

Number – Arithmetic & Negatives Curriculum Map

Autumn 1

Grade 7, 8 & 9

Grade 5 & 6

Grade 4

Grade 3

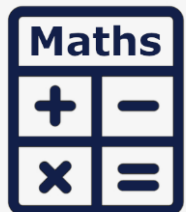
I can...

Grade 1 & 2

- use BIDMAS to calculate problems.
- add and subtract decimals including money calculations
- multiply decimals by an integer.
- identify the four operations in real life functional maths.
- Multiply 2 to 3 digit numbers
- divide using long division (or bus stop)

- use BIDMAS to calculate problems.
- add and subtract decimals including money calculations
- multiply decimals by an integer.
- identify the four operations in real life functional maths.

- identify multi-step problems and show clearly my workings.
- use BIDMAS in multi-step problems.
- multiply and divide decimals in a real life context.



Number – Place Value & Rounding Curriculum Map

Autumn 1

Grade 7, 8 & 9

I can...

Grade 1 & 2

- In the context of money, read and decimal numbers in words and figures.
- Covert written integers into figures.
- Know what each digit represents in numbers with up to two decimal places.
- use a calculator to solve sums involving decimals.
- Compare the value of any set of integers and order them from greatest to smallest.
- what each digit represents in numbers with up to two decimal places.
- compare the size of integers with up to four digits.

Grade 3

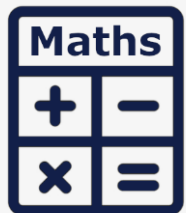
- round whole numbers given to any powers of 10.
- solve problems involving multiplying and dividing by 10, 100 and 1000.
- solve problems in a practical context by comparing and ordering decimals.
- round decimals with two or more decimal places to the nearest integer or one decimal place.
- use rounding to estimate an answer.

Grade 4

- make and justify estimates and approximations of calculations.
- find an estimate for complex calculations by rounding each value in the sum to 1 significant figure.
- round to any decimal place or significant figure.
- multiply and divide with 0.1 or 0.01.
- use inequality signs to compare decimals by size
- order decimals to 4 or 5 decimals places.

Grade 5 & 6

- complete calculations involving standard form, leaving the answer in standard form.
- write out a number in full that is written in standard form and from both a positive or negative power of 10
- express an integer or a decimal in standard form.
- use an inequality to express the limits of accuracy of a measurement
- find the limits of accuracy for values rounded to the nearest integer, decimal or significant figure.
- multiply or divide any number by an integer power of 10



Number – Powers & Roots Curriculum Map

Autumn 1

Grade 7, 8 & 9

I can...

Grade 1 & 2

- understand the number line below zero, and relate this to temperature.
- use negative numbers in real life problems.
- use the times-table to find factors and multiples of numbers.
- understand what a prime number is.
- list the square and the cube numbers.
- understand divisibility facts for numbers divisible by 2, 3, 5, 10.
- order negative numbers in order or smallest to greatest.

Grade 3

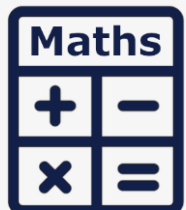
- add, subtract multiply and divide negative integers.
- find the highest common factor and the lowest common multiple of two numbers.
- recall the prime numbers up to 23
- find squares, cubes and roots of integers.
- use indices laws with multiplication and division.

Grade 4

- calculate indices with negative powers.
- use all indices laws in context to simplify my solutions.
- represent numbers as a product of prime factors.
- find the HCF and LCM using product of prime factors.

Grade 5 & 6

- use fractional indices in calculations.
- complete calculations involving standard form, leaving the answer in standard form.
- add and subtract surds and simply expressions with surds.
- cancel surds to their lowest form.



Number – Fractions, Decimals & Percentages Curriculum Map

Autumn 1

Grade 7, 8 & 9

I can...

Grade 1 & 2

- calculate equivalent fractions
- find the denominator of a fraction given the numerator and an equivalent

add fractions together to make a whole number

- add or subtract fractions with the same denominator

I understand that a fifth is twice the size of a tenth and can write fifths as decimals or percentages

I understand that tenths are parts out of 10 and can match them to their decimal

Grade 3

- convert an improper fraction to a mixed fraction and vice versa.

- convert fractions to decimals and percentages where the denominator of the fraction is a factor of 100

I understand that a simplified fraction can be used to solve problems

- simplify fractions in different units

- find a fraction of an amount where the answer is not a whole number

- use percentages to increase and decrease amounts

- use percentages to compare proportions

- express quantity as a percentage of another

- convert fractions to decimals & Percentages

Grade 4

- find a fraction of a fraction.
- add and subtract fractions with different denominators.

- multiply and divide fractions.

- write quantities as a fraction of the total in context.

- multiply and divide fractions of a whole number.

- use the unitary method to solve percentage problems

- use equivalence of fractions, decimals and percentages to find a percentage of an amount mentally

- calculate a percentage Increase / decrease

- use equivalence of fractions, decimals and percentages to compare proportions

Grade 5 & 6

- simplify algebraic fractions
- add and subtract algebraic fractions.

- manipulate, add/subtract, Multiply/divide fractions in context (multi-step problem)

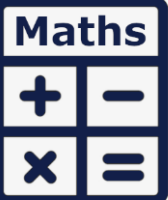
- multiply & divide mixed numbers/fractions

- convert recurring decimals to fractions and vice versa.

- use an inverse operation to solve percentage problems

- calculate reverse percentages

- calculate compound interest and in context.



Statistics Curriculum Map

Autumn 2

I can...

Grade 1 & 2

- identify the mode
- calculate the range
- find the mode and the range for up to 10 data items
- interpret two sets of data by looking at the mode
- find the modal class for grouped data
- find the modal group from a grouped bar chart
- interpret bar charts and line graphs and find the mode.

Grade 3

- identify positive and negative correlation from a scatter graph.
- interpret a scatter graph to comment on the relationship between two variables
- work out a missing data set given the averages and range
- draw, interpret and draw conclusions from compound bar charts
- draw, interpret and draw conclusions from compound Pie charts
- interpret data from a line graph
- compare two distributions using the range, mode, median and mean
- calculate the mean from a simple frequency table
- make comments about a data distribution

Grade 4

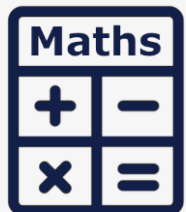
- interpret graphs, diagrams and tables and draw inferences to support/cast doubt on conjectures (Pie-charts, Bar Charts, Line Graphs)
- identify misleading graphs and give reasons why they are misleading
- calculate an estimate of the mean of a set of grouped data
- compare two distributions using the shape of the distributions
- find a set of values given different averages and the range
- find the modal class of a large set of data

Grade 5 & 6

- estimate the median of a grouped data from a table
- estimate the median of a set of grouped data
- estimate the mean from a frequency polygon
- estimate the median from a frequency polygon
- find the interquartile range from a set of data
- find the upper and lower quartile from a set of data and from a cumulative frequency graph
- interpret graphs and charts, draw conclusions by using a variety of statistical measures, and write a statistical report

Grade 7, 8 & 9

- use a histogram to estimate the mean
- carry out a stratified sampling
- use moving averages to remove fluctuations and spot trends in data
- calculate the moving average by finding the mean of 3, 4 or 5 numbers
- recognise when it would be suitable to use moving averages (e.g. when there is data over a period of time)
- identify random sampling
- calculate percentiles of a set of data



Probability Curriculum Map

Autumn 2

I can...

Grade 1 & 2

- identify a probability line with impossible and certain at the end.
- use the words; impossible, certain likely and unlikely to describe the probability of an event happening.

Grade 3

- write a probability as a fraction, decimal and percentage.
- represent probability on a scale from 0 to 1.
- + I know that the sum of all probabilities add up to 1
- find the probability of an event not happening. (using $1 - p$)
- + Use experimental data to estimate probabilities and expected frequencies.
- + I understand what it is meant by bias.

Grade 4

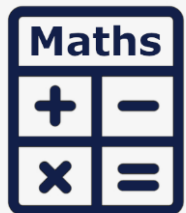
- calculate theoretical probabilities and expected frequencies using the idea of equally likely events.
- compare theoretical probabilities with experimental probabilities.
- recognise mutually exclusive events and exhaustive events.
- use venn diagrams to record outcomes and calculate probabilities
- +Construct Probability space diagrams and use to calculate probabilities
- + I understand and can use intersection, union and complement notation.
- shade the correct region in a venn diagram based on probability notation.

Grade 5 & 6

- prove that two probabilities are independent or dependent.
- use tree diagrams to calculate conditional probabilities.
- use venn diagrams to calculate conditional probabilities.
- use frequency tree diagrams to show outcomes of two events.

Grade 7, 8 & 9

- derive and use the formula for conditional probability



Algebra – Expressions & Formulae Curriculum Map

Spring 1

Grade 7, 8 & 9

I can...

Grade 1 & 2

- Understand that different algebraic terms could represent different numbers
- Use the correct algebraic notation to write $3 \times c$ is $3c$
- Recall and understand that $5t$ means 5 multiplied by t (an unknown number)
- substitute values into an algebraic term with a coefficient of greater than 1
- Substitute a value into a simple algebraic fraction and understand the vinculum is a division

Grade 3

- Match an algebraic expression with multiplication of division to its worded description
- Simplify an algebraic expression involving addition and subtraction of algebraic terms and numbers
- understand the correct algebraic notation of d multiplied by e is de
- Find the value of an expression with a number of unknowns when given the value
- Substitute Positive and negative integers or decimals into expressions involving powers

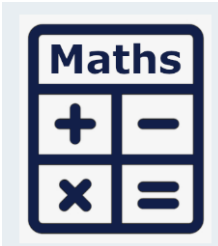
Grade 4

- expand two sets of brackets and then sum the resulting expressions
- factorise an expression that has both a letter and a number as a common
- substitute values into very complex formulae and expressions to find solutions to problems
- use the correct order of operations when substituting integers into very complex equations
- distinguish between equations, expressions and identities
- derive formulae using algebra
- expand single brackets
- relate expanding brackets to finding the area of a rectangle
- simplify an expression involving negative terms by collecting like terms
- find the solution to a real life problem by substituting the correct value into a formula or worded formulae

Grade 5 & 6

- expand double brackets where the terms have coefficients greater than 1
- factorise a quadratic in the form $x^2 \pm bx \pm c$
- change the subject of complex formulae that involve brackets, negatives,
- simplify an algebraic fractions by factorising the numerator, denominator or both
- factorise and simplify expressions using the laws of indices
- link a diagram to an expression involving powers
- square an expression in the form $x \pm y$ where x is an unknown and y is an integer
- expand and simplify expressions with indices, brackets and negative signs
- change the subject of a two step equation & Brackets

- add or subtract two algebraic fractions by writing the sum as one fractions, where both denominators are algebraic expressions
- use the difference of two square to factorise expressions in the form of $a^2 - b^2$
- I know when I need to use factorisation to change the subject of an formula to a certain term.
- factorise expressions with coefficients of x^2 greater than 1 into double brackets
- add or subtract two algebraic fractions by writing the sum as one fractions



Algebra – Equations & Graphs Curriculum Map

Spring 2

Grade 7, 8 & 9

I can...

Grade 1 & 2

- understand that either side of the equals sign needs to be the same value
- find the value of an unknown in a simple equation
- understand that an equation must balance
- find a missing number to make a simple equation balance
- construct and solve a simple one step equation
- I understand that a letter or a symbol can represent an unknown number
- use inverse operations to solve simple equations
- *plot coordinates on an x&y axis*

Grade 3

- solve equations involving a divide
- solve equations where the answer is not an integer
- find the value of an unknown in a simple two step equation
- find a missing number to make a more complex equation balance
- construct an equation and make find the unknown to make it balance
- *plot equations of lines in the form of $y=mx$ □ c from a table*

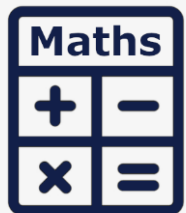
Grade 4

- construct equations from diagrams with unknowns on both sides of the equation and solve
- solve equations with brackets and unknowns on both sides of the equations (with the unknown being negative)
- understand that $\sqrt{x} = \pm x$
- consider the order of operations to solve an equation
- construct an equation from a diagram involving shapes and find the missing component
- *Plot Straight line Graphs from an equation in the form of $y=mx$ □ c*
- *Plot a Quadratic Graph curve and identify a Quadratic graph.*
- *solve graphically simultaneous equations by their intersection*

Grade 5 & 6

- solve a quadratic using factorisation
- solve a quadratic using the quadratic formula
- use iteration to solve a complex equation.
- solve simultaneous equations where both sides need to be multiplied and with solutions that can be negative.
- construct and solve simultaneous equations
- solve equations with unknowns on both sides with brackets and negative unknowns
- solve an equation of the form $x^2 \pm a = b$
- construct complex linear equations from real life situations and solve
- *identify the gradient and the y-intercept from a line on a graph and from its equation.*
- *re-arrange equations to identify the gradient and y-intercept*

- solve a quadratic using completing the square.
- solve a linear and non linear simultaneous equation by equating
- *calculate the equation of a perpendicular line or parallel line from an equation.*
- *solve Graphically simultaneous equations with a quadratic equation*
- + Identify the turning points of a quadratic curve from completing the square.*
- *plot and recognise exponential graphs in the form of $y= a^x$*



Ratio and Proportion Curriculum Map

Summer 1

I can...

Grade 1 & 2

- divide a quantity into two parts in a given (worded) ratio
- solve simple ratio problems
- use division and multiplication to represent ratio and proportion.

Grade 3

- use the unitary method to solve simple word problems involving ratio and direct proportion
- use proportional reasoning to solve simple problems
- simplify ratio in different units
- simplify a 3 part ratio
- understand the relationship between ratio and proportion
- divide a quantity into two parts in a given ratio
- reduce a ratio to its simplest form
- use direct proportion in simple context
- use ratio notation

Grade 4

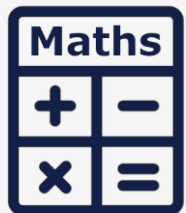
- simplify ratios in the form 1:n or n:1 percentages to compare proportions
- check when two values are in direct proportion
- simplify ratios in decimal or fractional form
- identify and describe practical examples of direct proportion
- work out values that are in direct proportion
- recognise a graph showing direct proportion
- interpret ratio in different contexts
- divide a quantity into more than 2 parts in a given ratio

Grade 5 & 6

- use ratio to solve area problems
- understand variables in direct proportion can be written as ratios
- solve a problem in direct proportion if I know ratio of the variables
- calculate speed. Pressure and density from the formulas
- understand what rates of changes are and how to use them in context e.g rates of pay or rates of flow

Grade 7, 8 & 9

- use ratio to solve problems with length/area/volume and find the scale factor of enlargement of these
- recognise direct proportion graphs and identify the equation that matches
- solve inverse proportion problems in context
- find the constant of proportionality



Geometry Curriculum Map

I can...

Grade 1 & 2

Identify and calculate angles on a straight line, around a point and vertically opposite

Measure and draw angles to nearest degree

Construct a triangle given sides and angles

Calculate missing angles in triangles and quadrilaterals

Identify properties of 3D shapes

Identify and construct nets of common 3D shapes

Reflect, translate and rotate a shape

Classify quadrilaterals and triangles given their properties

Calculate the area and perimeter of rectangles/squares/triangles

Calculate area and perimeter of compound shapes involving rectangles

Grade 3

Calculate the volume of a prism and cuboid

Calculate the surface area of prism

Calculate the area of a trapezium

Identify and name parts of circle

Calculate the circumference and area of a circle

Identify and calculate angles in parallel lines e.g.: alternate, corresponding & allied

Calculate angles in isosceles and equilateral triangles

Draw and find bearings

Describe rotations, translations and reflections

Identify congruent shapes

Summer 2

Grade 4

Construct triangles accurately given SSS, ASA, SAS

Use a ruler and compasses to bisect an angle

Construct perpendicular lines

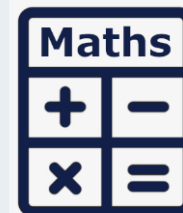
Enlarge any shape given a positive scale factor

Describe a rotation, reflection and translation on a co-ordinate grid

Calculate the circumference and area of a semi-circle and quarter of a circle

Calculate missing lengths using Pythagoras' Theorem

Calculate interior, exterior and the sum of angles in polygons



Grade 5 & 6

Enlarge a shape given a negative integer scale factor

Describe fully a single transformation

Calculate and solve vector problems involving ratio

Calculate the number of sides on a regular polygon given the interior and exterior angles.

Understand and use the formulae $Sum\ of\ Angles = (n - 2) \times 180^\circ$ and $\frac{360^\circ}{n} = exterior\ angle$

Recall and use the formulae for volume and surface area for pyramids, frustums and cones.

Calculate the dimensions given the volume or surface area

Calculate the length of a line given two coordinates

Define a geometric progression and continue a sequence

Use and apply trigonometry to right-angled triangle, including worded problems

Identify roots and turning points on a quadratic graph

Calculate volumes of 3D shapes and prisms

Use constructions to solve loci problems