Curriculum Map

Subject: Maths Year: 7

|  | **Autumn 1** | **Autumn 2** | **Spring 1** | **Spring 2** | **Summer 1** | **Summer 2** |
| --- | --- | --- | --- | --- | --- | --- |
| **Content** | Whole Number Theory  Ordering Numbers  Written Methods  Calculator Methods | Converting Units  Factors and Multiples  Fraction Calculations  Percentages | Introduction to Algebra  Simplifying and Substitutings  Linear Graphs  Generating Sequences | Representing Data  Summary Statistics  Pie Charts | Properties of 2D shapes  Angle Rules  Area and Perimeter | 3D Representations  Summer Projects |
| **Skills** | Understand and use the terms odd, even, prime, square, cube, root, integer, decimal  Identify prime numbers less than 20  Order positive and negative integers and decimals  Use <, >, ≤, ≥, =, ≠.  Order decimals  Know the conventional order for performing calculations involving brackets, four rules, powers, roots  Know that addition and subtraction, multiplication and division, powers and roots are inverse operations and use this to simplify and check calculations  Use non-calculator methods to calculate the sum, difference, product and quotient of positive and negative whole numbers and decimals  Use a calculator and other technologies to calculate results accurately and then interpret them appropriately. | Use and convert standard units of measurement for length, mass, volume/capacity, time and money  Understand and use the term factor, multiple  Find the Highest Common Factor and Lowest Common Multiple of two whole numbers by listing  Recognise and use equivalence between simple fractions  Use <, >, ≤, ≥, =, ≠.  Recognise and use equivalence between mixed numbers  Calculate a fraction of a quantityCalculate with fractions greater than 1  Add, Subtract, Multiply and Divide simple fractions including negative fractions Carry out more complex calculations, including the use of mixed numbers and improper fractions  Understand percentage is 'number of parts per hundred'  Interpret percentages as a fraction  Convert between fractions, decimals and percentages  Calculate a percentage of a quantity (with or without a calculator)  Increase or decrease a quantity by a simple percentage including simple decimal percentages  Express one quantity as a percentage of another, with or without a calculator  Apply percentage changes to simple interest problems | Understand that unknown variables (pictures/letters etc.) can be used to model and solve problems  Use and understand the concepts and vocabulary of expressions, equations, formulae, terms  Writing simple algebraic expressions to show quotients and products  Formulate simple formulae and expressions from real world contexts  Simplifying algebraic expressions by collecting like terms  Simplifying algebraic products (include coefficients and powers)  Substitute positive and negative numbers into expressions and formulae to find the value of the subject    Work with x- and y- coordinates in all four quadrants  Interpret, where appropriate simple expressions as functions with inputs and output.  Use a table of values to plot graphs of linear functions  Find and interpret the gradient and intercept of straight lines, graphically and using y=mx+c Use the form y=mx+c to find and sketch equations of straight lines.  Generate a sequence by spotting a pattern  Describing a sequence using the term to term rule  Generate a sequence using a term to term rule, given algebraically or in words  Generate a sequence from a formula for the nth term  Investigate the link between nth term rule and table of values from linear equations. (Pattern in y values, gradient etc)  Recognise sequences of triangular, square and cube numbers, and simple arithmetic progressions  Recognise Fibonacci sequences | Interpret and construct charts appropriate to the data type including tally charts, frequency tables and pictograms, composite bar charts  Recognise graphical misrepresentation through incorrect scales, labels etc.  Calculate the mode and range for ungrouped data  Find the modal class and estimates of the range for grouped data. Understand why they are estimates  Calculate the median for ungrouped data  Find estimates of the median for grouped data. Understand why they are estimates  Calculate the mean for ungrouped data  Understand the advantages and disadvantages of summary statistics  Compare data sets using 'like for like' summary values  Calculate averages from graphical representations  Problem solving with summary statistics  Interpret charts appropriate to the data type; pie charts for categorical data. (Values given on pie chart)  Calculate estimates of mode from graphical representations of data  Interpret charts appropriate to the data type; pie charts for categorical data.  Construct charts appropriate to the data type; pie charts for categorical data.  Construct charts appropriate to the data type; pie charts for categorical data  Interpret pie charts using unitary method with degrees to solve problems | Know the terms pentagon, hexagon, octagon, regular polygon  Know the basic properties of isosceles, equilateral, scalene and right angled triangles  Use these facts to find lengths in rectilinear figures  Know the basic properties of the square, rectangle, parallelogram, trapezium, kite and rhombus  Use these facts to find lengths in rectilinear figures  Draw diagrams from written descriptions. Use the standard convention for labelling and referring to the sides and angles of a triangle eg. AB, angle ABC  Use a ruler to construct and measure straight lines  Use a protractor to construct and measure angles  Know the terms acute, obtuse, right and reflex angles  Use the standard convention for labelling and referring angles eg. angle ABC  Know and use the sum of the angles at a point is 360 degrees, the sum of the angles on a straight line is 180 degrees, vertically opposite angles are equal, the sum of the interior angles of a triangle is 180 .degreesInclude algebraic expressions for angles  Derive and use the sum of the interior angles of a quadrilateral  Apply these angle facts to find angles in rectilinear figures  Know and use alternate angles on parallel lines are equal  Know and use corresponding angles on parallel lines are equal  Know and use co-interior angles sum to 180 degree  Recap all rules and multi step problems  Properties of 2D shapes and Angle rules  Calculate the perimeter of rectilinear shapes  Include algebraic expressions  Apply perimeter formulae in calculations involving the perimeter of 2D composite shapes  Find the area of 2D shapes by counting squares  Know and apply the formula for area of a square/rectangle, area = base x height  Know and apply the formula for area of a parallelogram, area = base x height  Calculate the area of a trapezium  Apply area formulae in calculations involving area of composite 2D shapes | Recognise the terms face, surface, edge and vertex  Recognise and know the properties of the cube, cuboid, prism, cylinder, pyramid, cone and sphere  Draw nets of cuboids and other right prisms  Calculate the surface area of cuboids and other right prisms (excluding cylinders) using nets  Using isometric paper  Interpret plans and elevations of simple 3D solids  Solve simple surface area problem from diagrammatic information provided in plan and elevation diagrams for cuboids and solids made from component cuboids.  Construct plans and elevations of simple 3D solids and representations  Construct solids from plans and elevations (using isometric paper) |
| **Assessment** | Online end of topic test after 2 topics  Vocabulary and recall tests after 2 topics  Written Baseline test at the start of October. Covering all content taught in KS1 & 2. | Online end of topic test after 2 topics  Vocabulary and recall tests after 2 topics  Term 1 Assessment (mid – end of Nov)  Written non-calculator assessment covering the content in Autumn term 1 and 2. | Online end of topic test after 2 topics  Vocabulary and recall tests after 2 topics  Term 2 Assessment (last week of half term)  Written non-calculator assessment covering the content covered in year 7 | Online end of topic test after 2 topics  Vocabulary and recall tests after 2 topics | Online end of topic test after 2 topics  Vocabulary and recall tests after 2 topics  Term 3 Assessment (last week of half term)  2 x Written non-calculator assessment covering the content covered in year 7 | Online end of topic test after 2 topics  Vocabulary and recall tests after 2 topics |

Curriculum Map

Subject: Maths Year: 8

|  | **Autumn 1** | **Autumn 2** | **Spring 1** | **Spring 2** | **Summer 1** | **Summer 2** |
| --- | --- | --- | --- | --- | --- | --- |
| **Content** | Written Methods Recap  Prime Factorisation  Rounding and Approximation | Proportion  Ratio  Maps | Fractions, Decimals, Percentages  Percentage Multipliers  Representing and Interpreting Data | Simplifying expressions, expanding brackets  Solving linear equations | Sequences  Graphing relationships  Geometry recap  Circle formulas | Volume and surface area of prisms  Converting units of area and volume  Congruence and Similarity  Summer projects |
| **Skills** | Use non-calculator methods to calculate the sum, difference, product and quotient of positive and negative integers, decimals and fractions (including mixed numbers)  Calculate a fraction and percentage of a quantity  Express a whole number as a produce of it’s prime factors  Find the highest common factor and lowest common multiple of a whole number or algebraic term using it’s prime factorisation.  Round numbers to the nearest ten, hundred etc.  Round numbers using decimal place value and significant figures  Approximate calculations by rounding to 1 significant figure | Understand that a proportionate relationship describes something that has a relative size or amount to something else  Solve simple proportion problems including recipes and best buy scenarios  Understand that ratio is the comparison of two quantities, or the relationship of one similar quantity to another.  Find the ratio of quantities in the form a:b  Interpret a ratio as a fraction of the whole  Simplify ratios in the form a:b  Simplify in the form 1:n or n:1  Solve simple ratio problems using the unit rate  Solve simple ratio problems, including conversions  Express the division of a quantity into two parts as a ratio  Split a quantity into two parts given the ratio of the parts  Calculate one quantity from another, given the ratio of two quantities  Construct and interpret scale drawings  Reading a compass, using latitude/longitude and grid references  Use the scale of a map  Interpret and construct bearings  Draw diagrams from written descriptions. Use the standard convention for labelling and referring to the sides and angles of a triangle eg. AB, angle ABC | Express a simple fraction as a terminating decimal or vice versa without a calculator  Express a simple fraction as a recurring decimal or vice versa without a calculator (pattern spotting, not algebraic)  Convert between terminating decimals and percentages  Order integers, fractions, decimals and percentages  Use <, >, ≤, ≥, =, ≠.  Express one quantity as a percentage of another, with or without a calculator  Calculate and compare percentages of quantities  Express percentgae change as a fractional and decimal multiplier  Increase or decrease a quantity by a simple percentage using multiplier  Simple interest problems  Simple original value problems  Find percentage change using multiplier  Calculate values after repeated percentage change  Categorise data by type (discrete, continuous, primary, secondary, quantitative, qualitative)  Understand what makes a good survey/data table. Design tables to classify data (recap tally chart and frequency table)  Interpret and construct composite bar charts, time series, cumulative frequency curves and pie charts  Calculate summary statistics from grouped and ungrouped data | Substitute positive numbers into simple expressions and formulae to find the value of the subject.  Simplify algebraic expressions by collecting like terms. Include negative and fractional coefficients  Simplify algebraic expressions by multiplying a single term over a bracket.  Further practise of expanding single brackets and simplifying expressions  Writing simple algebraic expressions to show quotients and products (don't include powers)  Formulate simple formulae and expressions from real world contexts.  Interpret, where appropriate, simple expressions as functions with inputs and outputs. e.g. y = 2x + 3 as function machines  Interpret the reverse process as the ‘inverse function’.  Solve linear equations in one unknown algebraically including expanding brackets  "Set up and solve linear equations in mathematical and non-mathematical contexts, including those with the unknown on both sides of the equation.  e.g. Solve 5(x - 1) = 4 - x.  Interpret solutions in context"  Generate a sequence by spotting a pattern or using a term-to-term rule given algebraically or in words.  Generate a sequence from a formula for the nth term.  Find a position-to-term rule for simple arithmetic sequences,  Find a formula for the nth term of an arithmetic sequence with negative common difference | Generate a table of values to plot graphs of linear and quadratic functions  Find and interpret the gradient and intercept of straight lines, graphically and using y = mx + c.Use the form y m = +x c to find and sketch equations of straight lines.  Use a graph to find the approximate solution of a linear equation. Use a graph to find the approximate solution of a more complex equations.  Construct and interpret graphs in real-world contexts. e.g. money conversion, temperature conversion  Recap properties of 2D shapes including formulas for finding perimeter and area of rectangles, triangles, parallelograms and trapeziums.  Recap angle rules including those on parallel lines  Understand and use the terms centre, radius, chord, diameter and circumference.  Use compasses to construct circles.  Know and apply the formula to calculate the circumference of a circle.  Know and apply the formula to calculate the area of a circle.  Apply area formulae in calculations involving the area of composite 2D shapes. | Recognise the terms face, surface, edge, and vertex, cube, cuboid, prism, cylinder.  Draw and interpret nets of 3D shapes  Calculate the surface area  Of cuboids and  other right prisms  Calculate the surface area and volume of cylinders  Use and convert standard units of measurement for length, capacity, mass.  Include non metric conversions, given conversion rate  Use and convert standard units of measurement for area  Use and convert standard units of measurement for volume  Use the terms acute, obtuse, right and reflex angles. USe the standard conventions for labelling and referring to the sides and angles of triangles.  Label diagrams from written descriptions as required by questions  Use a ruler and protractors to construct and measure straight lines and angles  Draw/Construct diagrams from written descriptions as required by questions  Identify congruent triangles.  Prove that two triangles are congruent using the cases (SSS,ASA,SAS,RHS)  Identify similar triangles  Prove that two triangles are similar  Compare lengths using scale factors  Apply similarity to calculate unknown lengths in similar figures |
| **Assessment** | Online end of topic test after 2 topics  Vocabulary and recall tests after 2 topics | Online end of topic test after 2 topics  Vocabulary and recall tests after 2 topics  Term 1 Assessment (mid – end of Nov)  Written assessment covering the content in Autumn term 1 and 2. | Online end of topic test after 2 topics  Vocabulary and recall tests after 2 topics  Term 2 Assessment (end of half term)  Written assessment covering the content in Autumn and Spring term. | Online end of topic test after 2 topics  Vocabulary and recall tests after 2 topics | Online end of topic test after 2 topics  Vocabulary and recall tests after 2 topics  Term 3 Assessment (mid-end of May)  2 x Written assessment covering the content in year 7 and 8 | Online end of topic test after 2 topics  Vocabulary and recall tests after 2 topics  . |

Curriculum Map

Subject: Maths Year: 9

|  | **Autumn 1** | **Autumn 2** | **Spring 1** | **Spring 2** | **Summer 1** | **Summer 2** |
| --- | --- | --- | --- | --- | --- | --- |
| **Content** | Fractions recap  Fraction, Decimal, Percentage Conversion  Prime Factorisation  Rounding and Estimation  Ratio & Proportion | Indices  Standard Form  Real life graphs | Algebraic Manipulation  Straight Line Graphs  Solving linear inequalities  Simultaneous equations | Geometry recap  Symmetry (reflective and rotational)  Transformations | Pythagoras’ Theorem  Probability  Construction and Loci (1) | Construction and Loci (2)  2D & 3D representations  Summer Projects |
| **Skills** | Recognise and use equivalence between simple fractions Introduce simple algebraic fractions  Recognise and use equivalence between simple fractions and mixed numbers  Calculate a fraction of a quantityExpress one quantity as a fraction of another  Add, subtract, multiply and divide simple fractions (including improper fractions) Including mixed numbers and negative fractions, include algebraic elements  Express a simple fraction as a terminating decimal or vice versa without a calculator  Use division to convert a simple fraction to a decimal  Convert between fractions and percentages  Express one quantity as a percentage of another with or without a calculator  Convert between decimals, fractions and percentages  Order integers, fractions, decimals and percentages  Use inequality symbols  Identify prime numbers  Use power notation in expressing whole number as a product of its prime factors  Introduce algebraic terms  Find the HCF and LCM of two numbers by listing Find the HCF and LCM of two whole numbers from their prime factorisations  Rounding recap (decimals, significant figures)  Use inequality notation to write down an error interval for a number or measurement rounded or truncated to a given degree of accuracy  Calculate the upper and lower bounds of a calculation using numbers rounded to a known degree of accuracy  Understand the difference between bounds of discrete and continuous quantities  Estimate or check without a calculator, the result of a calculation by doing a suitable approximation Estimate or check without a calculator, the results of more complex calculations including roots  Ratio recap  Split a quantity into two parts given the ratio of the parts  Split a quantity into three or more parts given the ratio of the parts  Calculate quantities when given information about differences in ratio | Use positive integer indices to write values eg 2 to the power of 4  Use negative integer indices to represent reciprocals  Calculate positive integer powers and exact roots  Calculate with negative integer powers  Recognise simple power of 2,3,4 and 5  Use negative integer indices to represent reciprocals  Use fractional indices to represent roots  Calculate with negative integer powers  Calculate fractional powers  Know and apply multiplication and division rule  Know and apply brackets rule  Interpret and order numbers in standard form  Convert numbers from standard form  Convert numbers to standard form  Add and Subtract numbers in standard form without a calculator  Multiply and Divide numbers in standard form without a calculator  Construct and interpret graphs in real-world context, simple conversion graphs  Understand the relationship between gradient and ratio  Construct and interpret graphs in real-world context, graphs based on scenarios (eg business prices, profit etc.)  Construct and interpret graphs in real-world context, distance time graphs  Construct and interpret graphs in real-world context, speed time graphs  Calculate or estimate areas under graphs and interpret in contexts | Algebra recap (simplifying and substitution)  Factorising and Expanding single and double brackets  Rearranging algebraic expressions to change the subject  Work with x and y coordinates in all four quadrants  Use a table of values to plot graphs of linear and quadratic functions  Find and interpret the gradient and intercept of straight lines using y=mx+c Find and interpret the gradient and intercept of straight lines graphically  Use the form y=mx+c to find and sketch equations of a straight line Find the equation of a line through two given points or through one point with a given gradient  Use <, >, ≤, ≥, =, ≠.  Solve linear inequalities in one variable, expressing solutions on a number line using conventional notation  Identify the solution sets of linear inequalities in one variable, using the convention of dashed and solid lines  Use graphs to find the approximate solution of two linear simultaneous equations  Set up and solve two simple linear simultaneous equations in two variables algebraically, one common variable  Set up and solve two linear simultaneous equations in two variables algebraically, using elimination including non common variable | Geometry recap (2d shape properties, angle rules, congruency and similarity)  Identify reflection symmetries of triangles, quadrilaterals and other polygons  Reflect a simple shape in a given mirror line and identify the mirror line from a shape and it's image  Identify a mirror line x=a,y=b,x=y from a simple shape and its image under reflection  Identify rotation symmetries of triangles, quadrilaterals and other polygons  Rotate a simple shape clockwise or anti-clockwise through a multiple of 90 about a given centre of rotation  Identify the centre, angle and sense of a rotation from a simple shape and its image under rotation  Use a column vector to describe a translation of a simple shape and perform a specified translation  Reflect a simple shape in a given mirror line and identify the mirror line from a shape and it's image  Identify a mirror line x=a,y=b,x=y from a simple shape and its image under reflection  Perform a sequence of isometric transformations (reflections, rotations or translations) on a simple shape  Enlarge a simple shape from a given centre using a whole number scale factor and identify the scale factor of enlargement  Identify the centre and scale factor (including fractional scale factors) of an enlargement of a simple shape, and perform such an enlargement of a simple shape | Know, derive and apply Pythagoras' theorem to find lengths in right-angled triangles in 2D figures  Know, derive and apply Pythagoras' theorem to find lengths in right-angled triangles in 2D figures  Apply Pythagoras' theorem in more compelx figures including 3D figures  Use systematic listing strategies  Use the product rue for counting numbers of outcomes of combined events  Use the 0-1 probability scale as a measure of likelihood of random events  Calculate probabilities expressed as fractions or decimals in simple experiments with equally likely outcomes for example rolling fair dice  Use the addition law for mutually exclusive events P(A) +P(not A)=1  Record, describe and analyse the relative frequency of outcome of repeated experiments using tables and frequency trees  Use relative frequency as an estimate of probability  Understand that relative frequencies approach the theoretical probability as the number of trials increases  Use tables and grids to list the outcomes of single events and simple combinations of events, and to calculate theoretical probabilities  Use sample spaces for more complex combinations of events  Use tables and grids to list the outcomes of single events and simple combinations of events, and to calculate theoretical probabilities  Calculate probabilities of simple combined events, for example rolling two dice and looking at the totals  Understand the concept of conditional probability, and calculate it from first principles in known contexts. eg. Selecting a diamond card given the card is red  Use tree diagrams to enumerate sets and to record the probabilities of sucessive events (tree frames may be given and in some cases will be partly completed)  Use tree diagams to calculate the probability of independent and dependent combined events    Use a two-circle Venn diagram to enumerate sets and use this to calculate related probabilities  Use simple set notation to describe simple sets of numbers or objects Construct venn diagrams to solve more complex probability problems including conditional probabilities  Use a ruler and compass to measure straight lines  Use a protractor to construct and measure angles  Use compasses to construct circles  Draw diagrams from written descriptions as required by questions  Use ASA, SAS and SSS rule to accurately construct triangles using ruler and compass  Construct the perpendicular bisector and midpoint of a line segment  Construct the perpendicular from a point to a line  Construct the perpendicular to a line at a point  Know that the perpendicular distance from a point to a line is the shortest distance to the line  Construct the bisector of an angle formed from two lines | Understand the term 'equidistant'  Apply ruler and compass constructions to construct figures and identify the loci of points to include real-world problems. (Equidistant from two lines, and two points)  Apply ruler and compass constructions to construct figures and identify the loci of points to include real-world problems. (Equidistant from a point, and from a line)  Use the standard conventions for labelling and referring to the sides and angles of triangles eg side AB, angle ABC, rectangle ABCD  Recognise and know the properties of the cube, cuboid, prism, cylinder, pyramid, cone and sphere  Construct Nets of 3D shapes  Construct representations of basic solids (using isometric paper)  Construct representations of solids from plans and elevations (using isometric paper)  Interpret plans and elevations of simple 3D solids  Constrct plans and elevations of simple 3D solids |
| **Assessment** | Online end of topic test after 2 topics  Vocabulary and recall tests after 2 topics | Online end of topic test after 2 topics  Vocabulary and recall tests after 2 topics  Term 1 Assessment (mid – end of Oct)  Written assessment covering the content in Autumn term 1 and 2. | Online end of topic test after 2 topics  Vocabulary and recall tests after 2 topics | Online end of topic test after 2 topics  Vocabulary and recall tests after 2 topics  Term 2 Assessment (start of half term)  Written assessment covering the content in Autumn term 1 and 2. | Online end of topic test after 2 topics  Vocabulary and recall tests after 2 topics | Online end of topic test after 2 topics  Vocabulary and recall tests after 2 topics  Term 3 Assessment (mid June)  Written assessment covering the content covered in year 9. |