



Scope & Sequence Overview - Stage 2, Year 4



Whole Number 1

Outcomes

- uses appropriate terminology to describe, and symbols to represent, mathematical ideas - MA2-1WM
- selects and uses appropriate mental or written strategies, or technology, to solve problems - MA2-2WM
- checks the accuracy of a statement and explains the reasoning used - MA2-3WM
- applies place value to order, read and represent numbers of up to five digits - MA2-4NA

Vocabulary

number before, number after, more than, greater than, less than, largest number, smallest number, ascending order, descending order, digit, zero, ones, groups of ten, tens, groups of one hundred, hundreds, groups of one thousand, thousands, place value, round to, tens of thousands, expanded notation

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| T1 | T2 | T3 | T4 |
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Recognise, model, represent and order numbers to at least 10 000

- use the terms and symbols for 'is less than' (<) and 'is greater than' (>) show the relationship between two numbers

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Whole Number 2

Outcomes

- uses appropriate terminology to describe, and symbols to represent, mathematical ideas - MA2-1WM
- checks the accuracy of a statement and explains the reasoning used - MA2-3WM
- applies place value to order, read and represent numbers of up to five digits - MA2-4NA

Vocabulary

number before, number after, more than, greater than, less than, largest number, smallest number, ascending order, descending order, digit, zero, ones, groups of ten, tens, groups of one hundred, hundreds, groups of one thousand, thousands, place value, round to, tens of thousands, expanded notation

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| T1 | T2 | T3 | T4 |
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Recognise, represent and order numbers to at least tens of thousands

- apply an understanding of place value to read and write numbers of up to five digits
- arrange numbers of up to five digits in ascending and descending order
- state the place value of digits in numbers of up to five digits
- use place value to partition numbers of up to five digits and recognise this as 'expanded notation', e.g. 67 012 is 60 000 + 7000 + 10 + 2
- partition numbers of up to five digits in non-standard forms, e.g. 67 000 as 50 000 + 17 000
- round numbers to the nearest ten, hundred, thousand or ten thousand

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Addition & Subtraction 1

Outcomes

- uses appropriate terminology to describe, and symbols to represent, mathematical ideas - MA2-1WM
- selects and uses appropriate mental or written strategies, or technology, to solve problems - MA2-2WM
- checks the accuracy of a statement and explains the reasoning used - MA2-3WM
- uses mental and written strategies for addition and subtraction involving two-, three-, four- and five-digit numbers - MA2-5NA

Vocabulary

plus, add, addition, minus, the difference between, subtract, subtraction, equals, is equal to, is the same as, number sentence, empty number line, strategy, digit, estimate, round to, change (noun, in transactions of money).

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| T1 | T2 | T3 | T4 |
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Recall addition facts for single-digit numbers and related subtraction facts to develop increasingly efficient mental strategies for computation

- apply known single-digit addition and subtraction facts to mental strategies for addition and subtraction of two-, three- and four-digit numbers, including:
 - the jump strategy on an empty number line
 - the split strategy
 - the compensation strategy
 - using patterns to extend number facts
 - bridging the decades
 - changing the order of addends to form multiples of 10
 - using place value to partition numbers
 - partitioning numbers in non-standard forms
- use concrete materials to model the addition and subtraction of two or more numbers without trading and record the method used
- use concrete materials to model the addition and subtraction of two or more numbers with trading and record the method used
- use the equals sign to record equivalent number sentences involving addition and subtraction and so to mean 'is the same as', rather than to mean to perform an operation

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| Recognise and explain the connection between addition and subtraction | | | |
| • demonstrate how addition and subtraction are inverse operations | | | |
| • explain and check solutions to problems, including by using the inverse operation | | | |
| Represent money values in multiple ways and count the change required for simple transactions to the nearest five cents | | | |
| • calculate mentally to give change | | | |

Addition & Subtraction 2

Outcomes

- uses appropriate terminology to describe, and symbols to represent, mathematical ideas - MA2-1WM
- selects and uses appropriate mental or written strategies, or technology, to solve problems - MA2-2WM
- checks the accuracy of a statement and explains the reasoning used - MA2-3WM
- uses mental and written strategies for addition and subtraction involving two-, three-, four- and five-digit numbers - MA2-5NA

Vocabulary

plus, add, addition, minus, the difference between, subtract, subtraction, equals, is equal to, is the same as, number sentence, empty number line, strategy, digit, estimate, round to, change (noun, in transactions of money).

| | T1 | T2 | T3 | T4 |
|--|----|----|----|----|
| Apply place value to partition, rearrange and regroup numbers to at least tens of thousands to assist calculations and solve problems | | | | |
| • select, use and record a variety of mental strategies to solve addition and subtraction problems, including word problems, with numbers of up to and including five digits | | | | |
| • use a formal written algorithm to record addition and subtraction calculations involving two-, three-, four- and five-digit numbers | | | | |
| • use money to buy basic goods and services in 'real life' contexts | | | | |
| • order and discuss reasons for spending preferences | | | | |
| • discuss some options for paying for goods and services such as: cash, debit card, credit card and direct debit | | | | |
| • solve problems involving purchases and the calculation of change to the nearest five cents, with and without the use of digital technologies | | | | |
| • solve addition and subtraction problems involving money, with and without the use of digital technologies | | | | |
| • calculate change and round to the nearest five cents | | | | |
| • use estimation to check the reasonableness of solutions to addition and subtraction problems, including those involving money | | | | |
| • explain how saving money in a financial institution can earn interest | | | | |
| • recognise that different countries use different currencies | | | | |
| • create simple budgets for specific purposes | | | | |
| • accurately complete simple financial forms, including for online transactions | | | | |

Multiplication & Division 1

Outcomes

- uses appropriate terminology to describe, and symbols to represent, mathematical ideas - MA2-1WM
- selects and uses appropriate mental or written strategies, or technology, to solve problems - MA2-2WM
- checks the accuracy of a statement and explains the reasoning used - MA2-3WM
- uses mental and informal written strategies for multiplication and division - MA2-6NA

Vocabulary

group, row, column, horizontal, vertical, array, multiply, multiplied by, multiplication, multiplication facts, double, shared between, divide, divided by, division, equals, strategy, digit, number chart, tens, ones, product, factor, multiple, halve, remainder

| | T1 | T2 | T3 | T4 |
|--|----|----|----|----|
| Recall multiplication facts of two, three, five and ten and related division facts | | | | |
| • count by twos, threes, fives or tens using skip counting | MR | MR | | |
| • use mental strategies to recall multiplication facts for multiples of two, three, five and ten | MR | MR | | |

Multiplication & Division 2

Outcomes

- uses appropriate terminology to describe, and symbols to represent, mathematical ideas - MA2-1WM
- selects and uses appropriate mental or written strategies, or technology, to solve problems - MA2-2WM
- checks the accuracy of a statement and explains the reasoning used - MA2-3WM
- uses mental and informal written strategies for multiplication and division - MA2-6NA

Vocabulary

group, row, column, horizontal, vertical, array, multiply, multiplied by, multiplication, multiplication facts, double, shared between, divide, divided by, division, equals, strategy, digit, number chart, tens, ones, product, factor, multiple, halve, remainder

| | T1 | T2 | T3 | T4 |
|---|----|----|----|----|
| Recall multiplication facts up to 10 × 10 and related division facts | | | | |
| • count by fours, sixes, sevens, eights and nines using skip counting | | MR | MR | MR |

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|---|----|----|----|----|
| <ul style="list-style-type: none"> use the term 'product' to describe the result of multiplying two or more numbers, e.g. 'The product of 5 and 6 is 30' | MR | MR | MR | MR |
| <ul style="list-style-type: none"> use mental strategies to build multiplication facts to at least 10×10, including: <ul style="list-style-type: none"> using the commutative property of multiplication using known facts to work out unknown facts using doubling and repeated doubling as a strategy to multiply by 2, 4 and 8 using the relationship between multiplication facts factorising one number | | | | |
| <ul style="list-style-type: none"> recall multiplication facts up to 10×10, including zero facts, with automaticity | MR | MR | MR | MR |
| <ul style="list-style-type: none"> find 'multiples' for a given whole number, e.g. the multiples of 4 are 4, 8, 12, 16, ... | | | MR | |
| <ul style="list-style-type: none"> use the equals sign to record equivalent number relationships involving multiplication, and to mean 'is the same as', rather than to mean to perform an operation, e.g. $4 \times 3 = 6 \times 2$ | | | | |
| Develop efficient mental and written strategies, and use appropriate digital technologies, for multiplication and for division where there is no remainder | | | | |
| <ul style="list-style-type: none"> multiply three or more single-digit numbers, e.g. $5 \times 3 \times 6$ | | | | |
| <ul style="list-style-type: none"> model and apply the associative property of multiplication to aid mental computation, e.g. $2 \times 3 \times 5 = 2 \times 5 \times 3 = 10 \times 3 = 30$ | | | | |
| <ul style="list-style-type: none"> use mental and informal written strategies to multiply a two-digit number by a one-digit number, including: <ul style="list-style-type: none"> using known facts multiplying the tens and then the units using an area model using doubling and repeated doubling to multiply by 2, 4 and 8 using the relationship between multiplication facts factorising the larger number | | | | |
| <ul style="list-style-type: none"> use mental strategies to divide a two-digit number by a one-digit number where there is no remainder, including: <ul style="list-style-type: none"> using the inverse relationship of multiplication and division recalling known division facts using halving and repeated halving to divide by 2, 4 and 8 using the relationship between division facts | | | | |
| <ul style="list-style-type: none"> record mental strategies used for multiplication and division | | | | |
| <ul style="list-style-type: none"> select and use a variety of mental and informal written strategies to solve multiplication and division problems | | | | |
| Use mental strategies and informal recording methods for division with remainders | | | | |
| <ul style="list-style-type: none"> model division, including where the answer involves a remainder, using concrete materials | | | | |
| <ul style="list-style-type: none"> use mental strategies to divide a two-digit number by a one-digit number in problems for which answers include a remainder | | | | |
| <ul style="list-style-type: none"> record remainders to division problems in words, e.g. $17 \div 4 = 4$ remainder 1 | | | | |
| <ul style="list-style-type: none"> interpret the remainder in the context of a word problem, e.g. 'If a car can safely hold 5 people, how many cars are needed to carry 41 people?'; the answer of 8 remainder 1 means that 9 cars will be needed | | | | |

Fractions & Decimals I

Outcomes

- uses appropriate terminology to describe, and symbols to represent, mathematical ideas - MA2-1WM
- checks the accuracy of a statement and explains the reasoning used - MA2-3WM
- represents, models and compares commonly used fractions and decimals - MA2-7NA

Vocabulary

whole, part, equal parts, half, quarter, eighth, third, fifth, sixth, one-third, one-fifth, fraction, denominator, numerator, mixed numeral, whole number, fractional part, number line, is equal to, equivalent fractions, decimal, decimal point, digit, place value, round to, decimal places, dollars, cents, tenth, hundredth, one-sixth, one-tenth, one-hundredth

| | T1 | T2 | T3 | T4 |
|---|----|----|----|----|
| Model and represent unit fractions, including $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$ and $\frac{1}{5}$ and their multiples, to a complete whole | | | | |
| <ul style="list-style-type: none"> model fractions with denominators of 3, 5, 6, 10, 100 of whole objects, shapes and collections using concrete materials and diagrams | | | | |
| <ul style="list-style-type: none"> model fractions with denominators of 3 and 5 of whole objects, shapes and collections using concrete materials and diagrams | | | | |
| <ul style="list-style-type: none"> Using denominators 3 and 5: name fractions up to one whole, e.g. $\frac{1}{5}, \frac{2}{5}, \frac{3}{5}, \frac{4}{5}, \frac{5}{5}$ | | | | |
| <ul style="list-style-type: none"> interpret the denominator as the number of equal parts a whole has been divided into | | | | |
| <ul style="list-style-type: none"> using denominators 3 and 5: interpret the numerator as the number of equal fractional parts, e.g. $\frac{3}{8}$ means 3 equal parts of 8 | | | | |
| <ul style="list-style-type: none"> use the terms 'fraction', 'denominator' and 'numerator' appropriately when referring to fractions | | | | |
| Count by quarters, halves and thirds, including with mixed numerals; locate and represent these fractions on a number line | | | | |
| <ul style="list-style-type: none"> Using denominators 3 and 5: identify and describe 'mixed numerals' as having a whole-number part and a fractional part | | | MR | |
| <ul style="list-style-type: none"> rename $\frac{2}{2}, \frac{3}{3}, \frac{4}{4}, \frac{5}{5}$ and $\frac{8}{8}$ as 1 | | | | |
| <ul style="list-style-type: none"> count by halves, thirds and quarters, e.g. $0, \frac{1}{3}, \frac{2}{3}, 1, 1\frac{1}{3}, 1\frac{2}{3}, 2, 2\frac{1}{3}, \dots$ | | | MR | MR |

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| • place thirds and fifths on number lines between 0 and 1 | | | | |
| • place thirds fifths on number lines that extend beyond 1 | | | | |
| • compare unit fractions using diagrams and number lines and by referring to the denominator, e.g. $\frac{1}{8}$ is less than $\frac{1}{2}$ | | | | |

Fractions & Decimals 2

Outcomes

- uses appropriate terminology to describe, and symbols to represent, mathematical ideas - MA2-1WM
- checks the accuracy of a statement and explains the reasoning used - MA2-3WM
- represents, models and compares commonly used fractions and decimals - MA2-7NA

Vocabulary

whole, part, equal parts, half, quarter, eighth, third, fifth, sixth, one-third, one-fifth, fraction, denominator, numerator, mixed numeral, whole number, fractional part, number line, is equal to, equivalent fractions, decimal, decimal point, digit, place value, round to, decimal places, dollars, cents, tenth, hundredth, one-sixth, one-tenth, one-hundredth

| | T1 | T2 | T3 | T4 |
|--|----|----|----|----|
| Investigate equivalent fractions used in contexts | | | | |
| • model, compare and represent fractions with denominators of 3 and 6; and 5, 10 and 100 | | | | |
| • model, compare and represent the equivalence of fractions with related denominators by redividing the whole, using concrete materials, diagrams and number lines | | | | |
| • record equivalent fractions using diagrams and numerals, e.g. $\frac{3}{5} = \frac{6}{10}$ | | | | |
| Recognise that the place value system can be extended to tenths and hundredths, and make connections between fractions and decimal notation | | | | |
| • recognise and apply decimal notation to express whole numbers, tenths and hundredths as decimals, e.g. 0.1 is the same as $\frac{1}{10}$ | | | | |
| • state the place value of digits in decimal numbers of up to two decimal places | | | | |
| • use place value to partition decimals of up to two decimal places, e.g. $5.37 = 5 + \frac{3}{10} + \frac{7}{100}$ | | | | |
| • partition decimals of up to two decimal places in non-standard forms, e.g. $5.37 = 5 + \frac{37}{100}$ | | | | |
| • model, compare and represent decimals of up to two decimal places | | | | |
| • place decimals of up to two decimal places on a number line, e.g. place 0.5, 0.25 and 0.75 on a number line | | | | |
| • round a number with one or two decimal places to the nearest whole number | | | MR | MR |

Patterns & Algebra 1

Outcomes

- uses appropriate terminology to describe, and symbols to represent, mathematical ideas - MA2-1WM
- selects and uses appropriate mental or written strategies, or technology, to solve problems - MA2-2WM
- checks the accuracy of a statement and explains the reasoning used -MA2-3WM
- generalises properties of odd and even numbers, generates number patterns, and completes simple number sentences by calculating missing values - MA2-8NA

Vocabulary

pattern, goes up by, goes down by, even, odd, rows, digit, multiplication facts, term, is the same as, equals.

| | T1 | T2 | T3 | T4 |
|--|----|----|----|----|
| Describe, continue and create number patterns resulting from performing addition or subtraction | | | | |
| • identify and describe patterns when counting forwards or backwards by sevens, eights and nines from any starting point | MR | MR | | |
| • model, describe and then record number patterns using diagrams, words or symbols | | | | |
| • create and continue a variety of number patterns that increase or decrease, and describe them in more than one way | | | | |
| Investigate the conditions required for a number to be even or odd and identify even and odd numbers | | | | |
| • describe and generalise the conditions for a number to be even or odd | | | | |
| • identify even or odd numbers of up to four digits | | | | |

Patterns & Algebra 2

Outcomes

- uses appropriate terminology to describe, and symbols to represent, mathematical ideas - MA2-1WM
- selects and uses appropriate mental or written strategies, or technology, to solve problems - MA2-2WM
- checks the accuracy of a statement and explains the reasoning used - MA2-3WM
- generalises properties of odd and even numbers, generates number patterns, and completes simple number sentences by calculating missing values - MA2-8NA

Vocabulary

pattern, goes up by, goes down by, even, odd, rows, digit, multiplication facts, term, is the same as, equals.

T1 T2 T3 T4

Use equivalent number sentences involving addition and subtraction to find unknown quantities

- complete number sentences involving addition and subtraction by calculating missing numbers
- find the missing number in a number sentence involving operations of addition or subtraction on both sides of the equals sign, e.g. $8 + \square = 6 + 7$

Investigate and use the properties of even and odd numbers

- investigate and generalise the result of adding, subtracting and multiplying pairs of even numbers, pairs of odd numbers, or one even and one odd number, e.g. even + odd = odd, odd \times odd = odd

Investigate number sequences involving multiples of 3, 4, 6, 7, 8 and 9

- generate number patterns using multiples of 3, 4, 6, 7, 8 and 9, e.g. 3, 6, 9, 12, ..002

MR MR

Explore and describe number patterns resulting from performing multiplication

- use the word 'term' when referring to numbers in a number pattern
- find a higher term in a number pattern resulting from performing multiplication, given the first few terms, e.g. determine the next term in the pattern 4, 8, 16, 32, 64, ...

Solve word problems by using number sentences involving multiplication or division where there is no remainder

- complete number sentences involving multiplication and division by calculating missing numbers, e.g. find the missing numbers: $28 = \square \times 7$, $40 \div \square = 5$
- represent and solve multiplication and division word problems using number sentences, e.g. 'I buy six pens and the total cost is \$24. What is the cost of each pen?' can be represented as $6 \times \square = 24$ or $24 \div 6 = \square$

Length 1

Outcomes

- uses appropriate terminology to describe, and symbols to represent, mathematical ideas - MA2-1WM
- selects and uses appropriate mental or written strategies, or technology, to solve problems - MA2-2WM
- checks the accuracy of a statement and explains the reasoning used - MA2-3WM
- measures, records, compares and estimates lengths, distances and perimeters in metres, centimetres and millimetres, and measures, compares and records temperatures - MA2-9MG

Vocabulary

length, distance, metre, centimetre, millimetre, ruler, measure, estimate, handspan, tape measure, trundle wheel, perimeter, height, width, temperature, cold, warm, hot, degree (Celsius), thermometer.

T1 T2 T3 T4

Measure, order and compare objects using familiar metric units of length

- recognise the need for a formal unit smaller than the centimetre to measure length
- recognise that there are 10 millimetres in one centimetre, i.e. 10 millimetres = 1 centimetre
- use the millimetre as a unit to measure lengths to the nearest millimetre, using a ruler
- record lengths using the abbreviation for millimetres (mm), e.g. 5 cm 3 mm or 53 mm
- estimate lengths to the nearest millimetre and check by measuring

Length 2

Outcomes

- uses appropriate terminology to describe, and symbols to represent, mathematical ideas - MA2-1WM
- selects and uses appropriate mental or written strategies, or technology, to solve problems - MA2-2WM
- checks the accuracy of a statement and explains the reasoning used - MA2-3WM
- measures, records, compares and estimates lengths, distances and perimeters in metres, centimetres and millimetres, and measures, compares and records temperatures - MA2-9MG

Vocabulary

length, distance, metre, centimetre, millimetre, ruler, measure, estimate, handspan, tape measure, trundle wheel, perimeter, height, width, temperature, cold, warm, hot, degree (Celsius), thermometer.

T1 T2 T3 T4

Use scaled instruments to measure and compare lengths

- use a tape measure, ruler and trundle wheel to measure lengths and distances
- select and use an appropriate unit to estimate, measure and compare lengths and distances
- recognise the features of a three-dimensional object associated with length that can be measured, e.g. length, height, width, perimeter
- use the term 'perimeter' to describe the total distance around a two-dimensional shape

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| • convert between metres and centimetres, and between centimetres and millimetres | | | MR | MR |
| • record lengths and distances using decimal notation to two decimal places, e.g. 1.25 m | | | | |
| Use scaled instruments to measure and compare temperatures | | | | |
| • identify temperature as a measure of how hot or cold something is | | | MR | MR |
| • use everyday language to describe temperature, e.g. 'cold', 'warm', 'hot' | | | MR | MR |
| • recognise the need for formal units to measure temperature | | | MR | MR |
| • use a thermometer to measure and compare temperatures to the nearest degree Celsius | | | | |
| • record temperatures to the nearest degree Celsius using the symbol for degrees (°) | | | | |

Area 2

Outcomes

- uses appropriate terminology to describe, and symbols to represent, mathematical ideas - MA2-1WM
- selects and uses appropriate mental or written strategies, or technology, to solve problems - MA2-2WM
- measures, records, compares and estimates areas using square centimetres and square metres - MA2-10MG

Vocabulary

area, surface, measure, grid, row, column, square centimetre, square metre, estimate, irregular area, parts of (units).
The abbreviation m² is read as 'square metre(s)' and not 'metre(s) squared' or 'metre(s) square'. Similarly, the abbreviation cm² is read as 'square centimetre(s)' and not 'centimetre(s) squared' or 'centimetre(s) square'.

| | T1 | T2 | T3 | T4 |
|---|----|----|----|----|
| Compare the areas of regular and irregular shapes by informal means | | | | |
| • measure the areas of common two-dimensional shapes using a square-centimetre grid overlay, e.g. measure the area of a regular hexagon | | | | |
| • measure the areas of irregular shapes using a square-centimetre grid overlay | | | | |
| • compare two or more areas by informal means, e.g. using tiles or a square-centimetre grid overlay | | | | |
| Compare objects using familiar metric units of area | | | | |
| • estimate the larger of two or more rectangular areas (including the areas of squares) in square centimetres and then measure in square centimetres to compare the areas | | | | |
| • estimate the larger of two or more rectangular areas (including the areas of squares) in square metres and then measure in square metres to compare the areas | | | | |

Volume & Capacity 1

Outcomes

- uses appropriate terminology to describe, and symbols to represent, mathematical ideas - MA2-1WM
- checks the accuracy of a statement and explains the reasoning used - MA2-3WM
- measures, records, compares and estimates volumes and capacities using litres, millilitres and cubic centimetres - MA2-11MG

Vocabulary

capacity, container, litre, volume, layers, cubic centimetre, measure, estimate, millilitre, volume.
The abbreviation cm³ is read as 'cubic centimetre(s)' and not 'centimetres cubed'.

| | T1 | T2 | T3 | T4 |
|---|----|----|----|----|
| Measure, order and compare objects using familiar metric units of capacity | | | | |
| • recognise the need for formal units to measure volume and capacity | | | | |
| • use the litre as a unit to measure volumes and capacities to the nearest litre | | | | |
| • record volumes and capacities using the abbreviation for litres (L) | | | | |
| • compare and order two or more containers by capacity measured in litres | | | | |
| • estimate the capacity of a container in litres and check by measuring | | | | |

Volume & Capacity 2

Outcomes

- uses appropriate terminology to describe, and symbols to represent, mathematical ideas - MA2-1WM
- measures, records, compares and estimates volumes and capacities using litres, millilitres and cubic centimetres - MA2-11MG

Vocabulary

capacity, container, litre, volume, layers, cubic centimetre, measure, estimate, millilitre, volume.
The abbreviation cm³ is read as 'cubic centimetre(s)' and not 'centimetres cubed'.

| | T1 | T2 | T3 | T4 |
|--|----|----|----|----|
| Use scaled instruments to measure and compare capacities | | | | |
| • recognise the need for a formal unit smaller than the litre to measure volume and capacity | | | | |
| • recognise that there are 1000 millilitres in one litre, i.e. 1000 millilitres = 1 litre | | | | |
| • make a measuring device calibrated in multiples of 100 mL to measure volume and capacity to the nearest 100 mL | | | | |
| • use the millilitre as a unit to measure volume and capacity, using a device calibrated in millilitres | | | | |
| • record volumes and capacities using the abbreviation for millilitres (mL) | | | | |
| • convert between millilitres and litres, e.g. 1250 mL = 1 litre 250 millilitres | | | MR | MR |
| • compare and order the capacities of two or more containers measured in millilitres | | | | |

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| • estimate the capacity of a container in millilitres and check by measuring | | | | |
| • compare the volumes of two or more objects by marking the change in water level when each is submerged in a container | | | | |
| • measure the overflow in millilitres when different objects are submerged in a container filled to the brim with water | | | | |
| • estimate the volume of a substance in a partially filled container from the information on the label detailing the contents of the container | | | | |

Mass 2

Outcomes

- uses appropriate terminology to describe, and symbols to represent, mathematical ideas - MA2-1WM
- selects and uses appropriate mental or written strategies, or technology, to solve problems - MA2-2WM
- measures, records, compares and estimates the masses of objects using kilograms and grams - MA2-12MG

Vocabulary

mass, more than, less than, about the same as, pan balance, (level) balance, measure, estimate, kilogram, gram, scales

T1 T2 T3 T4

Use scaled instruments to measure and compare masses

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| • recognise the need for a formal unit smaller than the kilogram | | | | |
| • recognise that there are 1000 grams in one kilogram, i.e. 1000 grams = 1 kilogram | | | | |
| • use the gram as a unit to measure mass, using a scaled instrument | | | | |
| • record masses using the abbreviation for grams (g) | | | | |
| • compare two or more objects by mass measured in kilograms and grams, using a set of scales | | | | |
| • interpret commonly used fractions of a kilogram, including $\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$, and relate these to the number of grams | | | | |
| • record masses using kilograms and grams, e.g. 1 kg 200 g | | | | |

Time 1

Outcomes

- uses appropriate terminology to describe, and symbols to represent, mathematical ideas - MA2-1WM
- reads and records time in one-minute intervals and converts between hours, minutes and seconds - MA2-13MG

Vocabulary

time, clock, analog, digital, hour hand, minute hand, second hand, revolution, numeral, hour, minute, second, o'clock, (minutes) past, (minutes) to, calendar, date, timetable, timeline, midday, noon, midnight, am (notation), pm (notation).

T1 T2 T3 T4

Tell time to the minute and investigate the relationship between units of time

| | | | | |
|---|--|--|--|--|
| • read analog and digital clocks to the minute, including using the terms 'past' and 'to' | | | | |
| • record in words various times shown on analog and digital clocks | | | | |

Time 2

Outcomes

- uses appropriate terminology to describe, and symbols to represent, mathematical ideas - MA2-1WM
- selects and uses appropriate mental or written strategies, or technology, to solve problems - MA2-2WM
- reads and records time in one-minute intervals and converts between hours, minutes and seconds - MA2-13MG

Vocabulary

time, clock, analog, digital, hour hand, minute hand, second hand, revolution, numeral, hour, minute, second, o'clock, (minutes) past, (minutes) to, calendar, date, timetable, timeline, midday, noon, midnight, am (notation), pm (notation).

T1 T2 T3 T4

Convert between units of time

| | | | | |
|--|--|--|--|--|
| • convert between units of time and recall time facts, e.g. 60 seconds = 1 minute, 60 minutes = 1 hour, 24 hours = 1 day | | | | |
|--|--|--|--|--|

MR MR

Use am and pm notation and solve simple time problems

| | | | | |
|---|--|--|--|--|
| • record digital time using the correct notation, including am and pm, e.g. 9:15 am | | | | |
| • relate analog notation to digital notation for time, e.g. ten to nine in the morning is the same time as 8:50 am | | | | |
| • solve simple time problems using appropriate strategies, e.g. calculate the time spent on particular activities during the school day | | | | |

Read and interpret simple timetables, timelines and calendars

| | | | | |
|---|--|--|--|--|
| • read and interpret timetables and timelines | | | | |
| • read and interpret calendars | | | | |

MR MR
MR MR

Three-Dimensional Space 2

Outcomes

- uses appropriate terminology to describe, and symbols to represent, mathematical ideas - MA2-1WM
- checks the accuracy of a statement and explains the reasoning used - MA2-3WM
- makes, compares, sketches and names three-dimensional objects, including prisms, pyramids, cylinders, cones and spheres, and describes their features - MA2-14MG

Vocabulary

object, two-dimensional shape (2D shape), three-dimensional object (3D object), cone, cube, cylinder, prism, pyramid, sphere, surface, flat surface, curved surface, face, edge, vertex (vertices), net, top view, front view, side view, isometric grid paper, isometric drawing, depth.

T1 T2 T3 T4

Investigate and represent three-dimensional objects using drawings

- | | T1 | T2 | T3 | T4 |
|--|----|----|----|----|
| • identify prisms (including cubes), pyramids, cylinders, cones and spheres in the environment and from drawings, photographs and descriptions | ■ | | | |
| • sketch prisms (including cubes), pyramids, cylinders and cones, attempting to show depth | | ■ | | |
| • sketch three-dimensional objects from different views, including top, front and side views | | | ■ | |
| • draw different views of an object constructed from connecting cubes on isometric grid paper | | | | ■ |
| • interpret given isometric drawings to make models of three-dimensional objects using connecting cubes | | | | ■ |

Two-Dimensional Space 1

Outcomes

- uses appropriate terminology to describe, and symbols to represent, mathematical ideas - MA2-1WM
- checks the accuracy of a statement and explains the reasoning used - MA2-3WM
- makes, compares, sketches and names three-dimensional objects, including prisms, pyramids, cylinders, cones and spheres, and describes their features - MA2-14MG

Vocabulary

shape, two-dimensional shape (2D shape), circle, triangle, quadrilateral, parallelogram, rectangle, rhombus, square, trapezium, kite, pentagon, hexagon, octagon, regular shape, irregular shape, orientation, features, properties, side, parallel, pair of parallel sides, opposite, length, vertex (vertices), angle, right angle, symmetry, line (axis) of symmetry, rigid, reflect (flip), translate (slide), rotate (turn), tessellate, clockwise, anti-clockwise, half-turn, quarter-turn, three-quarter-turn.

T1 T2 T3 T4

Compare and describe features of two-dimensional shapes, including the special quadrilaterals

- | | T1 | T2 | T3 | T4 |
|---|----|----|----|----|
| • manipulate, compare and describe features of two-dimensional shapes, including the special quadrilaterals: parallelograms, rectangles, rhombuses, squares, trapeziums and kites | ■ | | | |
| • use measurement to establish and describe side properties of the special quadrilaterals, e.g. the opposite sides of a parallelogram are the same length | ■ | | | |
| • identify and name the special quadrilaterals presented in different orientations | MR | | | |
| • recognise the vertices of two-dimensional shapes as the vertices of angles that have the sides of the shape as their arms | | ■ | | |
| • identify right angles in squares and rectangles | | ■ | | |
| • group parallelograms, rectangles, rhombuses, squares, trapeziums and kites using one or more attributes, e.g. quadrilaterals with parallel sides and right angles | | ■ | | |

Two-Dimensional Space 2

Outcomes

- uses appropriate terminology to describe, and symbols to represent, mathematical ideas - MA2-1WM
- selects and uses appropriate mental or written strategies, or technology, to solve problems - MA2-2WM
- checks the accuracy of a statement and explains the reasoning used - MA2-3WM
- manipulates, identifies and sketches two-dimensional shapes, including special quadrilaterals, and describes their features - MA2-15MG

Vocabulary

shape, two-dimensional shape (2D shape), circle, triangle, quadrilateral, parallelogram, rectangle, rhombus, square, trapezium, kite, pentagon, hexagon, octagon, regular shape, irregular shape, orientation, features, properties, side, parallel, pair of parallel sides, opposite, length, vertex (vertices), angle, right angle, symmetry, line (axis) of symmetry, rigid, reflect (flip), translate (slide), rotate (turn), tessellate, clockwise, anti-clockwise, half-turn, quarter-turn, three-quarter-turn.

T1 T2 T3 T4

Compare and describe two-dimensional shapes that result from combining and splitting common shapes, with and without the use of digital technologies

- | | T1 | T2 | T3 | T4 |
|--|----|----|----|----|
| • combine common two-dimensional shapes, including special quadrilaterals, to form other common shapes or designs, e.g. combine a rhombus and a triangle to form a trapezium | | | ■ | |
| • split a given shape into two or more common shapes and describe the result, e.g. 'I split the parallelogram into a rectangle and two equal-sized triangles' | | | ■ | |
| • record the arrangements of common shapes used to create other shapes, and the arrangement of shapes formed after splitting a shape, in diagrammatic form, with and without the use of digital technologies | | | ■ | |

| Create symmetrical patterns, pictures and shapes, with and without the use of digital technologies | | | | |
|--|--|--|--|--|
| • create symmetrical patterns, designs, pictures and shapes by translating (sliding), reflecting (flipping) and rotating (turning) one or more common shapes | | | | |
| • create and record tessellating designs by reflecting, translating and rotating common shapes | | | | |
| • identify shapes that do and do not tessellate | | | | |
| • draw the reflection (mirror image) to complete symmetrical pictures and shapes, given a line of symmetry, with and without the use of digital technologies | | | | |

Angles 2

Outcomes

- uses appropriate terminology to describe, and symbols to represent, mathematical ideas - MA2-1WM
- checks the accuracy of a statement and explains the reasoning used - MA2-3WM
- identifies, describes, compares and classifies angles - MA2-16MG

Vocabulary

angle, amount of turning, arm, vertex, perpendicular, right angle, acute angle, obtuse angle, straight angle, reflex angle, angle of revolution.

| | T1 | T2 | T3 | T4 |
|--|----|----|----|----|
| Compare angles and classify them as equal to, greater than or less than a right angle | | | | |
| • compare angles using informal means, such as by using an 'angle tester' | | | | |
| • recognise and describe angles as 'less than', 'equal to', 'about the same as' or 'greater than' a right angle | | | | |
| • classify angles as acute, right, obtuse, straight, reflex or a revolution | | | | |
| • identify the arms and vertex of the angle in an opening, a slope and/or a turn where one arm is visible and the other arm is invisible, e.g. the bottom of an open door is the visible arm and the imaginary line on the floor across the doorway is the other arm | | | | |
| • create, draw and classify angles of various sizes, e.g. by tracing along the adjacent sides of shapes | | | | |

Position 2

Outcomes

- uses appropriate terminology to describe, and symbols to represent, mathematical ideas - MA2-1WM
- uses simple maps and grids to represent position and follow routes, including using compass directions - MA2-17MG

Vocabulary

position, location, map, plan, path, route, grid, grid reference, aerial view, direction, legend, key, scale, compass, compass rose, north, east, south, west, north-east, south-east, south-west, north-west.

| | T1 | T2 | T3 | T4 |
|--|----|----|----|----|
| Use simple scales, legends and directions to interpret information contained in basic maps | | | | |
| • use a legend (or key) to locate specific objects on a map | | | | |
| • use a compass to find north and then east, south and west | | | | |
| • use N, E, S and W to indicate north, east, south and west, respectively, on a compass rose | | | | |
| • use an arrow to represent north on a map | | | | |
| • determine the directions north, east, south and west when given one of the directions | | | | |
| • use north, east, south and west to describe the location of a particular object in relation to another object on a simple map, given an arrow that represents north, e.g. 'The treasure is east of the cave' | | | | MR |
| • use NE, SE, SW and NW to indicate north-east, south-east, south-west and north-west, respectively, on a compass rose | | | | |
| • determine the directions NE, SE, SW and NW when given one of the directions | | | | |
| • use north-east, south-east, south-west and north-west to describe the location of an object on simple maps, given a compass rose, e.g. 'The tree is south-west of the sign' | | | | |
| • calculate the distance between two points on a map using a simple given scale | | | | |
| • use scales involving multiples of 10 to calculate the distance between two points on maps and plans | | | | |
| • recognise that the same location can be represented by maps or plans using different scales | | | | |

Data 1

Outcomes

- uses appropriate terminology to describe, and symbols to represent, mathematical ideas - MA2-1WM
- selects and uses appropriate mental or written strategies, or technology, to solve problems - MA2-2WM
- checks the accuracy of a statement and explains the reasoning used - MA2-3WM
- selects appropriate methods to collect data, and constructs, compares, interprets and evaluates data displays, including tables, picture graphs and column graphs - MA2-18SP

Vocabulary

information, data, collect, category, display, symbol, list, table, column graph, picture graph, vertical columns, horizontal bars, equal spacing, title, key, vertical axis, horizontal axis, axes, spreadsheet, data, collect, survey, recording sheet, rating scale, category, display, symbol, tally mark, table, column graph, picture graph, vertical columns, horizontal bars, scale, equal spacing, title, key, vertical axis, horizontal axis, axes, spreadsheet, misleading.

| | | | | |
|--|--------|--|--|-----|
| Collect data, organise it into categories, and create displays using lists, tables, picture graphs and simple column graphs, with and without the use of digital technologies | | | | |
| • collect data and create a list or table to organise the data, e.g. collect data on the number of each colour of lollies in a packet | Yellow | | | |
| • construct vertical and horizontal column graphs and picture graphs that represent data using one-to-one correspondence | Yellow | | | |
| Interpret and compare data displays | | | | |
| • represent the same data set using more than one type of display and compare the displays | | | | Red |

Data 2

| | | | | |
|--|--|--|--|--|
| Outcomes | | | | |
| • uses appropriate terminology to describe, and symbols to represent, mathematical ideas - MA2-1WM | | | | |
| • selects and uses appropriate mental or written strategies, or technology, to solve problems - MA2-2WM | | | | |
| • checks the accuracy of a statement and explains the reasoning used - MA2-3WM | | | | |
| • selects appropriate methods to collect data, and constructs, compares, interprets and evaluates data displays, including tables, picture graphs and column graphs - MA2-18SP | | | | |

| | | | | |
|--|--|--|--|--|
| Vocabulary | | | | |
| information, data, collect, category, display, symbol, list, table, column graph, picture graph, vertical columns, horizontal bars, equal spacing, title, key, vertical axis, horizontal axis, axes, spreadsheet, data, collect, survey, recording sheet, rating scale, category, display, symbol, tally mark, table, column graph, picture graph, vertical columns, horizontal bars, scale, equal spacing, title, key, vertical axis, horizontal axis, axes, spreadsheet, misleading. | | | | |

| | | | | |
|--|----|-------|------|-----|
| | TI | T2 | T3 | T4 |
| Select and trial methods for data collection, including survey questions and recording sheets | | | | |
| • create a survey and related recording sheet, considering the appropriate organisation of categories for data collection | | Green | Cyan | |
| • refine survey questions as necessary after a small trial | | Green | Cyan | |
| • conduct a survey to collect categorical data | | Green | Cyan | |
| • compare the effectiveness of different methods of collecting and recording data, e.g. creating categories of playground games and using tally marks, compared to asking open-ended questions such as 'What playground game do you like to play?' | | Green | Cyan | |
| Construct suitable data displays, with and without the use of digital technologies, from given or collected data; include tables, column graphs and picture graphs where one picture can represent many data values | | | | |
| • represent given or collected categorical data in tables, column graphs and picture graphs, using a scale of many-to-one correspondence, with and without the use of digital technologies | | Green | Cyan | |
| Evaluate the effectiveness of different displays in illustrating data features, including variability | | | | |
| • interpret and evaluate the effectiveness of various data displays found in media and in factual texts, where displays represent data using a scale of many-to-one correspondence | | | | Red |

Chance 1

| | | | | |
|--|--|--|--|--|
| Outcomes | | | | |
| • uses appropriate terminology to describe, and symbols to represent, mathematical ideas - MA2-1WM | | | | |
| • checks the accuracy of a statement and explains the reasoning used - MA2-3WM | | | | |
| • describes and compares chance events in social and experimental contexts - MA2-19SP | | | | |

| | | | | |
|--|--|--|--|--|
| Vocabulary | | | | |
| chance, experiment, outcome, random, trials, tally, expected results, actual results, event, possible, impossible, likely, unlikely, less likely, more likely, most likely, least likely, equally likely | | | | |

| | | | | |
|---|----|----|------|----|
| | TI | T2 | T3 | T4 |
| Conduct chance experiments, identify and describe possible outcomes, and recognise variation in results | | | | |
| • predict and record all possible combinations in a chance situation, e.g. list all possible outfits when choosing from three different T-shirts and two different pairs of shorts | | | Cyan | |
| • predict the number of times each outcome should occur in a chance experiment involving a set number of trials, carry out the experiment, and compare the predicted and actual results | | | Cyan | |

Chance 2

| | | | | |
|--|--|--|--|--|
| Outcomes | | | | |
| • uses appropriate terminology to describe, and symbols to represent, mathematical ideas - MA2-1WM | | | | |
| • describes and compares chance events in social and experimental contexts - MA2-19SP | | | | |

| | | | | |
|--|--|--|--|--|
| Vocabulary | | | | |
| chance, experiment, outcome, random, trials, tally, expected results, actual results, event, possible, impossible, likely, unlikely, less likely, more likely, most likely, least likely, equally likely | | | | |

| | | | | |
|---|--------|----|----|----|
| | TI | T2 | T3 | T4 |
| Describe possible everyday events and order their chances of occurring | | | | |
| • use the terms 'equally likely', 'likely' and 'unlikely' to describe the chance of everyday events occurring, e.g. 'It is equally likely that you will get an odd or an even number when you roll a die' | Yellow | | | |

| | | | | |
|---|--------|-------|--|-----|
| <ul style="list-style-type: none"> compare the chance of familiar events occurring and describe the events as being 'more likely' or 'less likely' to occur than each other | Yellow | | | |
| <ul style="list-style-type: none"> order events from least likely to most likely to occur, e.g. 'Having 10 children away sick on the same day is less likely than having one or two away' | Yellow | | | |
| <ul style="list-style-type: none"> compare the likelihood of obtaining particular outcomes in a simple chance experiment, e.g. for a collection of 7 red, 13 blue and 10 yellow marbles, name blue as being the colour most likely to be drawn out and recognise that it is impossible to draw out a green marble | | Green | | |
| Identify everyday events where one occurring cannot happen if the other happens | | | | |
| <ul style="list-style-type: none"> identify and discuss everyday events occurring that cannot occur at the same time, e.g. the sun rising and the sun setting | | Green | | |
| Identify events where the chance of one occurring will not be affected by the occurrence of the other | | | | |
| <ul style="list-style-type: none"> identify and discuss events where the chance of one event occurring will not be affected by the occurrence of the other, e.g. obtaining a 'head' when tossing a coin does not affect the chance of obtaining a 'head' on the next toss | | | | Red |
| <ul style="list-style-type: none"> compare events where the chance of one event occurring is not affected by the occurrence of the other, with events where the chance of one event occurring is affected by the occurrence of the other, e.g. decide whether taking five red lollies out of a packet containing 10 red and 10 green lollies affects the chance of the next lolly taken out being red, and compare this to what happens if the first five lollies taken out are put back in the jar before the sixth lolly is selected | | | | Red |