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Curriculum Objective Mapping

Maths

MATHS

Aligned to the Key Stage 2 National Curriculum, our curriculum is organised into topics, subtopics and atoms, which you can navigate through the Syllabus Explorer in Atom Prime. This ensures that our learning product is overall both vertically and horizontally coherent for each year group.

This document provides guidance on where each National Curriculum learning objective is taught so you can ensure full curriculum coverage, appropriate differentiation and emphasis on long-term learning when planning.

National Curriculum for Maths

Topic	National Curriculum Objective	Subtopic	Atom
Number	→ Find 10 or 100 more or less than a given number. Recognise the place value of each digit in a 3-digit number. Read and write numbers up to 1,000 in numerals and in words. Count from 0 in multiples of 4, 8, 50 and 100. (Y3) → Find 1,000 more or less than a given number. Recognise the place value of each digit in a four-digit number. Identify, represent and estimate numbers using different representations. Count in multiples of 6, 7, 9, 25 and 1,000. (Y4) → Read and write numbers to at least 1,000,000 and determine the value of each digit. Count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000. (Y5)	Place Value	Intro to Place Value
Number	→ Compare and order numbers up to 1,000; use <, > and = signs. (Y3) → Order and compare numbers beyond 1,000. (Y4) → Read, write, order and compare numbers to at least 10,000,000 and determine the value of each digit. (Y6)	Place Value	Order and Compare
Number	→ Round any number to the nearest 10, 100 or 1000 (Y4) → Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 (Y5) → Round any whole number to a required degree of accuracy (Y6)	Place Value	Rounding Numbers
Number	→ Count backwards through zero to include negative numbers. (Y4) → Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero. (Y5) → Use negative numbers in context, and calculate intervals across zero. (Y6)	Place Value	Negative Numbers
Number	→ Read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value. (Y4) → Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.(Y5)	Place Value	Roman Numerals

National Curriculum for Maths

Topic	National Curriculum Objective	Subtopic	Atom
Number	→ Add numbers mentally, including: A three-digit number and ones - A three-digit number and tens - A three-digit number and hundreds → Add numbers with up to three digits, using formal written methods of columnar addition and subtractionsolve problems, including missing number problems, using number facts, place value, and more complex addition. (Y3) → Add numbers with up to 4 digits using the formal written methods of columnar addition where appropriate. Solve addition two-step problems in contexts, deciding which operations and methods to use and why.(Y4) → Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.(Y5) → Solve addition multi-step problems in contexts, deciding which operations and methods to use and why.(Y6)	Operations	Addition
Number	→ Subtract numbers mentally, including: A three-digit number and ones - A three-digit number and tens - A three-digit number and hundreds → Subtract numbers with up to three digits, using formal written methods of columnar Subtraction and subtraction. → Solve problems, including missing number problems, using number facts, place value, and more complex subtraction. (Y3) → Subtract numbers with up to 4 digits using the formal written methods of columnar subtraction where appropriate. Solve Subtraction two-step problems in contexts, deciding which operations and methods to use and why.(Y4) → Subtract and subtract whole numbers with more than 4 digits, including using formal written methods (columnar subtraction and subtraction)solve subtraction and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.(Y5) → Solve subtraction multi-step problems in contexts, deciding which operations and methods to use and why.(Y6)	Operations	Subtraction

National Curriculum for Maths

Topic	National Curriculum Objective	Subtopic	Atom
Number	→ Recall and use multiplication facts for the 3, 4 and 8 multiplication table. Write and calculate mathematical statements for multiplication and times tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods. Solve problems, including missing number problems, involving multiplication, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects. (Y3) → Recall multiplication facts for multiplication tables up to 12 × 12. Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers. Multiply two-digit and three-digit numbers by a one-digit number using formal written layoutsolve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects. (Y4) → Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbersmultiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication.(Y5 & Y6)	Operations	Multiplication
Number	→ Recall and use division facts for the 3, 4 and 8 multiplication tables. Write and calculate mathematical statements for division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods. (Y3) → Solve problems, including missing number problems, involving division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects. Recall division facts for multiplication tables up to 12 × 12. Use place value, known and derived facts to divide mentally, including dividing by 1 multiply two-digit and three-digit numbers by a one-digit number using formal written layout.(Y4) → Divide numbers mentally drawing upon known facts. Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context. (Y5) → Divide numbers up to 4 digits by a two-digit whole number using the formal written method of short division where appropriate for the context divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context. (Y6)	Operations	Division
Number	Identify factors, including finding all factor pairs of a number, and common factors of two numbers (Y5 & Y6)	Operations	Factors
Number	Identify multiples, including common multiples of two numbers (Y5 & Y6)	Operations	Multiples

National Curriculum for Maths

Topic	National Curriculum Objective	Subtopic	Atom
Number	Establish whether a number up to 100 is prime and recall prime numbers up to 19 (Y5 & Y6)	Operations	Prime Numbers and Factor Trees
Number	Recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3) (Y5 & Y6)	Operations	Square and cubed numbers
Number	Use their knowledge of the order of operations to carry out calculations involving the four operations. (Y6)	Operations	Order of Operations
Number	Solve problems involving multiplication and division, addition and subtraction using mental methods including problems in contexts. (Y4, Y5 & Y6)	Place Value	Mental Maths
Number	Identify, represent and estimate numbers using different representations (Y4, Y5 & Y6)	Place Value	Estimating
Number	→ Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10. Recognise, find and write fractions of a discrete set of objects: unit fractions and nonunit fractions with small denominators. Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators. (Y3) → Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten.Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number. (Y4)	Fractions	Intro to Fractions
Number	→ Recognise and show, using diagrams, equivalent fractions with small denominators.(Y3) → Recognise and show, using diagrams, families of common equivalent fractions. (Y4) → Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths.(Y5) → Use common factors to simplify fractions; use common multiples to express fractions in the same denomination. (Y6)	Fractions	Equivalent Fractions
Number	Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, 2/5 + 4/5 = 6/5 = 1 1/5](Y5 & Y6)	Fractions	Mixed Numbers and Improper Fractions

National Curriculum for Maths

Topic	National Curriculum Objective	Subtopic	Atom
Number	→ Compare and order unit fractions, and fractions with the same denominators. (Y3 & Y4) → Compare and order fractions whose denominators are all multiples of the same number. (Y5) → Compare and order fractions, including fractions > 1 (Y6)	Fractions	Order and compare fractions
Number	→ Add and subtract fractions with the same denominator within one whole [for example, 5/7 + 1/7 = 6/7](Y3) → Add and subtract fractions with the same denominator (Y4) → Add and subtract fractions with the same denominator and denominators that are multiples of the same number (Y5) → Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions.(Y6)	Fractions	Adding and subtracting fractions
Number	→ Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams. (Y5) → Multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, 1/4 × 1/2 = 1/8](Y6)	Fractions	Multiplying fractions
Number	Divide proper fractions by whole numbers [for example, 1 /3 ÷ 2 = 1/6] (Y6)	Fractions	Dividing Fractions
Geometry	→ Describe positions on a 2-D grid as coordinates in the first quadrant(Y5) → Describe positions on the full coordinate grid (all four quadrants)(Y6)		Position
Geometry	→ Describe movements between positions as translations of a given unit to the left/right and up/down. → Plot specified points and draw sides to complete a given polygon.(Y4) → Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed. (Y5) → Draw and translate simple shapes on the coordinate plane, and reflect them in the axes.(Y6)		Transformations
Number	→ Find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths. (Y4) → Identify the value of each digit in numbers given to three decimal places. (Y5 & Y6)	Decimals	Intro to decimals

National Curriculum for Maths

Topic	National Curriculum Objective	Subtopic	Atom
Number	→ Solve simple measure and money problems involving fractions and decimals to two decimal places. (Y4) → Solve problems involving numbers up to three decimal places. (Y5 & Y6)	Decimals	Adding and subtracting decimals
Number	→ Compare numbers with the same number of decimal places up to two decimal places. (Y4) → Read, write, order and compare numbers with up to three decimal places. (Y5) → Identify the value of each digit in numbers given to three decimal places (Y6)	Decimals	Order and compare decimals
Number	→ Recognise and write decimal equivalents of any number of tenths or hundredths.Recognise and write decimal equivalents to 1/4, 1/2 and ¾. (Y4) → Read and write decimal numbers as fractions (e.g. 0.71 = $^{71}/_{100}$). (Y5) → Associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. ⅜). (Y6)	Decimals	Converting decimals and fractions
Number	Multiply one-digit numbers with up to two decimal places by whole numbers.Use written division methods in cases where the answer has up to two decimal places.(Y6)	Decimals	Multiplying/Dividing Decimals
Measurement	→ Add and subtract amounts of money to give change, using both £ and p in practical contexts. (Y3) → Estimate, compare and calculate different measures, including money in pounds and pence. (Y4) → Use all four operations to solve problems involving money and using decimal notation. (Y5 & Y6)	Weights and Measures	Money
Ratio and Proportion	→ Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal. Solve problems which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5, 2/5, 4/5 and those with a denominator of a multiple of 10 or 25. (Y5) → Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts. (Y6)	Percentages	Order and Compare Percentages (FDP)
Ratio and Proportion	Solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison. (Y6)	Percentages	Calculating Percentages

National Curriculum for Maths

Topic	National Curriculum Objective	Subtopic	Atom
Measurement	→ Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks. Estimate and read time with increasing accuracy to the nearest minute. Record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight; Know the number of seconds in a minute and the number of days in each month, year and leap yearcompare durations of events [for example to calculate the time taken by particular events or tasks]. (Y3) → Read, write and convert time between analogue and digital 12- and 24-hour clockssolve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days. Solve problems involving converting between units of time.(Y4)	Weights and Measures	Time
Algebra	Generate and describe linear number sequences (Y6)	Sequences	Simple Sequences
Algebra	Express missing number problems algebraically (Y6)	Expressions	Forming Expressions
Algebra	Use simple formulae (Y6)	Equations	Substitution
Algebra	Use simple formulae (Y6)	Equations	Solving
Algebra	Find pairs of numbers that satisfy an equation with two unknowns. Enumerate possibilities of combinations of two variables. (Y6)	Equations	Two unknowns
Measurement	→ Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml). Convert between different units of measure [for example, kilometre to metre]. (Y3) → Estimate, compare and calculate different measures. (Y4) → Convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre.)(Y5) → Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate. (Y6)	Weights and Measures	Metric Units
Measurement	→ Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints. (Y5) → Convert between miles and kilometres.(Y6)	Weights and Measures	Imperial Units

National Curriculum for Maths

Topic	National Curriculum Objective	Subtopic	Atom
Measurement	→ Measure the perimeter of simple 2-D shapes. (Y3) → Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres. (Y4) → Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres. (Y5 & Y6)	Weights and Measures	Length and Perimeter
Measurement	→ Find the area of rectilinear shapes by counting squares. (Y4) → Calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes. (Y5) → Recognise that shapes with the same areas can have different perimeters and vice versarecognise when it is possible to use formulae for area and volume of shapes. Calculate the area of parallelograms and triangles. (Y6)	Space	Area
Measurement	→ Estimate volume [for example, using 1 cm3 blocks to build cuboids (including cubes)] and capacity [for example, using water]. (Y5) → Calculate, estimate and compare -volume of cubes and cuboids using standard units, including cubic centimetres (cm3) and cubic metres (m3), and extending to other units [for example, mm3 and km3]. (Y6)	Space	Volume
Ratio and Proportion	Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts. (Y6)	Ratio	Relative Quantities
Ratio and Proportion	Solve problems involving similar shapes where the scale factor is known or can be found (Y5 & Y6)	Ratio	Similar Shapes & Scale Factors
Data	→ Interpret and present data using tables. Solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in tables. (Y3) → Solve comparison, sum and difference problems using information presented in tables. (Y4) → Complete, read and interpret information in tables, including timetables. (Y5 & Y6)	Graphs	Tables
Data	→ Interpret and present data using pictograms. Solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in them. (Y3) → Solve comparison, sum and difference problems using information presented in pictograms. (Y4, Y5 & Y6)	Graphs	Pictograms

National Curriculum for Maths

Topic	National Curriculum Objective	Subtopic	Atom
Data	→ Interpret and present data using bar charts. Solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts. (Y3) → Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts. Solve comparison, sum and difference problems using information presented in bar charts.(Y4, Y5 & Y6)	Graphs	Bar Charts
Data	→ Interpret and present discrete and continuous data using appropriate graphical methods, including line graphs. (Y4) → Solve comparison, sum and difference problems using information presented in line graphs. (Y5) → Interpret and construct line graphs and use these to solve problems. (Y6)	Graphs	Line graphs
Data	→ Solve comparison, sum and difference problems using information presented in pie charts. (Y5) → Interpret and construct pie charts and line graphs and use these to solve problems. (Y6)	Graphs	Pie Charts
Data	Calculate and interpret the mean as an average. (Y6)	Statistics	The mean
Geometry	→ Recognise angles as a property of shape or a description of a turn. Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle.(Y3) → Identify acute and obtuse angles and compare and order angles up to two right angles by size. (Y4) → Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles. Draw given angles, and measure them in degrees (°) → Identify: angles at a point and one whole turn (total 360°) angles at a point on a straight line and 2 1 a turn (total 180°) other multiples of 90°. (Y5) → Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles. (Y6)	Properties of the Shape	Angles
Geometry	→ Compare and classify geometric shapes, including triangles, based on their properties and sizes. (Y3 & Y4) → Use the properties of rectangles to deduce related facts and find missing lengths and angles. (Y5 & Y6)	Properties of the Shape	Triangles

National Curriculum for Maths

Topic	National Curriculum Objective	Subtopic	Atom
Geometry	→ Compare and classify geometric shapes, including quadrilaterals, based on their properties and sizes. (Y3 & Y4) → Use the properties of rectangles to deduce related facts and find missing lengths and angles. (Y5 & Y6)	Properties of the Shape	Quadrilaterals
Geometry	→ Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them. Identify horizontal and vertical lines and pairs of perpendicular and parallel lines.(Y3) → Identify lines of symmetry in 2-D shapes presented in different orientations Complete a simple symmetric figure with respect to a specific line of symmetry. (Y4) → Distinguish between regular and irregular polygons based on reasoning about equal sides and angles. (Y5) → Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons. Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius. (Y6)	Properties of the Shape	Polygons and Circles
Geometry	→ Identify 3-D shapes, including cubes and other cuboids, from 2-D representations (Y5) → Recognise, describe and build simple 3D shapes, including making nets (Y6)	Properties of the Shape	Three-Dimensional Shapes