



Summary Of Topics covered in Year 7

Topic	All pupils should...	Most pupils should...	Some pupils should...
Arithmetic & the Calculator	Have a understanding of basic number facts including times tables	Learn formal methods for computing multiplication for 2 & 3 digit numbers without the use of a calculator	Use the order of operations with brackets, powers and roots
Transformations	Know the directions on a compass	Translate and reflect, in a horizontal and vertical mirror line, a shape	Understand and use formal notation to describe a transformation
Ratio	Understand ratio notation	Be able to simplify a ratio	Use a ratio in simple problems
Shape & Construction	Recognise a triangle, square, pentagon, hexagon, octagon and decagon	Know the names for types of triangles and quadrilaterals	Construct an angle and perpendicular bisector
Algebra	Be able to write a simple algebraic expression	Use and interpret algebraic notation	Substitute positive integers into expressions and formulae involving powers
Number patterns and types of numbers	Recognise and describe numbers patterns for adding and subtracting sequences	Recognise and use the triangle numbers in a sequence	Be able to find the highest common factor and the lowest common multiple using the product of prime factors
Statistics	Be able to construct simple bar charts and pictograms	Be able to draw and interpret multiple and composite bar charts	Be able to interpret linear correlation and draw the line of best fit where appropriate
Percentages	Know how to find simple percentages (50%, 10%, 25% and 75%) for a given number	Be able to find any percentage for a given number	Be able to solve problems including percentage increase and decrease
Decimals	Understand place value	Be able to multiply a decimal by a decimal using times table rules. e.g. $0.2 \times 0.3 = 0.06$	Know how to divide a decimal by a decimal
Units of length and scale drawing	Know and use metric units to measure length	Read off of a scale	Convert between metric units of measurement
Area and perimeter	Be able to estimate an area of a shape	Know how to find the area of a compound shape (rectangles only)	Know how to find the area of a compound shape (more complex shapes)
Algebra	Understand what an inverse is and know how to find an inverse	Solve simple equations with integer coefficients	Solve equations with unknowns on both sides
Angles	Be able to identify different types of angles	Know and use a range of angle rules	Be able to find interior and exterior angles for any polygon
Fractions	Understand what a half and a quarter are	Recognise equivalent fractions	Be able to multiply and divide fractions by an integer

3D work	Recognise and know the names for different 3D shapes	Recognise and be able to draw the net of 3D shapes	Be able to calculate the surface area of cubes and cuboids
Statistics	Know how to find the mode and range for small sets of discrete data	Be able to calculate and interpret the mean of a small set of discrete data	Recognise the advantages and disadvantages between different averages
Fractions, Decimals & Percentages	Recognise simple equivalences between fractions, decimals and percentages	Use equivalences between fractions, decimals and percentages	Order a set of numbers which include fractions, decimals and percentages
Negative numbers	Be able to order negative numbers	Calculate temperature differences (including negatives)	Use inequality symbols $<$, $>$, \leq , \geq with negatives
Directed Number	Add and subtract negative numbers (e.g. $-2 + 6$)	Add and subtract directed numbers (+- or --)	Use all of the four rules of arithmetic with directed numbers
Time	Read the 12 hour clock	Convert between 12 hours and 24 hour clocks	Read and interpret information from timetables
Multiplying out Brackets		Know how to multiply out a single bracket with a positive number outside	Know how multiply out a single bracket with a letter or number outside
Venn Diagrams	Construct a Venn Diagram	Understand the terms intersection and union in terms of Venn Diagrams	Understand and use formal notation for Venn Diagrams

Summary of topics cover in Year 8			
Topic	All pupils should...	Most pupils should...	Some pupils should...
Number 1	Be able to use a range of mental and written methods for addition and subtraction.	Know and recognise the square numbers.	Round numbers to a specified number of significant figures.
Graphs	Be able to use and interpret co-ordinates in the first quadrant.	Know how to draw and read off values from a real-life graph.	Be able to calculate how to find compound measurements such as mph.
Statistics	Know how to construct and interpret simple pie charts for discrete data.	Be capable of completing, reading and interpreting two way tables.	Understand how to construct and interpret back-to-back stem and leaf diagrams.
Algebra 1	Be able to recognise and describe numbers patterns for adding and subtracting sequences.	Recognise special number sequences which include; square, cube, triangle and Fibonacci numbers.	Be capable of finding the n^{th} term of a linear sequence.
Angles	Recognise and be able to identify different types of angles and use the correct mathematical vocabulary.	Understand and apply angle rules including angles on a straight line and in a triangle.	Be able to find a bearing and use in a scale drawing.
Direct Number & Substitution	<i>Some groups may not cover this topic.</i>	Know how to add and subtract negative numbers. (e.g. $-2 + 6$)	Be able to apply the four rules of arithmetic to direct numbers (e.g. $+ -$ or $- -$)
Fractions	Understand what is meant by a half and a quarter.	Convert between mixed numbers to improper fractions and vice versa.	Apply the four rules of arithmetic with fractions with the same and different denominators.
Decimals	Be capable of reading, writing and ordering positive integers.	Round decimals to 1 or any given number of decimal places.	Know how to multiply and divide decimals by each other using a range of methods.
Probability	Be able to use the terms likely, equally likely, fair, unfair, certain correctly when describing chance.	Understand that different outcomes may results from repeating an experiment.	Calculate relative frequency.
Volume	Be able compare the volumes of objects.	Be able to find the volume of cubes and cuboids.	Be able to find the volume of prisms when the cross section is given.
Straight Lines	Name and draw horizontal and vertical lines on a graph.	Be able to complete a table of values for a given equation.	Be capable of calculating and interpreting the gradient and intercept from $y = mx + c$.
Percentages	Be able to calculate 50, 25, 75 & 10 percent of a quantity.	Understand how to solve problems involving simple percentage increase or decrease.	Use multipliers to solve problems involving percentage increase or decrease.
Circles	Identify the different parts of a circle and use the correct mathematical vocabulary.	Be able to find the circumference and area of a circle on a calculator.	Be able to find the circumference and area of a circle in terms of π .
Transformations	Know the directions on a compass	Translate and reflect, in a horizontal and vertical mirror line, a shape	Understand and use formal mathematical notation to describe a transformation
Ratio & Proportion	Understand ratio notation	Use proportion to increase or decrease a recipe.	Understand how to calculate value of money to

			solve problems. (Not always 'unit' pricing)
Statistics	Be able to complete, read and interpret continuous information in a tally chart.	Be capable of completing and interpreting the mean of a set of discrete data.	Know how to estimate the mean from grouped data.
Algebra 2	Understand what an inverse is and know how to show its use in a function machine.	Understand how to represent inequalities on a number line.	Solve simple linear inequalities in addition to being able to solve double inequalities.
Loci	<i>Some groups may not cover this topic.</i>	Know how to construct a perpendicular bisector.	Be able to draw 30° , 45° , 60° and 90° using only a compass, pencil and a ruler.
Fractions, Decimals & Percentages	Recognise simple equivalence between fractions, decimals and percentages.	Be confident in ordering a mixture of fractions, decimals and percentages.	Know fractional equivalents to key recurring decimals.
Intersecting Lines	Be able to continue a pattern in a sequence.	Be able to represent a number pattern on a graph.	Solve simultaneous equations (without multipliers) by looking at points of intersection.
Number 2	Use the order of operations including brackets when answering arithmetic questions.	Be confident in using the order of operations for any arithmetic problem (inc. powers and roots)	Know and understand the addition and subtraction index rules for numbers.
3D Shapes	Recognise a cube, cuboid, sphere, cylinder and pyramid.	Identify the symmetry of 3D shapes (planes and axes).	Be able to draw the elevations and plan view of a 3D shape.
Algebra 3	<i>Some groups may not cover this topic.</i>	Understand how to multiply a single bracket with a positive or negative number outside.	Factorise into a single bracket with letters and numbers as factors.
Number 3	Understand how to use equivalent calculations for checking.	Use approximation effectively to check answers.	Understand that we round to one significant figure when we are estimating.

Summary of topics covering in Year 9L			
Topic	All pupils should...	Most pupils should...	Some pupils should...
Statistics	Be confident in finding the mode and range for small sets of discrete data.	Be able to calculate and interpret the mean of a set of discrete data.	Be capable of comparing distributions of ungrouped discrete data using averages and range.
Arithmetic and the calculator	Have an understanding of basic number facts including times tables.	Use the grid method for multiplication as well as being able to use the bus stop method for division.	Use the order of operations with brackets.
Directed Number	Be able to order negative numbers/	Be able to calculate temperature differences.	Be able to apply addition, subtraction, multiplication and division to negative numbers.
Time	Read the 12 hour clock.	Convert between the 12 hour and 24 hour clocks.	Read and interpret information on timetables and calculate time durations.
Number patterns and types of numbers	Be able to recognise and describe odd and even numbers.	Be confident in recognising and describing multiples and factors of a number.	Be able to use the calculator to find squares and square roots.
Fractions, Decimals and Percentages	Be able to recognise equivalences between fractions, decimals and percentages.	Be confident in calculating simple percentages of a quantity (50%, 25%, 75% and 10%)	Be able to find any percentage of a quantity.
Area	Be able to estimate an area of a shape	Know how to find the area of a rectangle.	Be able to find the area of triangles as well as compound shapes involving rectangles.
Fractions	Understand what a half and a quarter are and being able to recognise a fraction shaded on a grid.	Recognise equivalent fractions	Be confident in simplifying fractions and calculating fractions of an amount.
3D Shape	Be able compare the volumes of objects.	Be able to find the volume of cubes and cuboids by counting cubes.	Be able to use metric units of volume as well as being able to find the volume of cuboids.
Decimals	Be able to use decimal notation in context such as money.	Use the bus stop method to divide decimals by a single digit number.	Use approximation through rounding to estimate answers. (e.g. $63 \times 28 \approx 60 \times 30$)
Algebra	Be able to write a simple algebraic expression.	Be confident in using and interpreting algebraic notation. (e.g. ab in place of $a \times b$)	Be able to substitute positive integers into expressions and formulae.
Number Patterns	Be able to draw the next pattern in a sequence.	Be confident in recognising the triangle, square and cube numbers in a sequence.	Be able to write one and two stage formulas.
Statistics	Be confident in constructing simple bar charts and pictograms.	Know how to construct and interpret multiple and composite bar charts.	Be capable of completing, reading and interpreting continuous information in a tally chart.

Angles	Recognise and be able to identify different types of angles and use the correct mathematical vocabulary.	Understand and apply angle rules including angles on a straight line and in a triangle.	Be able to construct a triangle using a protractor.
Probability	Be able to use the terms likely, equally likely, fair, unfair, certain correctly when describing chance.	Be able to construct a Venn Diagram	Be able to find and interpret probabilities from an experiment.
Algebra 2	Be able to identify and use an inverse function machine.	Be capable of solving simple one stage equations with unknowns on one side.	Be capable of solving simple one stage equations with unknowns on two sides.
2D Shape and Construction	Be able to use the correct mathematical vocabulary for polygons, triangles and quadrilaterals.	Be confident in constructing a circle using a compass.	Be able to identify perpendicular lines.
Ratio	Understand ratio notation	Use proportion to increase or decrease a recipe.	Understand how to calculate value of money to solve problems. (Not always 'unit' pricing)
Measurement and Perimeter	Be confident in using metric units when measuring length.	Be capable of reading from a scale.	Be confident in choosing the correct metric length and converting between metric lengths.
Transformations	Know the directions on a compass	Translate and reflect a shape, in a horizontal and vertical mirror line.	Be able to complete a diagram to make it have rotational symmetry and reflect in diagonal lines.
Co-ordinates	Be able to draw, label and scale axes correctly.	Be able to name and draw horizontal and vertical lines on a graph.	Be confident in using and interpreting co-ordinate in all four quadrants.

Summary of topics covered in Year 9M			
Topic	All pupils should...	Most pupils should...	Some pupils should...
Statistics	Be capable of finding the median for small sets of discrete data.	Be confident in calculating possible values of the set of data when given an average or range	Be able to estimate the mean for grouped data.
Circles	Recognise parts of a circle (semi-circle, circumference, diameter and radius).	Find the length of simple circular arcs (half, quarter, three quarters)	Be able to find the area of simple circular sectors (e.g. half, quarter, three quarters)
Directed Number and Inequalities	Be able to describe inequalities from a number line algebraically and vice versa.	Be confident in interpreting an algebraic inequality.	Be able to apply the four rules of arithmetic to negative numbers.
Algebra	Recognise square and triangle numbers in a sequence.	Recognise cube and Fibonacci type numbers in a sequence.	Be confident in generating terms of a sequence from either a term-to-term or position-to-term rule.
Percentages	Be able to calculate 50, 25, 75 & 10 percent of a quantity.	Understand how to solve problems involving simple percentage increase or decrease.	Be confident in converting between fractions, decimals and percentages.
Area & Perimeter	Be able to find areas of compound shapes using rectangles.	Find the area of triangles.	Be able to find the area of compound shapes using rectangles, triangles and parallelograms.
Fractions	Be confident in simplifying fractions	Be able to add and subtract fractions with the same denominator.	Be capable of multiplying and dividing mixed numbers by a whole number.
Volume	Be able to find the volume of a cube and cuboid.	Be confident in finding the volume of compound cuboids and prisms with a given cross section.	Should be able to calculate the cross section then use this to find the volume of a prism.
Decimals	Be able to divide decimals by a single digit number using bus stops.	Be capable in multiplying a decimal by a decimal using times tables.	Be confident in multiplying a decimal by a decimal using grids. (e.g. 24.3×6.1)
Algebra	Be able to write a simple algebraic expression.	Be confident in using and interpreting algebraic notation. (e.g. ab in place of $a \times b$)	Be able to multiply out a single bracket with a positive or negative number outside.
Powers	Be able to use a calculator to find squares and square roots.	Be confident in using a calculator to find any power or root and know the first 5 cube numbers.	Understand and use the addition and subtraction index rules for algebra
Statistics	Be able to construct and interpret a pie chart from discrete data.	Be able to draw scatter diagrams and describe linear correlation (weak, strong, positive, negative)	Interpret and present data by choosing an appropriate table or graphical representation.
Number	Recognise the prime numbers.	Be confident in finding the lowest common multiple and highest common factor a pair of numbers.	Understand bounds in a whole number context.
Angles	Understand and use angles on a straight line, vertically opposite, at a point, in a triangle etc.	Be able to write a bearing.	Find a bearing and a return a bearing.

Accuracy	Be confident in rounding decimals to one or any given number of decimal places.	Be confident in rounding a number to one significant figure.	Round a number to any number of significant figures.
Probability	Find probabilities based on equally like outcomes.	Identify all outcomes from two experiments (sample space diagram)	Be confident in identifying all the possible mutually exclusive outcomes of a single event.
Algebra	Be confident in writing one and two stage formula.	Be capable to form an equation from words.	Be able to solve equations by balancing and equations involving brackets.
Locus & Construction	Be able to construct triangles with a protractor and a compass.	Be able to construct an angle bisector.	Be confident in constructing the locus of a point and the locus of a line.
Ratio & Proportion	Understand ratio notation.	Use a ratio to find one quantity when the other is known and writing a ratio in the form $1:n$	Use proportion to increase or decrease a recipe.
Statistics	Complete, read and interpret information in two way tables.	Find averages from stem and leaf diagrams.	Be able to interpret, construct & find averages from back-to-back stem and leaf diagrams.
Venn Diagrams	Use Venn Diagrams to calculate probability.	Understand and use the notation associated with Venn Diagrams. (Intersection, Union, etc.)	Be confident in using the universal and empty set.
Transformations	Be confident in identifying basic congruent shapes.	Be able to enlarge a shape by a positive whole scale factor.	Be able to describe a positive scale factor enlargement using a centre.
Straight Lines	Be able to draw, label and scale axes correctly.	Be confident in drawing the graph of a number pattern.	Be able to use linear graphs to estimate values of y given values of x and vice versa.
2D & 3D Shape	Understand properties of polygons (concave, convex, adjacent, opposite, regular)	Use correct notation for labelling equal sides and parallel lines	Identify the symmetry of 3D shapes (planes and axes)
Units	Be able to convert from one metric unit to another.	Be able to read scales and use scale diagrams.	Be confident in using and interpreting maps using proper scales. (e.g 1:25000)
Time and Conversion Graphs	Be able to calculate harder time durations.	Be confident in using conversion graphs.	Be able to plot and read values from a distance-time graph as well as draw travel graphs

Summary of topics covered in Year 9U			
Topic	All pupils should...	Most pupils should...	Some pupils should...
Statistics	Find the mean from a frequency table (not grouped)	Compare distributions of grouped discrete and continuous data using mean, mode and range.	Interpret and construct Box Plots
Circles	Be confident in finding the perimeter of compound circular shapes.	Find the area of simple circular sectors (half, quarter, three quarters)	Be confident in given answers in terms of π when finding the area or the circumference.
Similar Triangles	Understand what is meant by the term similar and congruent.	Be able to determine whether triangles are congruent or similar.	Understand the ratio of any two sides is constant in similar shapes and apply this fact.
Directed Number and Inequalities	Be able to describe inequalities from a number line algebraically and vice versa.	Be confident in interpreting an algebraic inequality.	Be able to apply the four rules of arithmetic to negative numbers.
Algebra	Be confident in generating terms of a sequence from either a term-to-term or position-to-term rule.	Be able to determine whether or not a given term is in a sequence.	Find the n^{th} term of a quadratic sequence.
Pythagoras	Be aware of Pythagoras' Theorem.	Know and use Pythagoras' Theorem in two dimensions.	Be able to find the length of a line using co-ordinates and Pythagoras' Theorem.
Percentages	Understand how to solve problems involving simple percentage increase or decrease.	Be confident in converting between fractions, decimals and percentages.	Be able to find the original amount using multipliers.
Area	Be confident in finding the area of a parallelogram and a trapezium.	Be capable of finding the area of compound shapes using rectangles, triangles and parallelograms.	Calculate surface area of prisms including cylinders.
Fractions	Be able to add and subtract fractions with the same denominator.	Be capable of multiplying and dividing mixed numbers by a whole number.	Know fractional equivalents to key recurring decimals (e.g. $0.\dot{3}$)
Algebra	Be able to change the subject of a formula using arrows (one stage)	Be able to change the subject of a formula using balancing.	Be able to change the subject of a formula involving powers and roots. (Using arrows)
Volume	Be confident in finding the volume of compound cuboids and prisms with a given cross section.	Be able to calculate the cross section then use this to find the volume of a prism.	Convert between metric area (mm^2, cm^2, m^2) and metric volume (mm^3, cm^3, m^3)
Decimals	Be capable in multiplying a decimal by a decimal using times tables.	Be confident in multiplying a decimal by a decimal using grids. (e.g. 24.3×6.1)	Use a given calculation to answer another question (e.g. $282 \times 56 = 15792$ what is 28.2×5.6 ?)
Algebra	Be able to multiply out a single bracket with a positive or negative number outside.	Be able to multiply out double brackets where the number in front of x is 1. e.g. $(x + 2)(x - 3)$	Be able to multiply out any double brackets 1. e.g. $(3x + 2)(4x - 3)$
Powers and Standard Form	Be able to simplify using index notation (e.g. $2 \times 2 \times 2 \times 2 = 2^5$)	Be able to interpret and compare numbers in standard form with negative indices.	Be able to multiply and divide numbers in standard form without a calculator.

Statistics	Be able to construct and interpret a pie chart from discrete data.	Be able to draw scatter diagrams and describe linear correlation (weak, strong, positive, negative)	Interpret and present data by choosing an appropriate table or graphical representation.
Number	Use a calculator to find any power or root.	Apply and use the order of operations including brackets, powers and roots.	Find the highest common factor and lowest common multiple using products of prime factors.
Angles and Scale Drawing	Understand and use alternate, corresponding and co-interior angles in parallel lines.	Be able to find a bearing and return bearing.	Use a bearing to make a scale drawing
Algebra	Solve linear equations with integer coefficients and unknowns on both sides.	Solve equations using the balancing method.	Solve equations involving fractions.
Probability	Be able to identify all of the outcomes from two experiments (sample space diagram)	Be able to calculate relative frequency.	Use tree diagrams to calculate probability for independent events.
Accuracy	Be confident in rounding a number to one significant figure.	Round a number to any number of significant figures.	Use upper and lower bounds in calculations (add, subtract, multiply and divide).
Loci and Construction	Be able to construct an angle bisector.	Be confident in constructing the locus of a point and the locus of a line.	Be able to construct multiple loci to solve a problem.
	Use a ratio to find one quantity when the other is known and writing a ratio in the form $1:n$	Use proportion to increase or decrease a recipe.	Simplify a ratio expressed in fractions or decimals.
Trigonometry	<i>Some groups may not cover this topic.</i>	Know the three trigonometric ratios and be able to label the sides of a triangle correctly.	Use trigonometry in right angled triangles.
Transformations	Enlarge a shape by any positive scale factor using a centre of enlargement.	Enlarge a shape by a negative scale factor using a centre of enlargement.	Combine transformations and describe combined transformations as a single transformation.
Straight Lines	Be able to identify parallel lines when given multiple equations.	Plot and draw graphs of straight line without using a table of values (use intercept and gradient)	Describe and shade linear graphical inequalities.
Algebra	Use linear graphs to find approximate solutions of simultaneous linear equations.	Solve simultaneous equations algebraically.	Form a pair of simultaneous equations.
Graphs	Draw and interpret travel graphs.	Draw and interpret graphs of simple linear functions arising from real-life situations.	Sketch and interpret graphs of containers filling and emptying.
3D Shape	Identify the symmetry of 3D shapes (planes and axes)	Draw the plan view, front and side elevation of a given 3D shape.	Given the plan view and elevations, draw the 3D shape accurately on isometric paper.