



Copley Junior School

Assessment Model for Maths



Year 2

Maths Objectives

- Count in steps of 2, 3, and 5 from 0, and in 10s from any number, forward and backward.
- Recognise the place value of each digit in a two-digit number (10s, 1s).
- Identify, represent and estimate numbers using different representations, including the number line.
- Compare and order numbers from 0 up to 100; use $<$, $>$ and $=$ signs.
- Read and write numbers to at least 100 in numerals and in words.
- Use place value and number facts to solve problems.
- Solve problems with addition using concrete objects and pictorial representations, including those involving numbers, quantities and measures.
- Solve problems with subtraction using concrete objects and pictorial representations, including those involving numbers, quantities and measures.
- Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100.
- Add and subtract a two-digit number and 1s using concrete objects, pictorial representations, and mentally using a number line.
- Add and subtract a two-digit number and 10s using concrete objects, pictorial representations, and mentally using a number line.
- Add and subtract 2 two-digit numbers using concrete objects, pictorial representations, and mentally using a number line.
- Add 3 one digit numbers using concrete objects, pictorial representations, and mentally using a number line.
- Show that addition of 2 numbers can be done in any order (commutative) and subtraction of one number from another cannot.
- Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.
- Recall and use multiplication facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers.
- Recall and use division facts for the 2, 5 and 10 multiplication tables.
- Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (\times), division (\div) and equals ($=$) signs.
- Show that multiplication of 2 numbers can be done in any order (commutative) and division of 1 number by another cannot.
- Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.
- Recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity.
- Write simple fractions, for example $\frac{1}{2}$ of $6 = 3$ and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$.
- Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature ($^{\circ}\text{C}$); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels.
- Compare and order lengths, mass, volume/capacity and record the results using $>$, $<$ and $=$.
- Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value.
- Find different combinations of coins that equal the same amounts of money.
- Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change.
- Compare and sequence intervals of time.



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- Tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times.
- Know the number of minutes in an hour and the number of hours in a day.
- Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line.
- Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces.
- Identify 2-D shapes on the surface of 3-D shapes (e.g. circle on a cylinder etc.).
- Compare and sort common 2-D and 3-D shapes and everyday objects.
- Order and arrange combinations of mathematical objects in patterns and sequences.
- Use mathematical vocabulary to describe position, direction and movement including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise).
- Interpret and construct simple pictograms, tally charts, block diagrams and tables.
- Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity.
- Ask and answer questions about totalling and comparing categorical data.



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Year 3

Maths Objectives

- Count from 0 in multiples of 4 and 8.
- Count from 0 in multiples of 50 and 100.
- Find 10 or 100 more or less than a given number.
- Recognise the place value of each digit in a 3-digit number (100s, 10s, 1s).
- Compare and order numbers up to 1,000.
- Identify, represent and estimate numbers using different representations.
- Read and write numbers up to 1,000 in numerals and in words.
- Add and subtract mentally a three-digit number and 1s.
- Add and subtract mentally a three-digit number and 10s.
- Add and subtract mentally a three-digit number and 100s.
- Add numbers with up to 3 digits using expanded column method for addition.
- Subtract numbers with up to 3 digits using the expanded column method for subtraction.
- Estimate the answer to a calculation and use inverse operations to check answers.
- Recall and use multiplication facts for the 3, 4 and 8 multiplication tables.
- Recall and use division facts for the 3, 4 and 8 multiplication tables.
- Write and calculate mathematical statements for multiplication using the multiplication tables that they know, including for two-digit numbers times one-digit numbers using the grid method.
- Write and calculate mathematical statements for division using the multiplication tables that they know, including for two-digit numbers divided by one-digit numbers, using partitioning.
- 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 non-unit fractions with small denominators.
- Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators.
- Recognise and show, using diagrams, equivalent fractions with small denominators.
- Add and subtract fractions with the same denominator within one whole (e.g. $5/7 + 1/7 = 6/7$).
- Compare and order unit fractions, and fractions with the same denominators.
- Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml).
- Measure the perimeter of simple 2-D shapes.
- Add and subtract amounts of money to give change, using both £ and p in practical contexts.
- Tell and write the time from an analogue clock using Roman numerals from I to XII and 12-hour.
- Tell and write the time in 12-hour from an analogue clock and convert to 24-hour.
- 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, am/pm, morning, afternoon, noon and midnight.
- Know the number of seconds in a minute and the number of days in each month, year and leap year.
- Compare durations of events.
- Draw 2-D shapes.
- Make 3-D shapes using modelling materials.
- Recognise 3-D shapes in different orientations and describe them.
- Recognise angles as a property of shape or a description of a turn.
- Identify right angles, recognise that 2 right angles make a half-turn, 3 make three quarters of a turn and 4 a complete turn.
- Identify whether angles are greater than or less than a right angle.
- Identify horizontal and vertical lines.



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- Identify pairs of perpendicular and parallel lines.
- Interpret and present data using bar charts, pictograms and tables.
- Solve number problems and practical problems involving place value and number.
- Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.
- Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.
- Solve problems that involve fractions.
- Solve one-step and two-step questions using information presented in scaled bar charts and pictograms and tables.



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Year 4

Maths Objectives

- Count in multiples of 6, 7, 9, 25 and 1,000.
- Find 1,000 more or less than a given number.
- Count backwards through 0 to include negative numbers.
- Recognise the place value of each digit in a four-digit number (1,000s, 100s, 10s and 1s).
- Order and compare numbers beyond 1,000.
- Identify, represent and estimate numbers using different representations.
- Round any number to the nearest 10, 100 or 1,000.
- Read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of 0 and place value.
- Add numbers with up to 4 digits using the compact column method.
- Subtract numbers with up to 4 digits using the compact column method.
- Estimate and use inverse operations to check answers to a calculation.
- Recall multiplication facts for multiplication tables up to 12×12 .
- Recall division facts for 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.
- Multiply together 3 numbers.
- Recognise and use factor pairs and commutativity in mental calculations.
- Multiply two-digit and three-digit numbers by a one-digit number using the ladder method.
- Recognise and show, using diagrams, families of common equivalent fractions.
- Count up and down in hundredths; recognise that hundredths arise when dividing an object by a 100 and dividing tenths by 10.
- Add and subtract fractions with the same denominator.
- Recognise and write decimal equivalents of any number of tenths.
- Recognise and write decimal equivalents of any number of hundredths.
- Recognise and write decimal equivalents to $\frac{1}{4}$; $\frac{1}{2}$; $\frac{3}{4}$.
- 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.
- Round decimals with 1 decimal place to the nearest whole number.
- Compare numbers with the same number of decimal places up to 2 decimal places.
- Convert between different units of measure including cm, mm, m and km; ml, l, g, kg.
- Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres.
- Find the area of rectilinear shapes by counting squares.
- Estimate, compare and calculate different measures, including money in pounds and pence.
- Read, write and convert time between analogue and digital 12 and 24-hour clocks.
- Solve problems involving converting from hours to minutes, minutes to seconds, years to months, weeks to days.
- Compare and classify geometric shapes, including quadrilaterals, based on their properties and sizes.
- Compare and classify geometric shapes including triangles, based on their properties and sizes.
- Identify acute and obtuse angles and compare and order angles up to 2 right angles by size.
- 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.
- Describe positions on a 2-D grid as coordinates in the first quadrant.
- Describe movements between positions as translations of a given unit to the left/right and up/down.



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- Plot specified points and draw sides to complete a given polygon.
- Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.
- Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.
- Solve number and practical problems with increasingly large positive numbers.
- Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by 1 digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.
- 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.
- Solve simple measure and money problems involving fractions and decimals to 2 decimal places.
- Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.



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Assessment Model for Maths



Year 5

Maths Objectives

- Read, write, order and compare 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.
- Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through 0.
- Round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000.
- Read Roman numerals to 1,000 (M) and recognise years written in Roman numerals.
- Add whole numbers with more than 4 digits using compact column addition.
- Subtract whole numbers with more than 4 digits using compact column subtraction.
- Add and subtract numbers mentally with increasingly large numbers.
- Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.
- Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers.
- Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers.
- Establish whether a number up to 100 is prime and recall prime numbers up to 19.
- Multiply numbers up to 4 digits by a one-digit number (short multiplication) or two-digit number (long multiplication).
- Multiply and divide numbers mentally drawing upon known facts.
- Divide numbers up to 4 digits by a one-digit number using the chunking method and then short division (bus stop method) and interpret remainders appropriately for the context.
- Multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000.
- Recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3).
- Compare and order fractions whose denominators are all multiples of the same number.
- Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths.
- Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number.
- Add and subtract fractions with the same denominator and denominators that are multiples of the same number.
- Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams.
- Read and write decimal numbers as fractions.
- Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents.
- Round decimals with 2 decimal places to the nearest whole number and to 1 decimal place.
- Read, write, order and compare numbers with up to 3 decimal places.
- Recognise the per cent symbol (%) and understand that per cent relates to "number of parts per 100", and write percentages as a fraction with denominator 100, and as a decimal fraction.
- Convert between different units of metric measure.
- Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints.
- Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres.
- Calculate and compare the area of rectangles (including squares) including using standard units, square centimetres (cm^2) and square metres (m^2) and estimate the area of irregular shapes.
- Estimate volume and capacity.
- Use all four operations to solve problems involving measure using decimal notation including scaling.



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- Identify 3-D shapes, including cubes and other cuboids, from 2-D representations.
- Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles.
- Draw given angles, and measure them in degrees ($^{\circ}$).
- Identify angles at a point and 1 whole turn (total 360°).
- Identify angles at a point on a straight line and half a turn (total 180°).
- Identify other multiples of 90° .
- Use the properties of rectangles to deduce related facts and find missing lengths and angles.
- Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.
- 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.
- Complete, read and interpret information in tables, including timetables.
- Solve number problems and practical problems that involve place value and number.
- Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.
- Solve problems involving multiplication and division, including using their knowledge of factors and multiples, squares and cubes.
- Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign.
- Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.
- Solve comparison, sum and difference problems using information presented in a line graph.
- Solve problems involving number up to 3 decimal places.
- Solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and fractions with a denominator of a multiple of 10 or 25.
- Solve problems involving converting between units of time.



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Year 6

Maths Objectives

- Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit.
- Round any whole number to a required degree of accuracy.
- Use negative numbers in context, and calculate intervals across 0.
- Solve number and practical problems involving the application of place value knowledge.
- Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication.
- 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.
- Divide numbers up to 4 digits by a two-digit number using the formal written method of short division (bus stop) where appropriate, interpreting remainders according to the context.
- Perform mental calculations, including with mixed operations and large numbers.
- Identify common factors, common multiples and prime numbers.
- Use their knowledge of the order of operations to carry out calculations involving the 4 operations.
- Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.
- Solve problems involving addition, subtraction, multiplication and division.
- Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.
- Use common factors to simplify fractions; use common multiples to express fractions in the same denominations.
- Compare and order fractions, including fractions >1 .
- Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions.
- Multiply simple pairs of proper fractions, writing the answer in its simplest form.
- Divide proper fractions by whole numbers.
- Associate a fraction with division and calculate decimal fraction equivalents for a simple fraction.
- Identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1,000 giving answers up to three decimal places.
- Multiply one-digit numbers with up to 2 decimal places by whole numbers.
- Use written division methods in cases where the answer has up to 2 decimal places.
- Solve problems which require answers to be rounded to specified degrees of accuracy.
- Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.
- Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts.
- Solve problems involving the calculation of percentages and the use of percentages for comparison.
- Solve problems involving similar shapes where the scale factor is known or can be found.
- Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.
- Use simple formulae.
- Generate and describe linear number sequences.
- Express missing number problems algebraically.
- Find pairs of numbers that satisfy an equation with two unknowns.
- Enumerate possibilities of combinations of 2 variables.



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- Solve problems involving the calculation and conversion of units of measure, using decimal notation up to 2 decimal places where appropriate.
- Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to 3 decimal places.
- Convert between miles and kilometres.
- Recognise that shapes with the same areas can have different perimeters and vice versa.
- Recognise when it is possible to use formulae for area and volume of shapes.
- Calculate the area of parallelograms and triangles.
- Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm^3) and cubic metres (m^3), and extending to other units.
- Draw 2-D shapes using given dimensions and angles.
- Recognise, describe and build simple 3-D shapes, including making nets.
- 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.
- Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.
- Describe positions on the full coordinate grid (all 4 quadrants).
- Draw and translate simple shapes on the coordinate plane, and reflect them in the axes.
- Interpret and construct pie charts and line graphs and use these to solve problems.
- Calculate and interpret the mean as an average.