple numerical calculations by rounding	• Identify expression/ equation/formula/identity from a list. • Manipulate and simplify algebraic expressions by collecting 'like' terms - Including terms with powers • Use index notation and laws when multiplying or dividing • Substitute numbers into expressions involving brackets and powers • Expand a single bracket • Factorise algebraic expressions into single brackets • Rearrange simple one step formulae • Rearrange two step formulae terms • Solve simple two-step linear equations with the unknown on one side - Including fractional coefficients which involve multiplying at the end • Solve linear equations which contain brackets • Solve linear equations with unknowns on both sides	• Use proper geometric notation to identify points, lines and angles • Describe the properties of triangles and quadrilaterals • Identify and name 2D shapes up to 12 sides • Find missing angles at a point, on a straight line, within right angles, and vertically opposite angles. • Find missing angles in triangles and quadrilaterals • Calculate and use the sums of the interior angles and exterior angles to find missing angles of regular and irregular polygons • Understand the angle properties and find missing angles in parallel and intersecting lines - Including reasons for answers • Convert metric units (length, capacity, mass) • Find the perimeter and area of rectangles, parallelograms and triangles • Find the volume of cuboids	• Simplify ratios • Write diagrams as ratios in their simplest forms • Use a ratio to find one quantity when the other is known • Share in a given ratio • Write a ratio as a fraction • Write ratios in form 1:n • Solve proportion problems using a unitary method • Work with Best Buys • Work with Recipe problems • Solve problems involving Speed, Distance, Time. • Solve problems involving Density, Mass, Volume, include changes of units • Interpret maps and scale drawings	• Work with time Interpret timetables and work out time taken for a journey • Use information provided to complete a two-way table from a worded problem • Produce and interpret a pictogram - Find the total population and mode • Produce and interpret dual/comparative bar chart - Find the total population, least/greatest values, mode and recognise patterns • Produce and interpret a line graph including for time-series data • Produce and interpret a stem and leaf diagram • Construct pie charts • Interpreting pie charts • Recognise types of data, e.g. Primary, secondary, discrete, continuous, qualitative, quantitative. • Understand how sources of data may be biased

numbers to 1 significant figure • Convert between ordinary numbers and standard form • Find the prime factor decomposition of positive integers and write as a product • Find the LCM and HCF of two numbers by listing - Include solving simple problems • Use laws of indices to multiply and divide numbers written in index notation • Compare and order fractions by using a common denominator • Convert between mixed numbers and improper fractions • Add and subtract fractions with and without a common denominator • Multiply and divide fractions by fractions. • Recognise recurring decimals and convert fractions such as 3/7, 1/3 and 2/3 into recurring decimals • Express a given number as a percentage of another number	• Write an equation to solve a word problem • Show inequalities on number lines and write an inequality using a number line • Solve simple linear inequalities in one variable, and represent the solution set on a number line • Continue an arithmetic or geometric sequence and find the term-to-term rule, including negatives. • Find the nth term of an arithmetic sequence - Include increasing and decreasing • Use the nth term of an arithmetic sequence to generate terms. • Plot or identify points needed to complete geometrical shapes in all four quadrants • Find the coordinates of the midpoint of a line segment • Recognise straight-line graphs parallel to the axes. Plot and draw graphs of y = a, x = a, y = x and y = –x • Recognise that equations of the form y = mx + c correspond to straight-line graphs in the coordinate plane. • Plot and draw graphs of straight lines of the form y = mx + c using a table of values	• Sketch nets of cuboids and prisms and know the properties of each shape • Find the surface area of a cube and a cuboid • Draw and read values from straight line graphs for real-life situations. • Draw and interpret distance–time graphs, and calculate: the speed of individual sections, total distance and total time • Perform all four transformations accurately and describe the four transformations on coordinate grids • Know and use Pythagoras' theorem to calculate missing sides in right-angled triangles • Learn about the trigonometric ratios and be able to label a triangle • Use tangent to find missing angles and sides • Use sine to find missing angles and sides • Use cosine to find missing angles and sides • Calculate the area and circumference of a circle • Work backwards to find a radius or diameter when given the area or circumference		• Find mean, mode, median and range from listed data • Organised listed data into a frequency table • Calculate the mode, median and range from a discrete frequency table • Find mean from a discrete/ungrouped frequency table • Calculate the modal class, median class and range from a grouped frequency table • Find estimated mean from a grouped frequency table • Draw a frequency polygon from a table • Complete frequency trees • Work with worded and numerical probability on probability lines. • Find the probability of a single event occurring using theoretical probability, including listing outcomes • Record outcomes of probability experiments in tables. • Work out probabilities from frequency tables, include deciding if a coin, spinner or game is fair • Find a missing probability from a list or table using mutually exclusive outcomes, including algebraic terms

• Find a percentage of an amount • Calculate a percentage increase/decrease of a quantity/measurement • Calculate percentage change - Profit/loss • Use index laws to simplify and calculate the value of numerical expressions involving multiplication and division of integer powers, including negatives • Evaluate numbers raised to the power zero, fractions and powers of a power • Find the reciprocal of an integer, decimal or fraction. Evaluate when written as a negative power. • Convert between ordinary numbers and standard form • Operations in standard form with a calculator	• Identify and interpret gradient from an equation y = mx + c. Identify parallel lines from their equations • Understand and use the concepts and vocabulary of expressions, equations, formulae, identities, inequalities, terms and factors • Define a 'quadratic' expression • Multiply simple double brackets • Factorise quadratic expressions of the form $x^2 + bx + c$ • Solve simple simultaneous equations algebraically • Recap plotting linear graphs. • Recognise a quadratic graph from its shape • Generate points and plot graphs of simple quadratic functions	• Calculate the volume of a cylinder • Draw the plan, front and side elevations of 3D solids and sketch 3D solids from plans and elevations • Accurately use a protractor to measure and draw angles, arcs and circles • Construct the bisector of a given line or angle • Use a straight edge, protractor and a pair of compasses to construct triangles • Find and describe regions satisfying a combination of loci • Use three-figure bearings to specify direction and work out the bearing from a given point • Understand and use the basic congruence criteria for triangles • Solve angle problems involving congruence • Understand similarity of shapes using scale factors and use to solve angle problems and find missing lengths in similar shapes • Be able to represent information graphically given column vectors		• Work out probabilities from two-way tables which have been partially completed • Complete and use a frequency tree • Use and draw sample space diagrams