Curriculum Map

Subject: Maths Year: 7

|  | **Autumn 1** | **Autumn 2** | **Spring 1** | **Spring 2** | **Summer 1** | **Summer 2** |
| --- | --- | --- | --- | --- | --- | --- |
| **Content** | Whole Number TheoryOrdering NumbersWritten MethodsCalculator Methods | Converting UnitsFactors and MultiplesFraction CalculationsPercentages | Introduction to AlgebraSimplifying and SubstitutingsLinear GraphsGenerating Sequences | Representing DataSummary StatisticsPie Charts | Properties of 2D shapesAngle RulesArea and Perimeter | 3D RepresentationsSummer Projects |
| **Skills** | Understand and use the terms odd, even, prime, square, cube, root, integer, decimalIdentify prime numbers less than 20Order positive and negative integers and decimalsUse <, >, ≤, ≥, =, ≠.Order decimalsKnow the conventional order for performing calculations involving brackets, four rules, powers, rootsKnow that addition and subtraction, multiplication and division, powers and roots are inverse operations and use this to simplify and check calculationsUse non-calculator methods to calculate the sum, difference, product and quotient of positive and negative whole numbers and decimalsUse 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 moneyUnderstand and use the term factor, multipleFind the Highest Common Factor and Lowest Common Multiple of two whole numbers by listingRecognise and use equivalence between simple fractions Use <, >, ≤, ≥, =, ≠. Recognise and use equivalence between mixed numbers Calculate a fraction of a quantityCalculate with fractions greater than 1Add, Subtract, Multiply and Divide simple fractions including negative fractions Carry out more complex calculations, including the use of mixed numbers and improper fractionsUnderstand percentage is 'number of parts per hundred'Interpret percentages as a fractionConvert between fractions, decimals and percentagesCalculate a percentage of a quantity (with or without a calculator)Increase or decrease a quantity by a simple percentage including simple decimal percentagesExpress one quantity as a percentage of another, with or without a calculatorApply percentage changes to simple interest problems | Understand that unknown variables (pictures/letters etc.) can be used to model and solve problemsUse and understand the concepts and vocabulary of expressions, equations, formulae, termsWriting simple algebraic expressions to show quotients and products Formulate simple formulae and expressions from real world contextsSimplifying 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 functionsFind 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 patternDescribing a sequence using the term to term ruleGenerate a sequence using a term to term rule, given algebraically or in wordsGenerate a sequence from a formula for the nth termInvestigate 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 progressionsRecognise Fibonacci sequences  | Interpret and construct charts appropriate to the data type including tally charts, frequency tables and pictograms, composite bar chartsRecognise 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 estimatesCalculate the median for ungrouped data Find estimates of the median for grouped data. Understand why they are estimatesCalculate 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 statisticsInterpret charts appropriate to the data type; pie charts for categorical data. (Values given on pie chart) Calculate estimates of mode from graphical representations of dataInterpret 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 polygonKnow the basic properties of isosceles, equilateral, scalene and right angled triangles Use these facts to find lengths in rectilinear figuresKnow the basic properties of the square, rectangle, parallelogram, trapezium, kite and rhombusUse these facts to find lengths in rectilinear figuresDraw diagrams from written descriptions. Use the standard convention for labelling and referring to the sides and angles of a triangle eg. AB, angle ABCUse a ruler to construct and measure straight linesUse a protractor to construct and measure anglesKnow 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 anglesDerive 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 shapesInclude algebraic expressionsApply 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 vertexRecognise and know the properties of the cube, cuboid, prism, cylinder, pyramid, cone and sphereDraw nets of cuboids and other right prismsCalculate the surface area of cuboids and other right prisms (excluding cylinders) using netsUsing 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 topicsWritten 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 topicsTerm 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 topicsTerm 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 topicsTerm 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 RecapPrime FactorisationRounding and Approximation | ProportionRatioMaps | Fractions, Decimals, PercentagesPercentage MultipliersRepresenting and Interpreting Data | Simplifying expressions, expanding bracketsSolving linear equations | SequencesGraphing relationshipsGeometry recapCircle formulas | Volume and surface area of prismsConverting units of area and volumeCongruence and SimilaritySummer 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 quantityExpress a whole number as a produce of it’s prime factorsFind 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 figuresApproximate calculations by rounding to 1 significant figure | Understand that a proportionate relationship describes something that has a relative size or amount to something elseSolve simple proportion problems including recipes and best buy scenariosUnderstand 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:bInterpret a ratio as a fraction of the wholeSimplify ratios in the form a:bSimplify in the form 1:n or n:1Solve simple ratio problems using the unit rateSolve simple ratio problems, including conversionsExpress the division of a quantity into two parts as a ratioSplit a quantity into two parts given the ratio of the partsCalculate one quantity from another, given the ratio of two quantitiesConstruct and interpret scale drawingsReading a compass, using latitude/longitude and grid referencesUse the scale of a mapInterpret and construct bearingsDraw 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 calculatorExpress a simple fraction as a recurring decimal or vice versa without a calculator (pattern spotting, not algebraic)Convert between terminating decimals and percentagesOrder integers, fractions, decimals and percentagesUse <, >, ≤, ≥, =, ≠.Express one quantity as a percentage of another, with or without a calculatorCalculate and compare percentages of quantitiesExpress percentgae change as a fractional and decimal multiplier Increase or decrease a quantity by a simple percentage using multiplierSimple interest problemsSimple original value problems Find percentage change using multiplierCalculate values after repeated percentage changeCategorise 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 chartsCalculate 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 coefficientsSimplify algebraic expressions by multiplying a single term over a bracket. Further practise of expanding single brackets and simplifying expressionsWriting 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 machinesInterpret 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 functionsFind 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 conversionRecap 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 shapesCalculate the surface areaOf cuboids andother right prismsCalculate the surface area and volume of cylindersUse and convert standard units of measurement for length, capacity, mass.Include non metric conversions, given conversion rateUse and convert standard units of measurement for areaUse and convert standard units of measurement for volumeUse 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 anglesDraw/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 trianglesProve that two triangles are similarCompare 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 topicsTerm 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 topicsTerm 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 topicsTerm 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 recapFraction, Decimal, Percentage ConversionPrime FactorisationRounding and EstimationRatio & Proportion | IndicesStandard FormReal life graphs | Algebraic ManipulationStraight Line GraphsSolving linear inequalitiesSimultaneous equations | Geometry recapSymmetry (reflective and rotational)Transformations | Pythagoras’ TheoremProbabilityConstruction and Loci (1) | Construction and Loci (2)2D & 3D representationsSummer Projects |
| **Skills** | Recognise and use equivalence between simple fractions Introduce simple algebraic fractionsRecognise and use equivalence between simple fractions and mixed numbers Calculate a fraction of a quantityExpress one quantity as a fraction of anotherAdd, subtract, multiply and divide simple fractions (including improper fractions) Including mixed numbers and negative fractions, include algebraic elementsExpress a simple fraction as a terminating decimal or vice versa without a calculator Use division to convert a simple fraction to a decimalConvert between fractions and percentages Express one quantity as a percentage of another with or without a calculatorConvert between decimals, fractions and percentages Order integers, fractions, decimals and percentages Use inequality symbols Identify prime numbersUse power notation in expressing whole number as a product of its prime factorsIntroduce algebraic termsFind the HCF and LCM of two numbers by listing Find the HCF and LCM of two whole numbers from their prime factorisationsRounding 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 accuracyUnderstand 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 rootsRatio recapSplit a quantity into two parts given the ratio of the partsSplit a quantity into three or more parts given the ratio of the partsCalculate 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 reciprocalsCalculate positive integer powers and exact roots Calculate with negative integer powersRecognise simple power of 2,3,4 and 5 Use negative integer indices to represent reciprocals Use fractional indices to represent rootsCalculate with negative integer powersCalculate fractional powersKnow and apply multiplication and division rule Know and apply brackets rule Interpret and order numbers in standard formConvert numbers from standard formConvert numbers to standard formAdd and Subtract numbers in standard form without a calculatorMultiply and Divide numbers in standard form without a calculatorConstruct and interpret graphs in real-world context, simple conversion graphsUnderstand the relationship between gradient and ratioConstruct 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 graphsConstruct and interpret graphs in real-world context, speed time graphsCalculate or estimate areas under graphs and interpret in contexts | Algebra recap (simplifying and substitution)Factorising and Expanding single and double bracketsRearranging algebraic expressions to change the subjectWork with x and y coordinates in all four quadrantsUse a table of values to plot graphs of linear and quadratic functionsFind and interpret the gradient and intercept of straight lines using y=mx+c Find and interpret the gradient and intercept of straight lines graphicallyUse 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 gradientUse <, >, ≤, ≥, =, ≠.Solve linear inequalities in one variable, expressing solutions on a number line using conventional notationIdentify the solution sets of linear inequalities in one variable, using the convention of dashed and solid linesUse graphs to find the approximate solution of two linear simultaneous equationsSet up and solve two simple linear simultaneous equations in two variables algebraically, one common variableSet 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 polygonsReflect a simple shape in a given mirror line and identify the mirror line from a shape and it's imageIdentify a mirror line x=a,y=b,x=y from a simple shape and its image under reflectionIdentify rotation symmetries of triangles, quadrilaterals and other polygonsRotate a simple shape clockwise or anti-clockwise through a multiple of 90 about a given centre of rotationIdentify the centre, angle and sense of a rotation from a simple shape and its image under rotationUse a column vector to describe a translation of a simple shape and perform a specified translationReflect a simple shape in a given mirror line and identify the mirror line from a shape and it's imageIdentify a mirror line x=a,y=b,x=y from a simple shape and its image under reflectionPerform a sequence of isometric transformations (reflections, rotations or translations) on a simple shapeEnlarge 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 figuresKnow, derive and apply Pythagoras' theorem to find lengths in right-angled triangles in 2D figuresApply Pythagoras' theorem in more compelx figures including 3D figuresUse systematic listing strategies Use the product rue for counting numbers of outcomes of combined eventsUse 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 probabilityUnderstand that relative frequencies approach the theoretical probability as the number of trials increasesUse 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 eventsUse 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 totalsUnderstand the concept of conditional probability, and calculate it from first principles in known contexts. eg. Selecting a diamond card given the card is redUse 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 probabilitiesUse 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 lineConstruct the perpendicular to a line at a pointKnow 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 topicsTerm 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 topicsTerm 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 topicsTerm 3 Assessment (mid June)Written assessment covering the content covered in year 9. |