Year 3 Mathematics Curriculum Objectives

Mathematics – Year 3
Number & Place Value
Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number.
Count in multiples of 4
Count forwards in multiples of 4 from 0.
Count backwards in multiples of 4 from any multiple up to 12×.
Recognise digit patterns.
Count in multiples of 8
Count forwards in multiples of 8 from 0.
Count backwards in multiples of 8 from any multiple up to 12×.
Recognise digit patterns.
Count in multiples of 50
Count forwards in multiples of 50 from 0.
Count backwards in multiples of 50 from any multiple up to 12×.
Recognise digit patterns.
Count in measures and money contexts.
Count in multiples of 100
Count forwards in multiples of 50 from 0.
Count backwards in multiples of 50 from any multiple up to 12×.
Recognise digit patterns.
Count in measures contexts
Count forwards and backwards in steps of tenths
Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts; and from dividing one digit numbers or quantities by 10. (Number: Fractions, Year 3)
Record the number that is 10 more or 10 less than any number.
Explain the effect on the digits when counting in 10s and the impact of crossing boundaries when moving between 10s and 100s.
Record the number that is 100 more or 100 less than any number.
Explain the effect on the digits when counting in 100s and the impact of crossing boundaries when moving between 100s and 1,000s.
Recall and use multiplication and division facts for the3x table; 4x table; and 8x table. (Number: Multiplication and Division, Year 3)
Recognise the place value of each digit in a three-digit number (hundreds, tens, ones).
Know the value of any digit in a three-digit number, including 0 as a place holder, e.g., Know that 500, has a zero in the tens and ones columns.
Know that, in a three-digit number, the hundreds digit is the most significant in determining size, followed by the tens then the ones.
Identify and accurately position three-digit numbers on a number line, with and without interval markings.
Partition three-digit numbers into hundreds, tens and ones in different ways, e.g., 146 = 100 and 40 and 6, 146 = 130 and 16.
Explain accurately the effect on the digits when a one-digit or a two-digit number is multiplied by 10, i.e., the digits move one place to the left (not 'adding a 0'), e.g., 4·6 × 10 = 46.

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Explain accurately the effect on the digits when a two- or three-digit number is divided by 10, i.e., the digits move one place to the right, e.g., 23 ÷ 10 = 2·3 (= 23/10).

Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction. (Number: Addition and Subtraction, Year 3)

Compare and order numbers up to 1000.

Know ordinal numbers in context, e.g., Describe the position of a team in a league table.

Describe the positional relationship between two numbers, e.g., 345 is larger than 300 but smaller than 400.

Order a selection of numbers / quantities up to 1,000 in ascending / descending order.

Compare numbers / quantities, e.g., 306 is larger than 105 but smaller than 456.

Use symbols < >, correctly orientated, and = to compare numbers up to 1,000, e.g., Place a number and a symbol to make this number sentence correct, ▢ < 312 ▢ 321.

Identify, represent and estimate numbers using different representations.

Using Apparatus and Visuals

Interpret information given in visual format, e.g., on an abacus.

Draw diagrams to illustrate outcomes / findings, e.g.:

Use a number line marked in 100s to say which 100 a three-digit number is nearest to, e.g., 574 is closer to 600 than 500. (This lays the foundation for rounding in Year 4).

Use apparatus that helps with visualisation and consolidation of place value, e.g., base 10 apparatus, loop abacus, arrow cards, and number grids.

Organise written responses in a systematic way, e.g., a list, table or organised columns.

Estimation

Estimate a number of objects or pictures of objects using approximation language and count to check and to refine accuracy, e.g., 'It's between 40 and 50.' or 'It's about 25.'.

Estimate and show measures where only one number on the scale is given or where the measure falls between marked divisions, e.g., 'How much water is in the cylinder?'

Estimate the possible position of numbers on a blank number line / stick with any designated start and end numbers.

Read and write numbers up to 1000 in numerals and in words.

Numbers up to 100 should have been thoroughly covered in Year 2.

Read numbers 1 to 1,000 in numerals on number lines, etc.

Write a given numbers in numerals, using place keeping zeros accurately, e.g., 909.

Read numbers to 1,000 in words in context.

Write numbers to 1,000 in words, e.g., Start counting, stop and pupil writes the next number on a whiteboard in words (and numerals).

Solve number problems and practical problems involving these ideas.

Count a large collection of objects by grouping them and recognising how this helps to check a result., e.g., into fives, tens or twenties,

Continue a sequence, e.g., 6, 16, 26, ▢, ▢. What would be the 20th term? Can you work it out without finishing the sequence?

Find missing numbers in a sequence and explain how this was done, e.g., ▢, ▢, 145, ▢, ▢, 115.

Use and apply number and place value into word problems and investigations, e.g.:

Using 3 digits cards make:

the largest number;

the smallest number;

order;

find the number with the largest tens.

Which multiples of 10 lie between 256 and 283?

Solve missing number equations, such as, 322 = 300 + ▢ + 2;

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place missing numbers on a numbered grid where some of the grid is hidden,
e.g., Use the Monty ITP. (These grids are not necessarily left to right / top to bottom and can show a range of numbers, not just 1 to 100).
Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction. (Number: Addition and Subtraction, Year 3)

Year 3 Mathematics Curriculum Objectives

Mathematics – Year 3

Addition & Subtraction

Add and subtract numbers mentally, including:

Mental Methods

Use informal jottings to support mental methods.

Recognise the significance of each digit when adding and subtracting, i.e., in mental methods the most significant is often dealt with first.

Adapt own method to become more efficient in response to suggestions or through own devices.

Use known facts to work out related facts, e.g., Use the fact that 9 – 7 = 2 to work out 89 – 7 = 82.

Activities Specific to the Objective

Add and subtract any single-digit number to and from a three-digit number, e.g., Use known facts or count in head.

Add and subtract any multiple of 10 to or from a three-digit number.

Add and subtract any multiple of 100 to or from a three-digit number (might cross the 1,000 boundary).

Related Mental Activities

Add / subtract 9 to any number by adding / subtracting 10 and adjusting by 1.

Add / subtract 11 to any number by adding / subtracting 10 and adjusting by 1.

Be able to say pairs of numbers that equal 100 where the ones digit is not zero.

Derive quickly doubles of multiples of 10 up to 100, e.g., 80 + 80.

Add near-doubles by doubling and adjusting, e.g., 60 + 62 is double 60 add 2.

Derive quickly pairs of multiples of 100, e.g., 300 + 700 = 1,000 or 400 + 200 = 600.

Derive quickly pairs of numbers that total the next 10, e.g., 87 + ▢ = 90 and 676 + ▢ = 680.

Derive quickly pairs of numbers that total the next 100, e.g., 87 + ▢ = 100 and 676 + ▢ = 700.

Add and subtract near-multiples of a 10 or 100 to two- and three-digit numbers by adjustment, e.g., 47 + 29 (+ 30 – 1) or 632 – 199 (- 200 + 1).

Go Back to Year 4 if link from there has been used.

Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction.

See Mathematics programmes of study: key stages 1 and 2: Mathematics Appendix 1 (formal methods).

Recognise the place value of each digit in a three-digit number . . .. (Number: number and Place Value, Year 3)

Decide whether a written method is the best solution by considering the size of numbers and the complexity of calculation, e.g., on a whiteboard write the following three calculations and discuss:

305 – 296: subtract by counting on in the head because the difference is small;

124 + 68: use a near multiple of 10, i.e., take 68 to nearest 10 add this, then adjust to 124 + 70 - 2;

932 – 457: use a formal written method.

Recognise the relationship between the vertical presentation and the steps on the number line.

Use an expanded layout that underpins the standard written method, recognising that the digits are always worked from smallest to largest.

Estimate first and check answer against estimate, e.g., 247 + 76 will be between 300 and 350.

Understand that, in subtraction, numbers need to be partitioned if the lower number is larger than the upper number in the same column, e.g., 75 – 28: partition 75 into 60 + 15 to subtract 8 from 15, etc.

Recognise the place value of digits when subtracting, e.g., in the tens column although we say 9 subtract 3 we really mean 90 subtract 30.

Addition:

Formally add a two- or three-digit number that does not cross a boundary, e.g., 36 + 153.

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Formally add a two- or three-digit number that crosses one or more boundaries, e.g., 275 + 638.

Subtraction

Formally subtract a two- or three-digit number that does not cross a boundary, e.g., 874 - 523.

Formally subtract a two- or three-digit number that crosses one or more boundaries, e.g., 932 - 457.

Know that if more than one number is to be subtracted this must be done in separate steps, e.g., 568 - 233 - 159 might be calculated as 568 - 233 = 335, then 335 - 159 = 176.

Estimate the answer to a calculation and use inverse operations to check answers.

Use approximation to estimate an answer, e.g., 149 + 236, is approximate to 150 + 250 = 400 so the answer should be somewhere in the high 300s.

Begin to check addition and subtraction with a calculation that uses the inverse operation.

Routinely use inverse operations to check answers, especially if formal methods of subtraction are now being used.

Checking a formal method of addition might be with an informal method of subtraction until formal subtraction methods are embedded.

Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.

Problems are much more than word problems. Investigations should form a large part of this to encourage mathematical reasoning.

Contribute to class discussions about possible methods for solving particular problems.

Use notes and diagrams, including number lines, to help solve problems and explain methods.

Organise written responses to problems and puzzles in a systematic way, e.g., in a list or table.

Solve place value problems, e.g.:

Using the digit cards 7, 4 and 9 make the largest number / the smallest number / all possible numbers and order them;

'Which numbers are hidden on the number square grid?

Solve number problems and practical problems involving these ideas. (Number: Number and Place Value, Year 3)

Solve problems for quantities, amounts and measures, e.g.:

If you add two 20 g weights to 135 g, what will the total weight be?'

Two people share 38 sweets. One person gets 10 more than the other. How many sweets do they each get?

Find the difference between 326 ml and 370 ml;

Asif wants to buy a comic that costs £1·50. He saves 36p one week and 45p the next. How much more money does he need to buy the comic?

Find all possibilities problems, e.g.:

I have one of each coin in my pocket from 1p to £2. If I pulled out any three coins what might they be worth? Have you found all the possible answers?

Which weights could you combine to total 50 g?

Use and apply addition and subtraction, including inverse operations, e.g.:

I know that 4 + 7 = 11, what else do I know?

Put + or – in the circles to make the answer correct;

Solve 'Think of a number' problems;

Find a mystery number, e.g., which pair of numbers

total 30 and have a difference of 12.

Solve missing number problems, e.g.:

Find missing items in an addition or subtraction sequence.

Altogether there were 156 marbles of which Martin owned 67. How many does Marie have?

a three-digit number and ones;

Year 3 Mathematics Curriculum Objectives

Mental Methods
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Recognise the significance of each digit when adding and subtracting, i.e., in mental methods the most significant is often dealt with first.
Adapt own method to become more efficient in response to suggestions or through own devices
Use known facts to work out related facts, e.g., Use the fact that 9 – 7 = 2 to work out 89 – 7 = 82.
Activities Specific to the Objective
Add and subtract any single-digit number to and from a three-digit number, e.g., Use known facts or count in head.
Add and subtract any multiple of 10 to or from a three-digit number.
Add and subtract any multiple of 100 to or from a three-digit number (might cross the 1,000 boundary).
Related Mental Activities
Add / subtract 9 to any number by adding / subtracting 10 and adjusting by 1.
Add / subtract 11 to any number by adding / subtracting 10 and adjusting by 1.
Be able to say pairs of numbers that equal 100 where the ones digit is not zero.
Derive quickly doubles of multiples of 10 up to 100, e.g., 80 + 80.
Add near-doubles by doubling and adjusting, e.g., 60 + 62 is double 60 add 2.
Derive quickly pairs of multiples of 100, e.g., 300 + 700 = 1,000 or 400 + 200 = 600.
Derive quickly pairs of numbers that total the next 10, e.g., 87 + ▢ = 90 and 676 + ▢ = 680.
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a three digit number and tens;
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Year 3 Mathematics Curriculum Objectives

Mathematics – Year 3
Multiplication & Division
8x table.
Recite the times table fluently forwards and backwards.
Write the times tables in ascending and descending order.
Know by heart the multiplication and division facts.
Use the 8× table facts confidently in calculations.
Instantly recall all the multiplication and division facts in any order for each of the 2, 5, 10, 3, 4 and 8× tables, e.g., in a speed test of random facts.
Recognise the relationship between the 2×, 4× and 8× tables and use doubling and halving strategies to derive answers.
Count from 0 in multiples of 4, 8, 50 and 100. (Number: Number and Place Value, Year 3)
3x table;
Steps to knowing the 3× table:
Recite the times table fluently forwards and backwards.
Write the times tables in ascending and descending order.
Know by heart the multiplication and division facts.
Use the 3× table facts confidently in calculations.
Instantly recall all the multiplication and division facts in any order for each of the 2, 5, 10, 3, 4 and 8× tables, e.g., in a speed test of random facts.
Recognise the relationship between the 2×, 4× and 8× tables and use doubling and halving strategies to derive answers.
Count from 0 in multiples of 4, 8, 50 and 100. (Number: Number and Place Value, Year 3)
Write and calculate mathematical statements for multiplication and 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.
Calculate Mathematical Statements For Multiplication And Division Using The Multiplication Tables
Derive related facts from known times tables facts, such as:
inverse operations and number trios, e.g., 8 × 9 = 72, 9 × 8 = 72, 72 ÷ 9 = 8, 72 ÷ 8 = 9;
extended table facts, e.g., 30 × 2 = 60, 60 ÷ 3 = 20, etc;
doubling and halving related facts to the 2×, 4× and 8× tables, e.g., 75 × 2, 88 ÷ 4, 25 × 8.
Understand that division can be solved either by grouping or sharing and select the most appropriate strategy to solve a problem, e.g., 40 ÷ 8= 5 could be 40 children in teams of 8 (grouping) or 40 sweets shared equally between 8 children (sharing).
Know that some division calculations have a remainder that must be rounded up, rounded down or shown as a remainder depending on the context of the problem.
Multiply a one-digit number by a two-digit multiple of 10, e.g., 8 × 40.
Divide a multiple of 10 by a one-digit number related to extended tables facts, e.g., 240 ÷ 4.
Multiply any two-digit number by a one-digit number.
Estimate possible outcomes with a degree accuracy.
Check answers for sense against estimates.
Progression From Mental to Formal Written Methods
Write word problems as a mathematical statement, e.g., Write '40 sweets shared between 8 people' as 40 ÷ 8.
Use informal jottings and diagrams, e.g.:
repeated addition / subtraction on a number line;

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arrays;

Understand and use the grid method for multiplication where there is at least one two-digit number (partitioning – law of distribution), e.g., 15 × 8 can be worked out as (10 × 8) + (5 × 8);

The following are not essential in Year 3.

Understand and use an expanded column method for multiplication.

Use a formal method for multiplication and division. (See Appendix 1).

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 missing number problems using known multiplication and division facts, e.g.:

□ × 4 = 12.

36, □ , 28, 24, □ , □.

20 ÷ □ = □.

Complete positive integer scaling and correspondence (relationship) problems, e.g.:

If a square had equal sides of 4 cm, how far would it be round the outside of square if the sides were 3 times longer?

adjust a recipe, such as, work out a recipe for 8 people or 2 people by doubling or halving the quantities for 4 people (not involving fractions).

There are 3 hats and 4 coats. How many outfits can be made?

Scaling problems are an early introduction to ratio and proportion.

Solve multiplication and division problems working methodically, e.g.:

I know that 5 × 6 = 30. What else do I know?

Find some division calculations that have the answer 6.

Sort a selection of numbers for multiplication and division properties, e.g., into Venn or Carroll diagrams.

Tables have 4 legs and stools have 3 legs. I see 32 legs. How many tables and stools are there?

What's my number? e.g., I think of a number, double it, add 10 and halve it. The answer is 35.

If you pack 57 bars of chocolate into boxes that hold 8 bars, how many boxes would you need? Explain why.

Tell a mathematical story for 24 ÷ 6 and 4 × 10.

Explain how a problem has been solved.

4x table;

Recite the times table fluently forwards and backwards.

Write the times tables in ascending and descending order.

Know by heart the multiplication and division facts.

Use the 4× table facts confidently in calculations.

Instantly recall all the multiplication and division facts in any order for each of the 2, 5, 10, 3, 4 and 8× tables, e.g., in a speed test of random facts.

Recognise the relationship between the 2×, 4× and 8× tables and use doubling and halving strategies to derive answers.

Count from 0 in multiples of 4, 8, 50 and 100. (Number: Number and Place Value, Year 3)

Year 3 Mathematics Curriculum Objectives

Mathematics – Year 3

Fractions

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.

Count forwards and backwards in tenths ($^{1}/_{10}$ and 0·1) between 0 and 1 using apparatus, e.g., counting sticks, number lines or number hoops.

Understand that a decimal point is used to separate whole amounts and parts of the whole when writing decimal numbers.

Position and label decimal and fractional tenths on the same 0 to 1 number line divided equally into ten portions and understand the relationship between them, e.g., $^{1}/_{10}$ can also be written as 0·1, $^{3}/_{10}$ as 0·3, etc.

Understand that when counting in tenths, 10 tenths is equivalent to 1, 20 tenths is equivalent to 2, etc.

Understand that when one is divided into 10 equal parts each part is $^{1}/_{10}$, e.g., Measure and cut a piece of string.

Understand that when a single-digit number or quantity is divided into 10 equal parts each part is the single-digit number of tenths, e.g., a 7 cm piece of string cut into ten equal parts will be ten pieces that are $^{7}/_{10}$ cm, or 0·7 cm each.

Recognise decimal notation for tenths when counting beyond 1, e.g., 23 tenths can be written as $^{23}/_{10}$ or as the decimal number 2·3.

Count from 0 in multiples of 4, 8, 50 and 100. (Number: Place Value, Year 3)

Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators.

Remainders are officially introduced in Year 5 but there will be many instances when a remainder is encountered in practical contexts, e.g., Share 20 sweets between 3 people

Know that to find a unit fraction of objects all the objects must be shared equally into a defined number of sets (the bottom number of the fraction / the denominator).

Find a unit fraction of discrete objects or a quantity, relating this to division, e.g., $^{1}/_{3}$ of 6 oranges is the same as sharing 6 oranges equally between 3 people or 6 ÷ 3.

Find a non-unit fraction of discrete objects, e.g.:

$^{5}/_{6}$ of 6 oranges.

shade $^{4}/_{5}$ of the squares in a shape on a grid.

$^{3}/_{4}$ of an hour in minutes.

Understand that a unit fraction of one set of objects might be more than, less than or the same as a non-unit fraction of another set of objects, e.g.,$^{1}/_{2}$ of 8, $^{2}/_{3}$ of 6, $^{1}/_{5}$ of 20, $^{1}/_{3}$ of 12 are all the same.

Recognise and use fractions as numbers: unit fractions (numerator of 1) and non-unit fractions with small denominators.

Know and interpret correctly the different parts of a fraction:

the 'bottom' number (the denominator) is how many equal parts there are / will be;

the 'top' number (the numerator) is how many of the parts we need;

the line or slash means 'shared between' or 'divided into' or 'out of every'.

Use fraction notation with understanding, e.g., ¾ is really 3 ÷ 4 so this could be:

3 pieces of pizza that has first been shared equally into 4.

¾ of 8 could be 8 apples that have been shared into 4 equal groups and then 3 groups re-combined to make 6 apples, etc.

Recognise and show, using diagrams, equivalent fractions with small denominators.

Understand that one is 2 halves, 4 quarters, 8 eighths, etc.

For fractions families, e.g., 2, 3 and 5

Demonstrate and explain why fractions are equivalent, such as, $^{1}/_{2}$ and $^{2}/_{4}$ and $^{4}/_{8}$ e.g :

Fold and shading / cutting the same-sized pieces of paper.

Make a fractions wall with the same length of paper cut in different ways and arranged in horizontal rows underneath each other.

Use fraction cards.

Year 3 Mathematics Curriculum Objectives

Use Cuisenaire rods or similar.

Compare fractions and recognise that some fractions are in the same place on the number line because they are equivalent.

Add and subtract fractions with the same denominator within one whole for example, $\frac{5}{7}+\frac{1}{7}=\frac{6}{7}$.

Identify pairs of fractions that make a whole, e.g., Say two fractions that make one from looking at a fraction wall ($\frac{2}{5}$ and $\frac{3}{5}$, etc), piecing together parts of shapes.

Add and subtract fractions with the same denominator, totalling less than 1, in a practical context, e.g., $\frac{5}{8}$ and $\frac{1}{8}$ of a pizza, $\frac{2}{7}$ and $\frac{3}{7}$ of a sausage roll of playdough.

Understand that $\frac{2}{4}$ and $\frac{3}{4}$, etc., are repeated addition of $\frac{1}{4}$ and vice versa for repeated subtraction.

Compare and order unit fractions, and fractions with the same denominators.

A common misconception is that a larger denominator is a bigger amount.

Order pictures / diagrams representing different fraction amounts.

Position non-unit fractions with the same denominator on a number line.

Understand that, in unit fractions, the larger the denominator, the smaller the fraction, e.g., Position a range of unit fractions accurately on the number line between 0 and 1.

Solve problems that involve all of the above.

Select appropriate apparatus to solve fraction problems.

Estimate fraction sizes accurately. (Use small denominators for unit and non-unit fractions.)

Recognise patterns in fractions, in particular in equivalent fractions.

Understand the difference between finding a fraction of one and a fraction of a quantity or measure.

Solve fractions problems, e.g.:

Position a range of unit fractions on a blank 0 to 1 number line.

Estimate and check what fraction of a container (no scale or scale hidden) is full of sand.

I eat $\frac{3}{10}$ of my bar of chocolate. What fraction do i have left?

A cake is sliced into sixths. How many different ways can you share the cake between 2 friends. How will you record what you have found out?

Finish the sequence. ▢, $\frac{2}{10}$, $\frac{3}{10}$, $\frac{4}{10}$, ▢, ▢. Do you know what the tenth term could be?

In how many different ways can you colour a third of a 3 by 3 square?

Where would $\frac{5}{6}$ be on a number line?

Show, in your own way, $\frac{3}{8}$ as a fraction of a shape and $\frac{3}{8}$ as a fraction of a quantity.

Year 3 Mathematics Curriculum Objectives

Mathematics – Year 3

Measurement

Lengths (m/cm/mm).

Know the relationships between standard units of measure, i.e., 10 mm = 1 cm, 100 cm = 1 m, 1,000 mm = 1 m and use these relationship to work out others, e.g., 3 m = 300 cm

Convert one unit to another when solving problems with mixed units, e.g., Brian is 96 cm tall and Abraham is 1 m 14 cm tall. How much taller is Brian than Abraham?

Record lengths using mixed units, e.g., 1 m and 30 cm.

Measure lengths and draw lines to the nearest marked division or half-division.

Estimate lengths using benchmarks and check for accuracy, e.g., How many chairs will fit along the classroom wall?

Compare the length in any direction of two or more objects.

Solve practical length problems involving addition, subtraction, integer scaling and comparison, e.g.:

Whats the difference between / the total length of . . . ?

A piece of cloth 2 m long. I cut off one length of 75 cm and one of 54 cm. How much is left?

The paper is twice as long as the pencil. If the pencil is 24 cm, how long is the paper?

Mass (kg/g).

Know the relationships between standard units of weight, i.e., 1,000 g = 1 kg, and use this relationship to work out others, e.g., 3,500 g = 3 kg and 500 g.

Convert one unit to another when solving problems with mixed units, e.g., The flour weighs 1 kg 25 g and the sugar weighs 600 g. How much heavier is the flour than the sugar?

Compare the capacity / mass of two or more objects.

Record lengths using mixed units, e.g., 3 kg and 500 g.

Weigh objects to the nearest marked division or half-division on compression scales.

Estimate weights using benchmarks and check for accuracy, e.g., How much does your shoe weigh?

Solve practical weight problems involving addition, subtraction, integer scaling and comparison, e.g.:

What's the difference between / total of . . . ?

Order three bags of nuts by weight;

The sugar is 3 times the weight of the butter. The butter is 30 g. What is the weight of the sugar?

Volume/capacity (l/ml).

Capacity is the amount a container can hold, volume is the amount of a liquid or solid in the container.

Know the relationships between standard units of capacity, i.e., 1,000 *ml* = 1*l* and use this relationship to work out others, e.g., 3*l*500 *ml* = 3*l* 500*ml*. (cm^3 is not introduced until Year 5.)

Convert one unit to another when solving problems with mixed units, e.g., There is 1*l* 12*ml* in the big milk bottle and 112*ml* in the small one. How much less milk is in the small bottle?

Record capacity using mixed units, e.g., 3*l*500*ml*.

Measure liquids / solids to the nearest marked division or half-division on a measuring vessel.

Compare the weight of two or more objects.

Estimate capacities and volumes using benchmarks and check for accuracy, e.g.:

Approximately how much milk will this cup hold?

How many marbles can you fit into this box?

Solve practical volume and capacity problems involving addition, subtraction, integer scaling and comparison, e.g.:

Whats the difference between / the total capacity of. . . ?

There is quarter the amount of orange juice to water in the drink. How much could there be of each to fill this glass almost to the top?

Year 3 Mathematics Curriculum Objectives

Build 2 different models with 36 cubes all the same size. How are they the same / different?

Measure the perimeter of simple 2-D shapes.

Understand what perimeter means.

Measure and systematically record the perimeter of a range of shapes.

Understand that to find the perimeter of a regular 2-D shape only one side needs to be measured.

Use repeated addition / multiplication to work out the perimeter of shapes, e.g., from knowing only two side measurements of a rectangle.

Add and subtract amounts of money to give change, using both £ and p in practical contexts.

Count forwards and backwards in 20p and 50p coin amounts.

Understand the need for place keeping zeros in £ and p notation, e.g., Write £1·09 or 109p.

Change required can be calculated by counting on from a total amount, e.g., Use a number line from 69p to £2.

Add and subtract amounts in the context of money problems, e.g.:

Use a table of prices to work out how much it would cost for a family to go to the zoo.

Make up a money story.

Word problems, e.g., Two packets of sweets together cost 90p. One costs double the other. How much does the more expensive packet cost? How much change from £5?

Find all possible amounts that can be made using any three coins.

An analogue clock and 12-hour and 24-hour clocks.

Only the statements before the Roman Numerals section below are part of the KPI.

Read and write the time to the nearest minute on an analogue clock.

Know that when the time is past midday an analogue clock counts a new set of 12 hours (p.m.).

Read and write the time to the nearest minute on a 12-hour digital clock.

Read and write the time to the nearest minute on a 24-hour digital clock.

Know that when the time is past midday a 24-hour digital clock continues to the 13th, 14th hour, etc.

An analogue clock, including using Roman numerals from I to XII.

Know values of the Roman numerals I = 1, V = 5, X = 10.

Interpret and write Roman numerals to 12 correctly using the standard rules on a clock face:

When I appears after V or X it is added, e.g., VI = 5 + 1 = 6 or X I = 10 + 1 = 11;

When I appears before V or X it is subtracted, e.g., IV = 5 – 1 = 4 or IX = 10 – 1 = 9;

Don't use the same symbol more than three times in a row, e.g., 4 cannot be written as IIII.

Use analogue clocks annotated with Roman numerals to tell and record the time.

Estimate and read time with increasing accuracy to the nearest minute.

Identify timing benchmarks to help with estimation, e.g., a particular TV program that is an hour long, 15 minutes for playtime.

Estimate time taken for longer events with increasing accuracy, e.g., How long will it take you to finish the painting?

Time and compare events choosing appropriate intervals from seconds, minutes and hours, e.g.:

Who can jump 20 times the fastest?

Which song lasts the longest?

Which takes the shortest amount of time, a game of rugby or a game of football?

Compare and order the time taken to complete several events.

Year 3 Mathematics Curriculum Objectives

Compare and order a set of times given in mixed intervals, e.g., 1 hour and 20 minutes, 85 minutes.
Understand and use in context the terms, a.m., p.m., morning, afternoon, noon and midnight.
Know that a.m. times are from midnight to midday and p.m. times are from midday to midnight.
Know that on a digital clock midnight is 00:00 and midday is 12:00.
Solve problems, e.g., Which took longer . . . ?
Know the number of seconds in a minute and the number of days in each month, year and leap year.
Recall the relationships between minutes, hours and days.
Know that there are 60 seconds in one minute, e.g., Count the second hand whilst it makes one full rotation on the clock face.
Know the numbers of days in each month, e.g., Learn a rhyme to aid memory.
Know the number of days in a year and a leap year.
Compare durations of events [for example to calculate the time taken by particular events or tasks].
Use counting strategies to work out simple time differences and record using analogue and / or digital clocks, e.g., A bus leaves home at 8:35 and arrives at school at 8:55. How long did the journey take?
Compare two or more time intervals, e.g., Whose journey to school takes the longest? Make a bar chart to present findings.
Work out time differences that bridge over the hour or several hours, e.g., How long did it take for a train journey.
Calculate a start or end time from knowing how long an event lasted, e.g., If the TV show started at 1:30 and lasted for 35 minutes, what time did it finish?
Be able to find a particular date on a calendar.
Use a calendar to work out how long is between two or more events / dates.
Record and compare time in terms of seconds, minutes and hours.
See descriptors above for 'Estimate and read time with increasing accuracy ....'
Use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight.
See descriptors above for 'Estimate and read time with increasing accuracy....'

Year 3 Mathematics Curriculum Objectives

Mathematics – Year 3
Geometry: Properties of Shapes
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.
Use mathematical vocabulary to describe position, (Geometry: Position and Direction, Year 2)
Recognise angles as a property of shape or a description of a turn. (Geometry: Shape and Space, Year 3)
Right Angles – Shapes
Using up to four quarter circles to piece together as a visual image might be helpful.
Remember to use in the context of (geared) clocks.
Using floor robots helps pupils to know the number of degrees in combinations of right angles.
Recognise, in both shapes and turning movements,:
one right angle as one-quarter of a turn; 90^0;
two right angles as one-half of a turn; facing the opposite way; straight line; half circle;
three right angles as three-quarters of a turn;
four right angles as a complete turn; facing the same way as the start; full circle; 360^0.
Use an angle tester, such as a transparent set square, to find objects with right angles, e.g., Sort a set of shapes by whether they have a right angle or not.
Identify whether angles in 2-D or 3-D shapes / objects are =, < or > than a right angle, using an angle measurer.
Follow and give directions that include turning through whole, half, quarter and three-quarter turns and moving in straight lines between, e.g.:
Program a floor robot;
Follow directions for moving through a maze.
Evaluate instructions and adjust to make them more accurate.
Identify horizontal and vertical lines and pairs of perpendicular and parallel lines.
Identify simple examples of horizontal lines in the environment, such as, the edge of a table.
Identify simple examples of vertical lines in the environment, such as, the walls in the corner of the room.
Know that perpendicular means 'at right angles to', e.g., Find shapes that have perpendicular lines in the classroom, sometimes when the lines are not horizontal and vertical.
Know that lines are parallel if they stay the same distance apart, e.g.:
From a selection of shapes, select those that have at least one pair of parallel sides;
Measure the distance between the horizontal and / or vertical lines of a shape such as a rectangle.
Solve shape problems, e.g.:
Sort shapes for two or three properties, e.g., in a Venn diagram, criteria could be at least one pair of parallel sides, have at least one pair of perpendicular sides, etc.
Make interestng patterns by drawing horizontal and vertical lines different distances apart , e.g., Make a pattern in the style of Mondrian. Identify the smallest / largest rectangle. Were there any squares?
Draw 2-D shapes and make 3-D shapes using modelling materials.
Construct simple, specified shapes accurately, using rulers and set squares and whole centimetres, e.g., Draw a square with sides of 6 cm or draw a right angled triangle with its longest side 1 cm.
Draw and measure diagonals of shapes.
Construct 3-D shapes from 2-D shapes and use then to name, describe and investigate properties, e.g., Clixi, straws and pipe cleaners.
Follow instructions to build 3-D shapes, e.g., Build a shape described by an adult or from a picture / photograph or diagram.
Solve shape problems, e.g.:
Make repeating patterns based on shape properties.

Year 3 Mathematics Curriculum Objectives

Create shapes and investigate their properties, e.g.,
Fold and cut paper to make squares, octagons and stars.
Use geo-strips or geoboards to investigate 4 sided shapes.
Join two flat shapes together to make a new shape and describe it.
Combine two 2-d shapes to make new and different shapes.
There is no specific reference to symmetry in Year 3 but use it in problem solving activities to build on experiences in Year 2 before moving onto the Year 4 objectives.
Complete partly drawn shapes and patterns to make them symmetrical about a vertical or horizontal line.
Investigate the symmetry of 2-D shapes, such as, rectangles, semi-circles and triangles.
Combine shapes to make symmetrical patterns in different ways (illustrated opposite), naming the new shapes made and finding all possibilities.
Recognise 3-D shapes in different orientations and describe them.
3-D Solids: including prisms, pyramids, spheres, cones and cylinders, spheres and hemi-spheres.
Name and describe solids, using the correct language.
Recognise shapes in different orientations and positions in the environment.
Select, sort and order shapes by their properties, e.g., Venn or Carroll diagrams.
Describe shapes by their properties using terminology including vertex / vertices, right angled, surface.
Visualise shapes, extending the complexity of language and instructions.
Solve shape problems, e.g.:
Make a repeating pattern and deduce what the next item will be.
Investigate a set of the same type of solids, such as pyramids, and generalise about them.
Use construction kits or straws and pipe cleaners to make shapes using at least one triangle.
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. . . (Geometry: Shape and Space, Year 3)
Make the link between angles in shapes and angles of turn, e.g., teacher makes an angle with geostrips, holding one piece in a vertical position, and turning the other deliberately and slowly either clockwise or ant-clockwise one, two, three or four right angles. Children turn their bodies the same amount in the same direction and describe their movements.

Year 3 Mathematics Curriculum Objectives

Mathematics – Year 3

Statistics

Interpret and present data using bar charts, pictograms and tables.

General

Understand that the way statistical work is presented is important and why, e.g., use ICT to generate different charts using the same data and discuss the impact of each on the audience, ease of interpretation, etc.

Consistently interpret and use titles, axis labels and scales with different intervals and keys, where required, in all forms of data presentation.

Suggest own questions / hypotheses for investigations and design a method of data collection; e.g., We think most our class come to school by car.

Make statements about implications or possible actions based on the results of an investigation; e.g., Most of our class want to have extra PE time as our class reward.

Solve one-step and two-step questions . . . using information presented in scaled bar charts and pictograms and tables. (Statistics, Year 3)

Block Graphs / Bar Charts

Know that block charts both horizontal (bar) and vertical (column) are used to compare different groups.

Know the value of each interval on a simple scale not in ones, such as, 2, 5, 10, 20 units, and use

accurately in own presentation of bar charts.

Make sensible estimates for measures that fall between two marked intervals on a scale.

Know that the bars on a block graph that represent counting (discrete data) should not be touching.

Pictograms

Know that pictograms are used to compare different groups where a likeness to a physical object improves presentation.

Interpret and present pictograms with a key, including those where one picture represents two objects and half a picture represents one object.

Tables, Including Lists and Two-Way Tables

Know that tables are used to look up data that may have many items and categories.

Identify the row and column (cell) where specific data is stored in a two-way frequency table; e.g.;

How many people went snowboarding in March?

What time does Emmerdale start on Thursday?

Solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables.

Solve problems presented in a range of different contexts, including:

a scaled block graph.

a pictogram;

a table;

Solve one-step problems using information in scaled block graphs, pictograms and tables; e.g.:

What is the least popular TV show with pupils in our class?

How many more pupils prefer cola to milk?

Solve two-step problems using information in scaled block graphs pictograms and tables; e.g.:

If I catch the first bus that leaves the bus station after 2 p.m., what time does it get to Green Park?

On which day or days was it warmer than 15°C and how much did the temperature vary between the warmest and coolest day?

Interpret and present data using bar charts, pictograms and tables. (Statistics, Year 3)