Mathletics

The New Zealand Curriculum 2025

# Year 4



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| Term 4 | | | |
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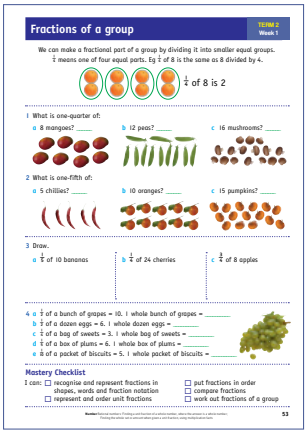
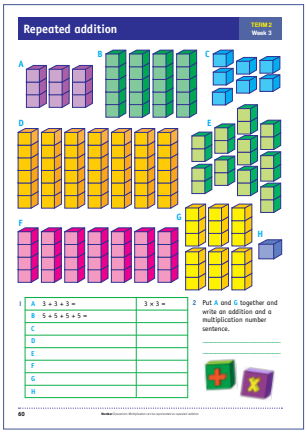
# Mathletics Year 4 Student Book



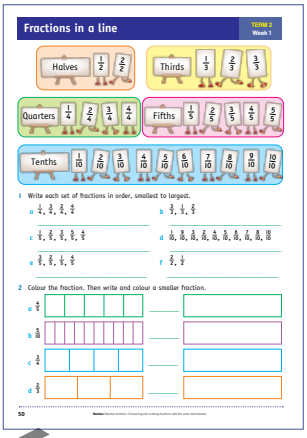

## New Zealand Curriculum Alignment

This edition fully aligns each student page with the refreshed New Zealand Curriculum: Mathematics and Statistics Years 0–8, 2025. The New Zealand Curriculum teaching sequence statements appear on each student page.

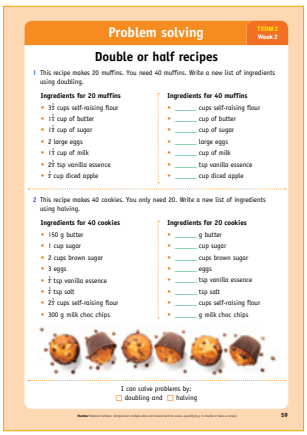
## Knowledge and Practices

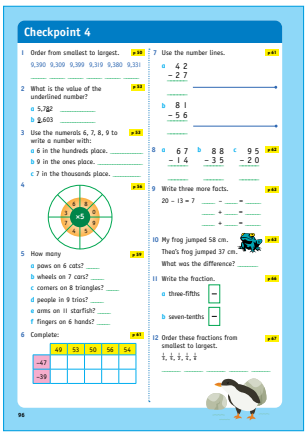
The **Mathletics Programme** develops the **knowledge** students need to build a deep understanding of mathematics and statistics — including number structures, algebraic thinking, measurement, geometry, statistics and probability.

Students build their **practices** by focusing on key facts, concepts and procedures, such as patterns, place value and the structure of the base-10 system. They develop the **skills, strategies and processes** required to reason, model and solve problems. Through these practices, students apply what they know to connect ideas, identify patterns and relationships, and explain their reasoning with confidence.






## Integrated Problem-solving

Includes problem-solving that actively builds students' problem-solving capabilities.

## Regular Checkpoints

Checkpoints appear both at mid-term and end of each term to review and assess key concepts.

## Hands-on Activities

Various hands-on activities are included in each term, asking students to measure and make, count and compare, using objects from around the classroom or home.

# Year 4 Knowledge and Practices

The New Zealand Curriculum Mathematics and Statistics 2025

| Knowledge | Practices | Pages |
|---|---|---|
| **Number — Number structures** | | |
| Whole numbers can be represented in the base 10 number system, where ea… the right. … tens posi… placehol… | Reading, writing, comparing and ordering whole numbers up to 10,000 | 2, 3, 4, 5, 6, 50, 51, 52, 53, 146, 148, 149, 150 |
| Rounding … calculati… or unit (ten, hundred, thousand) for a given number; a number line supports this. | …ten | 50, 146, 147 |
| | Rounding tenths to the nearest whole number | 164 |
| | Counting forwards and backwards in 2s, 3s, 4s, 5s, 6s, 7s, 8s, 9s, 25s and 50s from multiples of the counting unit | 8, 27, 54, 55, 56, 57, 58, 59, 121, 122, 152, 153, 170 |
| | Counting in 10s, 100s and 1,000s from any whole number up to 10,000 | 2, 3, 6, 8, 51, 59, 121 |
| **Number — Operations** | | |
| Addition and subtraction can be carried out mentally, using known facts, place value and partitioning, or column methods. Standard written algorithms (e.g. column addition, column subtraction) rely on place value, regrouping and renaming. | Adding and subtracting up to four-digit numbers | 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 50, 60, 61, 62, 63, 64, 75, 80, 85, 99, 100, 101, 102, 182 |
| Multiplication can be represented as repeated addition, scaling, or arrays, and larger numbers can be multiplied using an area model or column multiplication. | Memorising multiplication and corresponding division facts for 2s to 10s | 17, 18, 21, 55, 56, 57, 58, 59, 103, 106, 151, 152, 153, 154, 155, 156, 157, 169, 170, 171, 172, 178 |
| | Using place value and known and derived facts to multiply and divide mentally, including multiplying by 0 and 1 and dividing by 1 | 19, 20, 55, 56, 57, 58, 59, 103, 104, 105, 106, 107, 108, 110, 112, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 168, 171, 180, 181 |
| | Multiplying two-digit and three-digit numbers by a one-digit number | 56, 57, 75, 85, 107, 152, 153, 154, 155, 172, 179, 180, 181, 182 |
| | Dividing up to a three-digit whole number by a one-digit divisor, with no remainder | 19, 20, 85, 109, 110, 112, 158, 160, 182 |
| **Number — Rational Numbers** | | |
| The base 10 number system continues past the ones column, to the right, to create decimals such as tenths. Decimals are fractions that have powers of 10 as their denominators, and they can be written as numbers using a decimal point. A decimal point marks the column immediately to the right of the ones column as the tenths column. Tenths can be created by dividing whole numbers by 10 and can be expressed as fractions or decimals. | Reading, writing and representing tenths as fractions and decimals | 66, 161, 162, 163, 183, 184 |
| | Comparing and ordering tenths as fractions and decimals | 162, 163, 165, 184 |
| | Memorising and using the decimal equivalent of 1/2 and fractions with denominators of 10 | 162, 163, 165 |
| | Dividing one- and two-digit whole numbers by 10 to make decimals and identify tenths | 183, 184 |
| | Multiplying decimal tenths by 10 | 184 |
| | Comparing and ordering fractions with the same numerator or same denominator | 65, 67, 69, 113, 114 |
| Improper fractions and mixed numbers are different representations of the same quantity. | Relating fractions, improper fractions and mixed numbers to their position on a number line | 115, 116, 187 |
| | Identifying when two fractions are equivalent, using representations | 113, 114 |
| Addition and subtraction of fractions with the same denominator follow the same principles as whole numbers and can result in improper fractions or whole numbers. | Adding and subtracting fractions with the same denominators, including beyond a whole | 186, 187 |
| | Adding and subtracting decimals to one decimal place | 185 |
| Scaling changes quantities proportionally, using multiplication and division. | Using known multiplication and division facts to scale a quantity (e.g. to double or halve a recipe) | 117 |
| | Finding a unit fraction of a whole number, using multiplication and division facts and where the answer is a whole number | 19, 68, 69, 111 |
| | Finding the whole set or amount when given a unit fraction, using multiplication and division facts | 68, 111 |
| **Number — Financial mathematics** | | |
| New Zealand currency is a decimal system of dollars made up of 100 cents. | Calculating the total cost of several items costing whole-dollar amounts and with different prices, or of multiples of the same item, including giving change | 12, 50, 76, 78, 79, 80, 85, 98, 108 |
| | Representing amounts of currency using different combinations of denominations | 12, 77, 78, 79, 80 |
| **Algebra — Equations and relationships** | | |
| Numbers can be compared using "greater than" (>), "less than" (<), and equals (=). Applying the same operation to both sides of a number sentence preserves the balance. | Checking the truth of number sentences and completing open number sentences involving addition and subtraction | 8, 99, 148, 182, 185 |
| | Checking the truth of number sentences and completing open number sentences involving multiplication and division | 55, 109, 111, 148, 159, 182 |
| Growing patterns can increase or decrease by the addition or subtraction of a constant (arithmetically) or multiplication or division by a constant (geometrically). | Recognising, continuing, creating and describing growing patterns (including numerical and non-numerical patterns) that change by adding, subtracting, or multiplying by a constant whole number | 8, 9, 15, 24, 25, 26, 27, 72, 73, 74, 75, 120, 121, 122, 123, 172, 182 |

New page numbering to come

# Year 4 Knowledge and Practices

The New Zealand Curriculum Mathematics and Statistics 2025

| Knowledge | Practices | Pages |
|---|---|---|
| **Measurement — Measuring** | | |
| **Phase 1:** Standard measuring units are universally agreed and commonly used units for making measurements that enable people to communic… units to er… mass (wei… | Estimating and measuring length (cm and m), mass (g and kg) and capacity (mL and L), using tools with labelled markings and whole-… | 43, 44, 45,46, 83, 84, 130, 131, 139, 165 |
| | …its of | 42, 44, 130, 131 |
| **Phase 2:** … units; the … | …nchmarks | 44, 45, 47, 81, 82, 84, 85, 129, 132, 141 |
| | Using the appropriate tool for measuring length, mass (weight) and capacity in mixed units | 44, 45, 46, 82, 129, 130, 131, 133, 139, 140, 142, 143 |
| | Measuring temperature in degrees Celsius | 91 |
| | Measuring the perimeter of polygons using metric units (mm, cm and m) | 174, 177 |
| The areas of rectangles (including squares) can be calculated by multiplication of side lengths. | Measuring the areas of irregular shapes covered with squares and half squares | 173, 174, 175 |
| | Calculating the areas of rectangular figures (including squares) using multiplication of side lengths | 176, 177 |
| Volume is a measure of regions in three-dimensional space. | Measuring the volumes of rectangular prisms (cuboids) by filling them with identical 3D blocks | 92, 93, 94, 95 |
| Angles are a measure of turn and can be measured using the unit of degrees; a full turn is 360 degrees, a half turn is 180 degrees and a quarter turn is 90 degrees. Rectangles and squares have four right angles. | Estimating the size of angles by comparing them to 90, 180 and 360 degrees | 136, 137, 138, 190 |
| A point in time is typically measured in hours and minutes past midnight. Clocks relate seconds to minutes and minutes to hours according to a system based on 60. | Telling the time on analogue and digital clocks to the nearest minute | 28, 29, 30, 31, 32, 135 |
| | Measuring duration in hours, minutes and seconds, including mixed time units | 32, 37, 134, 135 |
| | Finding equivalent durations of time using different units | 134 |
| **Geometry — Shapes** | | |
| A regular polygon is a two-dimensional shape with all sides of equal length and all interior angles of equal measure. | Identifying, classifying and describing the attributes of regular and irregular polygons of up to 12 sides, using edges, vertices and angles | 189, 190 |
| Circles have an infinite number of lines of symmetry. | Identifying the number of lines of symmetry in 2D shapes | 188 |
| **Geometry — Spatial reasoning** | | |
| Shapes may appear different when viewed from a different perspective. | Visualising 3D shapes and connecting them with 2D diagrams, verbal descriptions and the same shapes drawn from different perspectives | 33, 34, 35, 36, 37 |
| A reflection is when a shape is flipped over a line, creating a mirror image. A translation is when a shape is slid from one place to another without being turned. A rotation is when a shape is turned around a fixed point. | Performing one-step transformations (reflections, translations, rotations) on 2D shapes | 191, 192 |
| **Geometry — Pathways** | | |
| **Phase 1:** Maps are 2D representations of places in the world showing the view from above with symbols to show locations and landmarks. Paths can be described using sequenced instructions for moving or locating an object. Directions such as forward, left and right depend on the orientation of the observer. | Following and creating a sequence of step-by-step instructions for moving people or objects to a different location, including half and quarter turns and the distance to be travelled | 126, 128 |
| | Using simple maps to locate objects and places relative to other objects and places | 124, 125, 126 |
| **Phase 2:** An alphanumeric grid reference is a system that divides a map into labelled rows (letters) and columns (numbers), so that each square can be identified by combining a letter and a number (e.g. A1, B2). | Use alphanumeric and general grid references to identify regions and plot positions on a grid map | 124, 125, 126, 127, 128 |
| **Statistics — Developing knowledge from data** | | |
| A variable is an attribute or measurement of the people or objects being studied: categorical variables classify objects or individuals into groups, discrete numerical variables are counted, continuous numerical variables are measured. | Collecting numerical data, and, if needed, rounding to an appropriate unit or part of a unit, based on the context | 42, 86, 133 |
| **Statistics — Visualisation of data** | | |
| Data visualisations are representations of all available values for a variable showing the frequency for each value. Data visualisations show patterns, trends and variations. Numerical data can be visualised with dot plots or bar graphs. A good data visualisation includes, where appropriate: a title that gives the purpose of the visualisation, variable(s) (e.g. labelled on the axis), the group the data is from, units for a numerical variable, values or categories, frequency, with the scale starting at 0. | Creating dot-plot or bar-graph data visualisations | 38, 41, 42, 86, 87, 89, 90 |
| **Statistics — Interpretation of data** | | |
| Interpreting a data visualisation includes describing its variables and their units, the context for the data, and the visualisation's key features: its shape (e.g. the number of peaks), its middle group(s) (where the middle of the data lies), its spread (how spread the data is from the minimum (lowest) value to the maximum (highest) value). | Answering questions about the frequency of a particular value in dot plots | 40, 41 |
| | Answering questions about individual values in a dot plot, while referring to the context | 40, 41 |
| | Interpreting data visualisations | 38, 39, 41, 42, 87, 88, 89, 90, 133 |
| | Distinguishing between when to use a particular value or the frequency for a given value when answering questions about dot plots | 40, 41 |

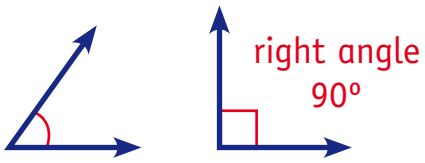
New page numbering to come

# Dictionary

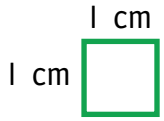
## angle

The amount of turning between two lines that meet at a point

Measured in degrees




## area




The size of a surface

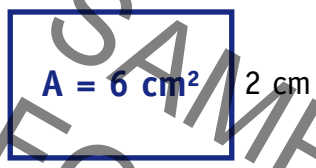
Measured in squares

1 square centimetre = 1 cm²

**A = 1 cm²**

Rectangular area = length × width

**A = L × W**




## ascending order

In order from smallest to largest

1, 7, 11, 19, 32

## capacity

The amount a container can hold

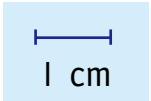
Measured in cups, litres (L) and millilitres (mL)


## centimetre (cm)

A unit of length

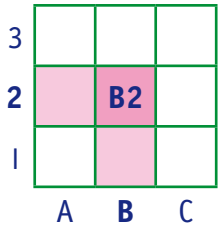
10 mm = 1 cm

100 cm = 1 m




## coordinates

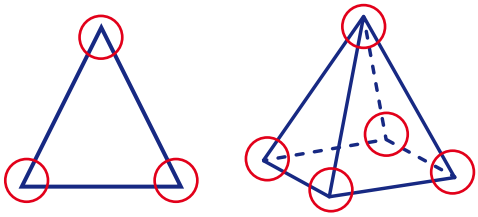
Position on a grid using letters and numbers for the rows and columns




## corner

2D: where 2 straight lines meet

3D: where 3 or more edges meet



Also known as 1 vertex, 3 vertices

## data

A collection of information

Can be recorded in tally marks

| Favourite sports | | |
|---|---|---|
| **Sport** | **Tallies** | **Total** |
| Soccer | 𝍸 𝍸 \|\| | 12 |
| Netball | 𝍸 \| | 6 |
| Rugby | 𝍸 \|\|\| | 8 |
| Chess | 𝍸 𝍸 \| | 11 |

## decimal number

A number that has a decimal point

eg 0·3, 75·16

## descending order

In order from largest to smallest

96, 84, 61, 37, 11

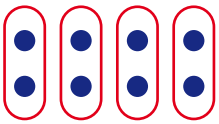
## digit

The numerals that are used to write numbers: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9

# Dictionary

## division (÷)

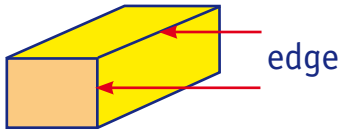
Sharing into equal groups



4 groups of 2
8 ÷ 2 = 4

## edge

Where two surfaces meet




## equation

Number sentence

3 + 2 = 5

## equivalent

Of equal value

$\frac{1}{2} = \frac{2}{4}$  1 + 4 = 2 + 3

## estimate

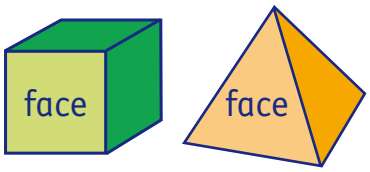
Make a good guess

Around 20

21 + 38 = about 20 + 40 = around 60

## face

A flat surface of a solid shape




## factor

A number that divides into another number exactly

A number to be multiplied

factor × factor = product

3 × 4 = 12  12 ÷ 4 = 3

3 and 4 are factors of 12

## fraction

A part of a whole or a group

$\frac{1}{4}$ coloured

$\frac{1}{3}$ coloured

$\frac{1}{2}$ ← numerator
→ denominator

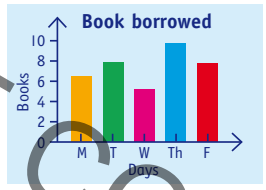
## grams (g)

A unit of mass (weight)

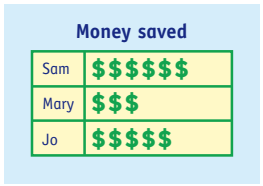
1,000 g = 1 kg

## graph

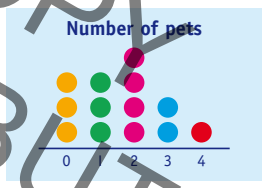
A diagram that shows a collection of data




bar graph




picture graph




dot plot

## improper fraction

A fraction over 1

The numerator is larger than the denominator → $\frac{7}{4}$

## kilogram (kg)

A unit of mass for weighing things

1 kilogram = 1,000 grams

1,000 kilograms = 1 tonne

## litre (L)

A unit of capacity

1 L = 1,000 millilitres (mL)

# Dictionary

### mass (weight)
The amount of material that makes up an object. Measured in grams, kilograms and tonnes

### metre (m)
A unit of length

1 m = 100 cm  1,000 m = 1 km

### millilitre (mL)
A unit of capacity

1,000 mL = 1 L

### millimetre (mm)
A unit of length

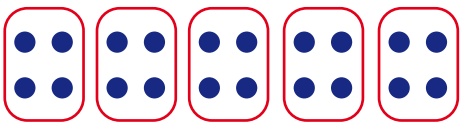
10 mm = 1 cm

### mixed numbers
A whole number with a fraction $1\frac{1}{4}$

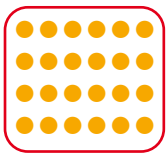
### multiple
The product (answer) when you multiply a given number by another

Multiples of 3 are 6, 9, 12, 15, 18, 21...

### multiplication (×)
Find the total of a number of equal groups or equal rows

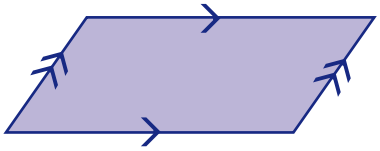


5 × 4 = 20



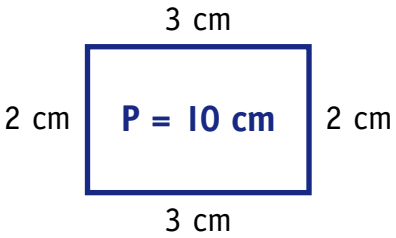
4 × 6 = 24

### parallelogram
A quadrilateral with opposite sides parallel



### perimeter
Distance around the outside

Add side lengths: 3 + 3 + 2 + 2 = 10 cm




### place value
The value of a numeral depending on its position in a number

396 = 300 + 90 + 6

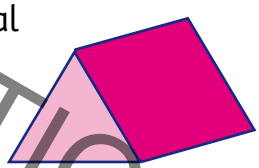
754 = 7 hundreds + 5 tens + 4 ones

8·57 = 8 ones + 5 tenths + 7 hundredths

### polygon
A closed shape with 3 or more straight sides

eg

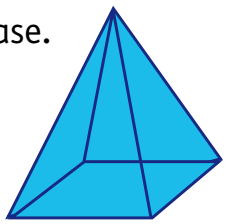
### prism
A 3D shape with identical ends. All other faces are rectangles. The ends give a prism its name.



triangular prism

### product
When numbers are multiplied, the answer is called the product.

### pyramid
A 3D object with one flat base. All other faces are triangles coming to a point at the apex. The base shape gives a pyramid its name.

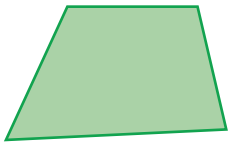


square pyramid

# Dictionary

### quadrilateral

A 2D shape with 4 straight sides



### regular polygons

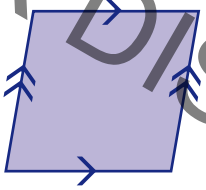
2D shapes with all sides the same length and all angles the same size

2D shapes with sides and angles of different sizes are **irregular** polygon

rhombus

### rhombus

A quadrilateral with all sides equal and opposite sides parallel. It is a special parallelogram.



### rounding (to nearest 10)

0 Round down — 1 2 3 4

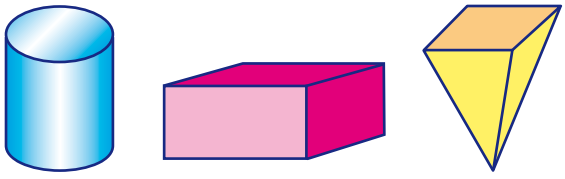
Round up 0 — 5 6 7 8 9

eg 675 → 700
(rounded to the nearest 100)

4,492 → 4,000
(rounded to the nearest 1,000)

### three-dimensional objects (3D)

Solid shapes that have length, width and height



### time

analogue


digital

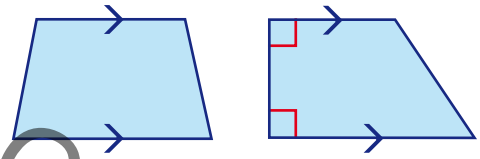
1 hour = 60 minutes

1 minute = 60 seconds

### trapezium

A quadrilateral that has one pair of parallel sides

Some have 2 right angles

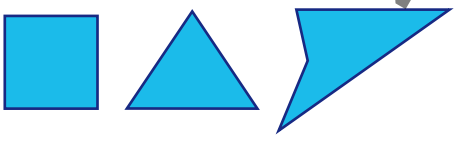


### triangle

A 2D shape with 3 straight sides

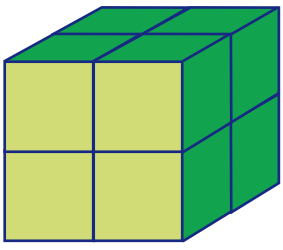
### two-dimensional shapes (2D)

Shapes that only have length and width



### volume

The amount of space a solid object takes up



# Dollar amounts






1 Which wallet holds the most money? _____

2 Which wallet holds the least money? _____

3 Order the wallets from holds least to holds most.

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | |

4 Add $10 to:

a B _____ b C _____ c D _____ d G _____ e A _____

5 Take $100 from:

a A _____ b C _____ c F _____ d G _____ e E _____

6 Which wallet holds: a closest to $100? _____ b closest to $1,000? _____

7 A TV costs $980. Which wallets could you use? _____

Why? _____



**Number** Number structures: Reading, writing, comparing, and ordering whole numbers up to 10,000; Rounding whole numbers to the nearest thousand, hundred; Operations: Adding and subtracting up to four-digit numbers; Financial mathematics: Calculating the total cost of several whole-dollar amounts

# Thousands




1 Write the number 1,000 more than:

a 2,000. _____ b 5,000. _____ c 7,000. _____ d 3,000. _____

2 Write the number 1,000 less than:

a 10,000. _____ b 5,000. _____ c 9,000. _____ d 2,000. _____

3 What number is halfway between:

a 0 and 1,000? _____ b 6,000 and 7,000? _____

c 3,000 and 4,000? _____ d 9,000 and 10,000? _____

e 1,000 and 2,000? _____ f 8,000 and 9,000? _____

4 Add:

| | Add 1 | | Add 10 | | Add 100 |
|---|---|---|---|---|---|
| a 99 | 100 | → | 110 | → | 210 |
| b 109 | | → | | → | |
| c 199 | | → | | → | |
| d 1,009 | | → | | → | |
| e 1,099 | | → | | → | |
| f 1,999 | | → | | → | |

5 Write the number for:

a two hundred and forty-eight. _____ b eight hundred and eleven. _____

c four hundred and fifty. _____ d seven hundred and nine. _____

e one thousand three hundred and sixty-five. _____

f two thousand one hundred and ninety-seven. _____

g four thousand five hundred and eighteen. _____

h seven thousand six hundred and twenty. _____


## Challenge! What is my number?

a My ones digit is 4, my hundreds digit is 7, my tens digit is 5 and my thousands digit is 9. ☐

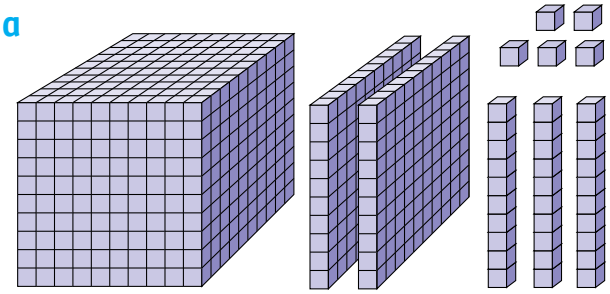
b My tens digit is 8 and my thousands digit is 2. ☐

# Numbers to 10,000

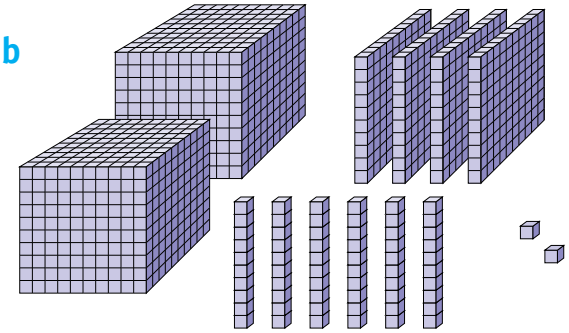


**1** Write the number shown.

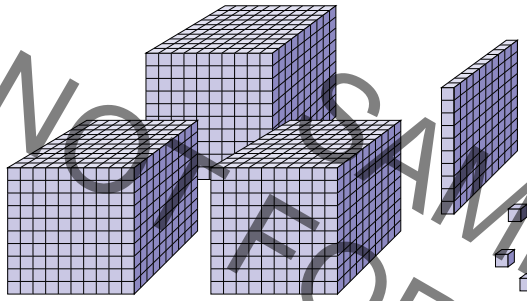
**a**



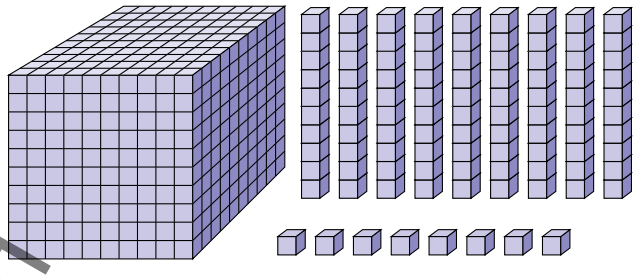
**b**



**c**



**d**





**2** Write the numbers from question 1 in words.

**a** _____

**b** _____

**c** _____

**d** _____

**3** Circle the larger number.

| | | |
|---|---|---|
| **a** 690 609 | **b** 937 793 | **c** 2,985 2,002 |
| **d** 4,157 5,147 | **e** 8,061 6,810 | **f** 2,594 2,954 |

**4** Join the numeral to its name.

1,010

1,001

1,100

1,110

one thousand and one

one thousand, one hundred and ten

one thousand and ten

one thousand one hundred

# Place value



**3,648**
3,000 + 600 + 40 + 8
**The value**
of the 3 is 3,000
of the 6 is 600
of the 4 is 40
of the 8 is 8

**1** Complete.

**a** 9,526 = 9,000 + 500 + _____ + _____

**b** 3,749 = _____ + _____ + _____ + _____

**c** 5,618 = _____ + _____ + _____ + _____

**d** 7,293 = _____ + _____ + _____ + _____

**e** 6,054 = _____ + _____ + _____ + _____

**2** Write the number.

**a** 2,000 + 800 + 10 + 7 = _____

**b** 8,000 + 400 + 60 + 1 = _____

**c** 4,000 + 900 + 70 + 2 = _____

**d** 1,000 + 300 + 80 + 5 = _____

**e** 3,000 + 40 + 8 = _____

**f** 7,000 + 200 + 6 = _____

**3** What is the value of the underlined numeral?

**a** 2,618 _____ **b** 1,584 _____ **c** 6,372 _____ **d** 9,493 _____

**e** 3,265 _____ **f** 7,726 _____ **g** 1,59 _____ **h** 5,087 _____

**i** 4,903 _____ **j** 2,600 _____ **k** 7,008 _____ **l** 304 _____

**4** Write these in ascending order.

| | | | | |
|---|---|---|---|---|
| **a** | 8,420 | 2,048 | 3,915 | _____ _____ _____ |
| **b** | 7,506 | 983 | 9,375 | _____ _____ _____ |
| **c** | 5,130 | 5,301 | 5,013 | _____ _____ _____ |
| **d** | 4,142 | 1,244 | 4,214 | _____ _____ _____ |
| **e** | 8,080 | 8,800 | 8,008 | _____ _____ _____ |



## Challenge!

Use these numerals to write as many different four-digit numbers as you can.

How many could you find? ☐


**Mastery Checklist** I can:

- ☐ add 10 and 100 to 4-digit numbers
- ☐ order 4-digit numbers
- ☐ add 1,000 to 4-digit numbers
- ☐ find the number halfway between
- ☐ recognise numbers in place value blocks
- ☐ expand 4-digit numbers to show place value

# Count by 25s and 50s

1 Harry earns $25 an hour. Count by 25s to find out how many hours Harry worked to make $500.


2 Sally gets 50c each time she helps mum with the bins. If she does this once a fortnight, that's 26 times in a year. Count by 50s to find out how much Sally earns in a year.


3 How could you do these calculations faster?

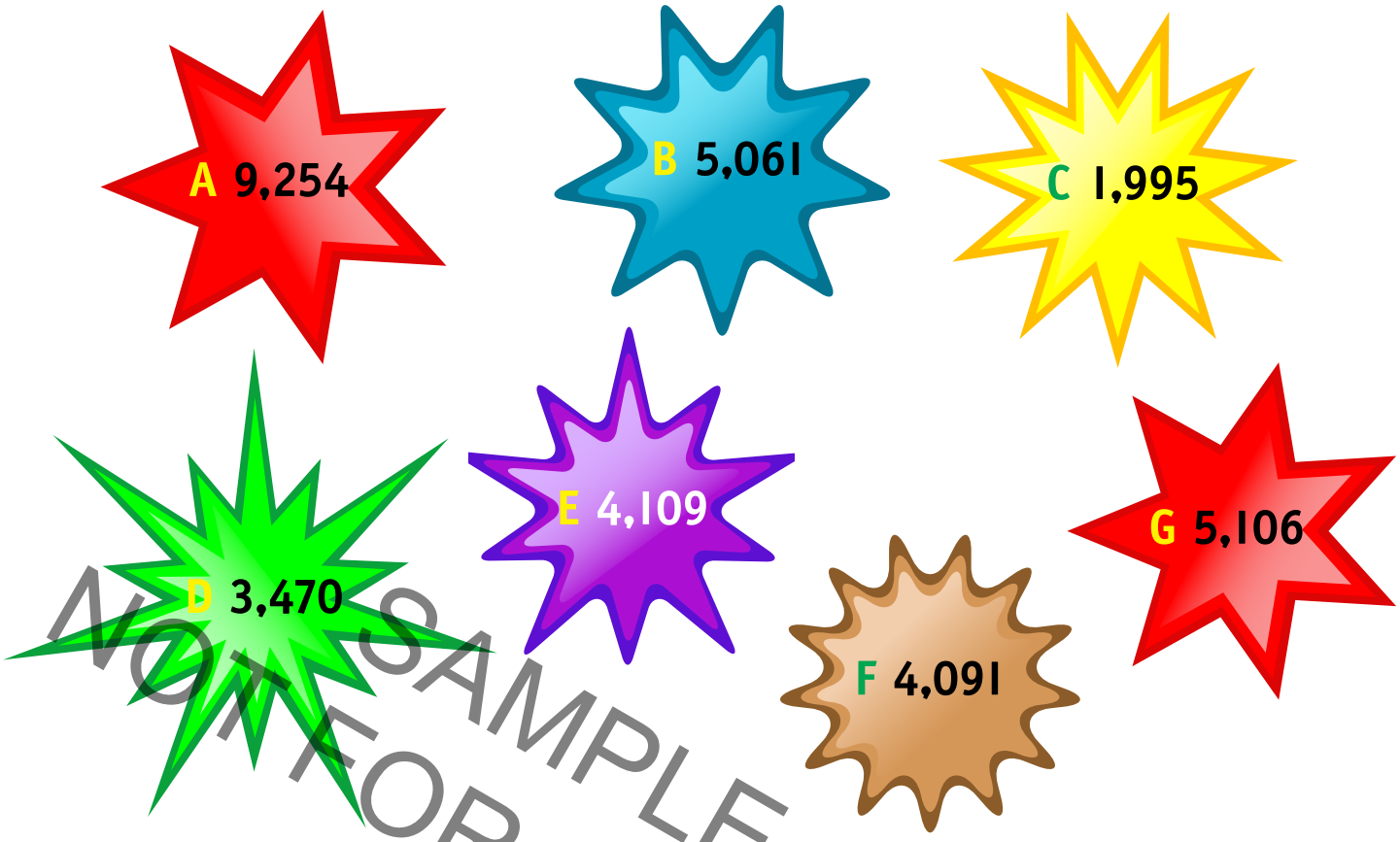


I can solve problems by:

☐ counting by 25s ☐ counting by 50s

# Writing four-digit numbers








1 Write each number in words.

A _____

B _____

C _____

D _____

E _____

F _____

G _____

2 Write the numbers in ascending order.

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | |

3 Which number is:

a closest to 4,000? _____ b closest to 6,000? _____

4 Which number comes:

a after 1,995? _____ b before 4,091? _____

c before 5,061? _____ d after 4,109? _____

# Rounding numbers



1 Round to the nearest ten.

| | | | |
|---|---|---|---|
| a 74 | _____ | b 81 | _____ |
| c 25 | _____ | d 67 | _____ |
| e 12 | _____ | f 40 | _____ |
| g 89 | _____ | h 36 | _____ |
| i 93 | _____ | j 58 | _____ |

2 Round to the nearest hundred.

| | | | |
|---|---|---|---|
| a 654 | _____ | b 463 | _____ |
| c 871 | _____ | d 202 | _____ |
| e 108 | _____ | f 961 | _____ |
| g 235 | _____ | h 579 | _____ |
| i 96 | _____ | j 310 | _____ |

3 Round to the nearest thousand.

| | | | |
|---|---|---|---|
| a 7,398 | _____ | b 5,650 | _____ |
| c 1,427 | _____ | d 1,901 | _____ |
| e 5,006 | _____ | f 9,433 | _____ |
| g 2,192 | _____ | h 3,198 | _____ |
| i 9,45 | _____ | j 8,072 | _____ |

**Remember:**

**1, 2, 3, 4 go down**
**5, 6, 7, 8, 9 go up.**

**To round to the nearest ten, look at the ones place.**

**82 → 80**

**To round to the nearest hundred, look at the tens place.**

**168 → 200**

**To round to the nearest thousand, look at the hundreds place.**

**3,248 → 3,000**



4 Round and add to estimate answers.

| | Round to nearest 10 | Round to nearest 100 | Round to nearest 1,000 |
|---|---|---|---|
| a 1,342 + 3,453 | | | |
| b 6,431 + 6,956 | | | |
| c 7,360 + 4,493 | | | |
| d 8,255 + 2,873 | | | |
| e 1,046 + 3,097 | | | |

## Work backwards

What number am I?
My thousands digit is 2 more than my tens digit.
My tens digit is 3 less than my hundreds digit.
My hundreds digit is 4 more than my ones digit which is 2. _____



**Number** Number structures: Rounding whole numbers to the nearest thousand, hundred, or ten; Rounding can support predicting or estimating the result of a calculation

# Four-digit numbers



1 Write 'is more than' or 'is less than' to make the statements true.

a 764 _____ 674
b 991 _____ 919
c 538 _____ 583
d 1,465 _____ 1,456
e 2,091 _____ 2,109
f 8,691 _____ 8,961

2 Choose numbers from page 140 to fill in the blanks.

a _____ is less than _____
b _____ is less than _____
c _____ is less than _____
d _____ is more than _____
e _____ is more than _____
f _____ is more than _____

3 Write the value of the 9 in:

a 9,254 _____ b 1,975 _____ c 4,109 _____ d 4,091 _____

4 Write the value of the 4 in:

a 9,254 _____ b 3,470 _____ c 4,109 _____ d 4,091 _____

5 a 9,254 = 9,000 + 200 + _____ + _____
b 1,995 = _____ + _____ + _____ + _____
c 3,470 = _____ + _____ + _____
d 5,106 = _____ + _____ + _____
e 5,061 = _____ + _____ + _____
f 4,091 = _____ + _____ + _____

6 True or false?

a There were about 9,000 people at the cinema. _____
b There are about 5,000 children in our school. _____
c In our class there are less than 2,000 toes. _____
d There are 1,000 cents in $10. _____
e A large bottle can hold 2,000 mL. _____
f There are 6,914 birds sitting on the window sill. _____
g Grandma read 3,011 books last week. _____
h There are more than 2,000 words in this book. _____




## Challenge!

If you turn a calculator upside down, some numbers look like letters, eg 1 = i, 7 = L, 4 = h etc. 7,714 = hill
What numbers make these words?

| sell | lose | shoe | goes | legs |
|---|---|---|---|---|
| | | | | |

# Using numeral expanders



**1** Write these numbers.


**a** 7 Thousands 6 Hundreds 2 Tens 9 Ones _____

**b** 9 Thousands 4 Hundreds 5 Tens 2 Ones _____

**c** 4 Thousands 7 Hundreds 0 Tens 3 Ones _____

**d** 1 Thousands 0 Hundreds 8 Tens 6 Ones _____

**e** 6 Thousands 3 Hundreds 5 Tens 0 Ones _____

**2** Complete these numeral expanders.

**a** 5,218

Thousands Hundreds Tens Ones

Hundreds Tens Ones

Tens Ones

Ones

**b** 3,964

Thousands Hundreds Tens Ones

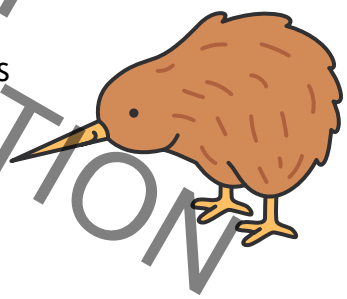
Hundreds Tens Ones

Tens Ones

Ones



**3** Use the numeral expanders above to express:



**a** 5,218 as _____ thousands, _____ tens, _____ ones

**b** 5,218 as _____ hundreds, _____ tens, _____ ones

**c** 5,218 as _____ tens, _____ ones

**4** How many thousands in:

**a** 5,679? _____ **b** 1,935? _____ **c** 3,198? _____ **d** 8,721? _____

**5** How many hundreds in:

**a** 7,450? _____ **b** 6,307? _____ **c** 2,094? _____ **d** 8,813? _____

**6** How many tens in:

**a** 1,638? _____ **b** 5,920? _____ **c** 4,107? _____ **d** 9,022? _____

**7** How many ones in:

**a** 7,004? _____ **b** 2,500? _____ **c** 1,234? _____ **d** 9,990? _____

# Te Reo Māori numbers

TERM 1
Week 2

1 Write the numbers.

| | | | | | |
|---|---|---|---|---|---|
| a iwa | _____ | b ono | _____ | c toru | _____ |
| d tahi | _____ | e whitu | _____ | f rua | _____ |
| g whā | _____ | h kore | _____ | i rima | _____ |
| j waru | _____ | k tekau | _____ | l kotahi rau | _____ |
| m iwa rau | _____ | n rima rau | _____ | | |

2 Colour the words to match.

| 1 | 10 | 100 | 1,000 |
|---|---|---|---|
| tekau | kotahi mano | tahi | kotahi rau |

3 What is the word for 'thousand'? _____

4 Complete the place value table.

| | thousands | hundreds | tens | ones |
|---|---|---|---|---|
| a 3,456 | mano | rau | tekau | |
| b 7,612 | | | | |
| c 9,831 | | | | |
| d 5,925 | | | | |
| e 4,278 | | | | |

5 Write the numbers.

a rua mano, kotahi rau toru tekau mā rua _____

a kotahi mano, ono rau iwa tekau mā rima _____

a ono mano, whitu rau rima tekau mā iwa _____

**Write 4-digit numbers in place value order: thousands, hundreds, tens and ones**

6 Write in Te Reo Māori.

a 2,746 _____

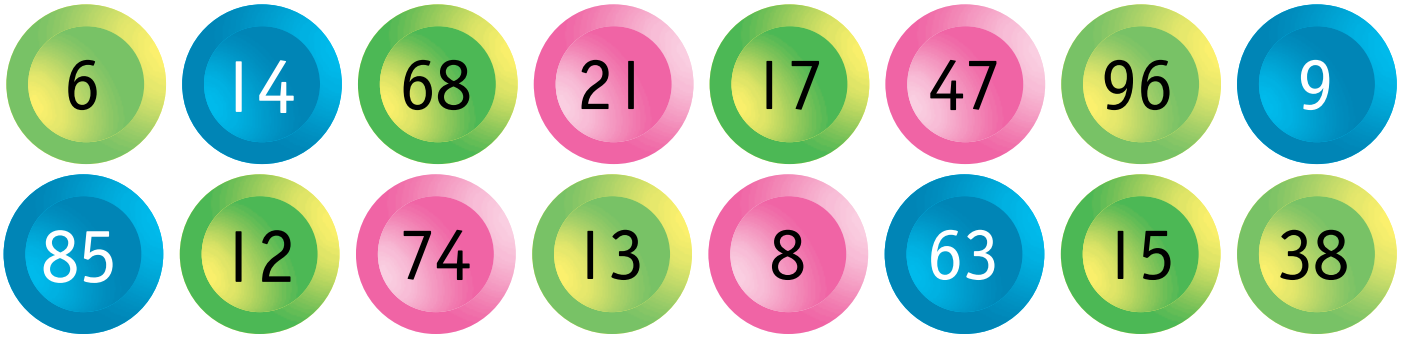
a 5,183 _____

a 9,321 _____

**Mastery Checklist** I can:
- ☐ write and compare 4-digit numbers
- ☐ round numbers
- ☐ round and add to estimate
- ☐ understand place value to thousands
- ☐ know numbers over 1,000 in Te Reo Māori

# Addition thinking






**What do we know about the answer if we add:**

1. 74 and 96? It is about 100 more than 74 because 96 is about 100.
   It will end with a 0 because 4 ones plus 6 ones are 10.
2. 17 and 47? It is about 50 more than 17 because 47 is about 50.
   It will end with a 4 because 7 plus 7 is 14.
   It is about 50 plus 20.
   It will be 50 plus 14. Take 3 off the 17 to make the 47 into 50.
3. 74 and 21? It is 1 more than 74 and 20.
4. Two numbers to equal 43?
   Look for 7 and 6, or 8 and 5, or 2 and 1, or 9 and 4 in the ones to end with a 3.

1 Use compensation strategies plus your addition facts to answer these questions.

a 74 + _____ = 83 b _____ + 47 = 64 c 63 + _____ = 88

d _____ + 47 = 59 e 96 + _____ = 105 f 15 + _____ = 53

2 Use the clues and facts to find two numbers that total:

a 24 = _____ + _____ b 55 = _____ + _____ c 91 = _____ + _____

d 25 = _____ + _____ e 90 = _____ + _____ f 99 = _____ + _____

g 26 = _____ + _____ h 62 = _____ + _____ i 78 = _____ + _____

3 Find three numbers that total:

a 144 = _____ + _____ + _____ b 86 = _____ + _____ + _____

4 What strategies and facts helped you in question 3?

_____

_____

_____

# Addition strategies



**1** Partition numbers and use the jump strategy.

**a** 48 + 15 = _____ **b** 66 + 35 = _____ **c** 54 + 27 = _____

**d** 87 + 36 = _____ **e** 33 + 49 = _____ **f** 68 + 83 = _____

**g** 124 + 35 = _____ **h** 118 + 67 = _____ **i** 136 + 49 = _____

**2** Partition numbers and use the split strategy.

**a** 58 + 14 = 50 + 10 + 8 + 4 = _____

**b** 75 + 45 = _____ + _____ + _____ + _____ = _____

**c** 46 + 86 = _____ + _____ + _____ + _____ = _____

**d** 93 + 75 = _____ + _____ + _____ + _____ = _____

**e** 127 + 67 = _____ + _____ + _____ + _____ + _____ = _____

**f** 155 + 36 = _____ + _____ + _____ + _____ + _____ = _____

**g** 137 + 43 = _____ + _____ + _____ + _____ + _____ = _____



**3** Partition numbers and use the compensation strategy.

**a** 42 + 39 = 42 + 40 − 1 = _____

**b** 63 + 32 = _____ + _____ + _____ = _____

**c** 18 + 78 = _____ + _____ − _____ = _____

**d** 54 + 19 = _____ + _____ − _____ = _____

**e** 146 + 59 = _____ + _____ + _____ − _____ = _____

**f** 316 + 68 = _____ + _____ + _____ − _____ = _____

**4** Double these numbers.

| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |

**5** Use doubles to help.

**a** 14 + 15 = _____ **b** 16 + 15 = _____ **c** 11 + 12 = _____

**d** 20 + 19 = _____ **e** 57 + 58 = _____ **f** 124 + 123 = _____

**g** 109 + 107 = _____ **h** 143 + 145 = _____ **i** 217 + 216 = _____

**Challenge!** Add these mentally!

**a** 53 + 59 ☐ **b** 237 + 212 ☐ **c** 408 + 353 ☐

**d** 294 + 106 ☐ **e** 556 + 147 ☐ **f** 527 + 495 ☐

# Addition using a number line

TERM 1
Week 3

1 What must be added to make 100? Count on tens first, then ones.

a 63 _____ b 46 _____ c 28 _____ d 55 _____ e 71 _____

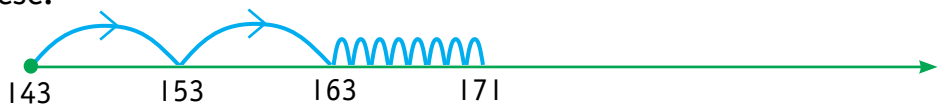
2 What must be added to make $1? Count on.

a 12c _____ b 39c _____ c 65c _____

d 82c _____ e 97c _____


3 Use the number lines for these.

a 143 + 28 = _____




b 256 + 134 = _____

c 195 + 266 = _____

d 2,318 + 1,274 = _____

e 4,534 + 2,128 = _____



4 Add the ones first, then the tens, then the hundreds. Use one of your strategies to check your answer.

| | | | | | |
|---|---|---|---|---|---|
| a 63 + 24 = _____ | b 85 + 12 = _____ | c 79 + 20 = _____ | d 231 + 356 = _____ | e 410 + 379 = _____ | f 105 + 573 = _____ |
| g 327 + 512 = _____ | h 282 + 614 = _____ | i 135 + 464 = _____ | j 783 + 105 = _____ | k 416 + 83 = _____ | l 922 + 57 = _____ |

5 There are 1,231 jelly beans in one bowl and 1,267 in another. How many jelly beans altogether?

+ _____

_____

6 At the fish market Joe sold 782 fish and Jill sold 1,307 fish. How many were sold altogether?

+ _____

_____



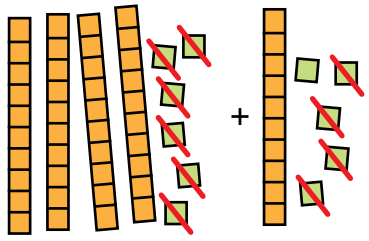
**Number** Operations: Adding increasingly large whole numbers; Addition can be carried out mentally, using known facts, place value and partitioning, or column methods; Standard written algorithms rely on place value, regrouping, and renaming

# Addition with trading



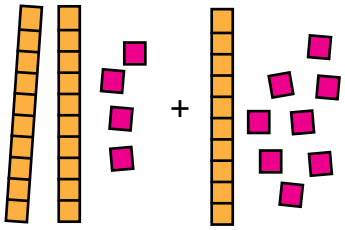
**1** Cross off 10 ones and add 1 ten in each diagram.

eg



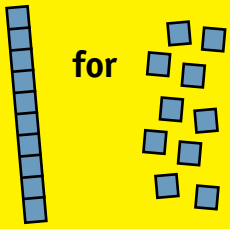
46 + 15 = 61

**a**



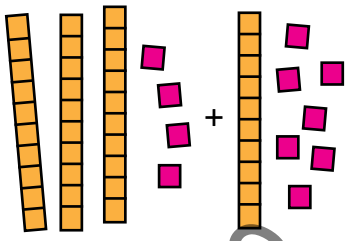
__ + __ = __

**You can trade**



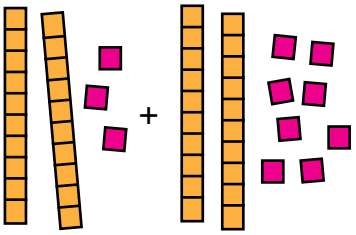
**for**

**b**



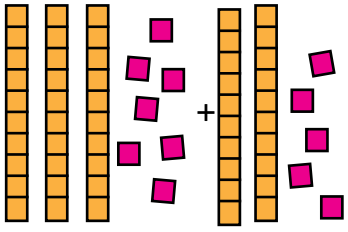
__ + __ = __

**c**



__ + __ = __

**d**



__ + __ = __



**2** **a**

| Tens | Ones |
|---|---|
| 5 | 7 |
| + | 9 |
| | |

**b**

| Tens | Ones |
|---|---|
| 6 | 4 |
| + | 8 |
| | |

**c**

| Tens | Ones |
|---|---|
| 3 | 5 |
| + | 6 |
| | |

**d**

| Tens | Ones |
|---|---|
| 8 | 3 |
| + | 8 |
| | |

**e**

| Tens | Ones |
|---|---|
| 4 | 9 |
| + 2 | 7 |
| | |

**f**

| Tens | Ones |
|---|---|
| 3 | 5 |
| + 3 | 7 |
| | |

**g**

| Tens | Ones |
|---|---|
| 2 | 8 |
| + 4 | 8 |
| | |

**h**

| Tens | Ones |
|---|---|
| 7 | 8 |
| + 1 | 5 |
| | |

**Setting out**

| Tens | Ones |
|---|---|
| 1 | |
| 2 | 9 |
| + 2 | 3 |
| 5 | 2 |

10 ones have been traded for 1 ten.

**3** **a**

| H | T | O |
|---|---|---|
| | 2 | 6 |
| | 4 | 3 |
| + | 1 | 7 |
| | | |

**b**

| H | T | O |
|---|---|---|
| | 1 | 4 |
| | 3 | 5 |
| + | 5 | 2 |
| | | |

**c**

| H | T | O |
|---|---|---|
| | 7 | 6 |
| | 3 | 4 |
| + | 6 | 9 |
| | | |

**d**

| H | T | O |
|---|---|---|
| | 8 | 1 |
| | 2 | 9 |
| + | 4 | 3 |
| | | |

**e**

| H | T | O |
|---|---|---|
| | 9 | 7 |
| | 1 | 8 |
| + | 3 | 6 |
| | | |

## Work backwards

The children have 68 marbles altogether. John has 8 less than Tim.
Tim has 3 more than Ali who has half as many as Von. Von has 28 marbles.
How many do John, Tim and Ali have?

# Addition algorithms



**Setting out**

| H | T | O |
|---|---|---|
| 1 | 3 | 6 |
| 4 | 7 | 7 |
| 6 | 1 | 3 |

**1** **a**

| H | T | O |
|---|---|---|
| 1 | 6 | 7 |
| + 3 | 1 | 4 |

**b**

| H | T | O |
|---|---|---|
| 3 | 3 | 8 |
| + 4 | 5 | 9 |

**c**

| H | T | O |
|---|---|---|
| 6 | 7 | 3 |
| + 2 | 1 | 8 |

**d**

| H | T | O |
|---|---|---|
| 1 | 8 | 7 |
| + 7 | 0 | 9 |

**e**

| H | T | O |
|---|---|---|
| 4 | 6 | 3 |
| + 2 | 5 | 9 |

**f**

| H | T | O |
|---|---|---|
| 5 | 7 | 5 |
| + 1 | 6 | 6 |

**g**

| H | T | O |
|---|---|---|
| 3 | 9 | 8 |
| + 1 | 7 | 1 |

**h**

| H | T | O |
|---|---|---|
| 2 | 8 | 4 |
| + 6 | 4 | 9 |

**i**

| H | T | O |
|---|---|---|
| 4 | 5 | 7 |
| + 3 | 1 | 8 |

**j**

| H | T | O |
|---|---|---|
| 6 | 2 | 8 |
| + 1 | 5 | 1 |

**k**

| H | T | O |
|---|---|---|
| 2 | 5 | 8 |
| + 5 | 5 | 1 |

**l**

| H | T | O |
|---|---|---|
| 4 | 6 | 9 |
| + 2 | 4 | 0 |

**m**

| H | T | O |
|---|---|---|
| 3 | 0 | 2 |
| + 6 | 2 | 8 |

**n**

| H | T | O |
|---|---|---|
| 5 | 3 | 4 |
| + | 7 | 7 |

**2** **a**

| Th | H | T | O |
|---|---|---|---|
| 8 | 4 | 5 | 7 |
| + 1 | 5 | 3 | 2 |

**b**

| Th | H | T | O |
|---|---|---|---|
| 4 | 3 | 8 | 5 |
| + 4 | 7 | 1 | 3 |

**c**

| Th | H | T | O |
|---|---|---|---|
| 1 | 4 | 7 | 0 |
| + 7 | 2 | 3 | 9 |

**d**

| Th | H | T | O |
|---|---|---|---|
| 5 | 3 | 2 | 8 |
| + 3 | 7 | 9 | 1 |

**3** Write the algorithms and calculate the answers.

**a** 298 + 543

| H | T | O |
|---|---|---|
| | | |
| + | | |

**b** 615 + 178

| H | T | O |
|---|---|---|
| | | |
| + | | |

**c** 380 + 482

| H | T | O |
|---|---|---|
| | | |
| + | | |

**d** 6,430 + 2,357

| Th | H | T | O |
|---|---|---|---|
| | | | |
| + | | | |

**e** 1,843 + 3,728

| Th | H | T | O |
|---|---|---|---|
| | | | |
| + | | | |

## Challenge!

What is the total of all the tens and ones in question 1 on page 10?


## Mastery Checklist

I can:
- ☐ use various strategies to add
- ☐ use a number line to add
- ☐ use a vertical algorithm to add
- ☐ trade place values when adding
- ☐ add 2, 3 and 4-digit numbers

# Subtraction thinking



## Jerry

| | |
|---|---|
| 78 − 23 = 45 | 69 − 15 = 54 |
| 85 − 23 = 62 | 77 − 45 = 42 |
| 59 − 27 = 22 | 48 − 16 = 32 |

Mark _____

## Josie

| | |
|---|---|
| 64 − 31 = 33 | 72 − 30 = 40 |
| 99 − 63 = 35 | 59 − 15 = 44 |
| 36 − 15 = 21 | 47 − 27 = 27 |

Mark _____



**1** Jerry and Josie finished their maths tests.

**a** Mark their work. **b** Give each of them a mark.

**c** Rewrite the ones that are wrong and work out the correct answer.

**2** Complete these number patterns.

**a** 7 − 2 = _____
70 − 20 = _____
700 − 200 = _____

**b** 9 − 4 = _____
90 − _____ = _____
900 − _____ = _____

**c** 8 − 3 = _____
_____ − _____ = _____
_____ − _____ = _____

**d** 9 − 7 = _____
_____ − _____ = _____
_____ − _____ = _____

**e** 5 − 2 = 3
15 − 2 = _____
25 − 2 = _____
85 − 2 = _____

**f** 7 − 4 = _____
17 − 4 = _____
27 − 4 = _____
67 − 4 = _____

**g** 8 − 4 = _____
18 − 4 = _____
28 − 4 = _____
58 − 4 = _____

**h** 6 − 3 = _____
16 − 3 = _____
26 − 3 = _____
96 − 3 = _____

# Subtraction strategies

TERM 1
Week 4

**1** Use strategy A.

**a** 53 − 28 = 53 − 30 + 2
= ____

**b** 64 − 29 = 64 − ____ + ____
= ____

**c** 46 − 19 = 46 − ____ + ____
= ____

**d** 85 − 57 = 85 − ____ + ____
= ____

**e** 97 − 68 = 97 − ____ + ____
= ____

**f** 73 − 36 = 73 − ____ + ____
= ____

**Strategy A**
64 − 18 =
64 − 20 + 2 = 46

**Strategy B**
71 − 24 =
71 − 20 − 4 = 47

**2** Use strategy B.

**a** 67 − 43 = 67 − 40 − 3
= ____

**b** 91 − 52 = 91 − ____ − ____
= ____

**c** 52 − 24 = 52 − ____ − ____
= ____

**d** 75 − 31 = 75 − ____ − ____
= ____

**e** 80 − 33 = 80 − ____ − ____
= ____

**f** 41 − 24 = 41 − ____ − ____
= ____

**Partition**
91 is 90 and 1. Take away 90 then take away another 1.
Check answers by counting on.



**3**

| | − | 56 | 73 | 64 | 49 | 76 | 62 | 81 | 50 |
|---|---|---|---|---|---|---|---|---|---|
| **a** | 27 | | | | | | | | |
| **b** | 38 | | | | | | | | |

**4**

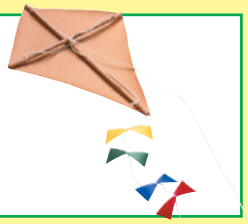
| | − | 61 | 91 | 70 | 62 | 87 | 74 | 90 | 83 |
|---|---|---|---|---|---|---|---|---|---|
| **a** | 32 | | | | | | | | |
| **b** | 53 | | | | | | | | |

**5** Farmer Fred had 564 sheep. How many were left when he sold 239?

**6** Ciara had 880 jelly beans. She was sick when she ate 132. How many were left?

## Challenge!

Make up a subtraction problem about kites where the answer is 137.



# Subtraction on a number line



1 Subtract.

a 16 – 9 = _____ b 15 – 8 = _____

c 14 – 6 = _____ d 12 – 7 = _____

e 11 – 5 = _____ f 16 – 8 = _____

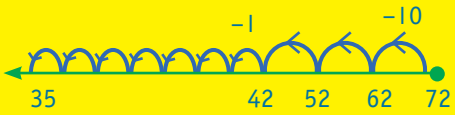
g 15 – 9 = _____ h 13 – 6 = _____

i 14 – 5 = _____ j 17 – 8 = _____

To use a number line for subtraction, start from the right.

**72 – 37**

You can use little jumps




or big jumps.


2 Use the number lines.

a 53 – 26 = _____

b 71 – 43 = _____

c 264 – 149 = _____

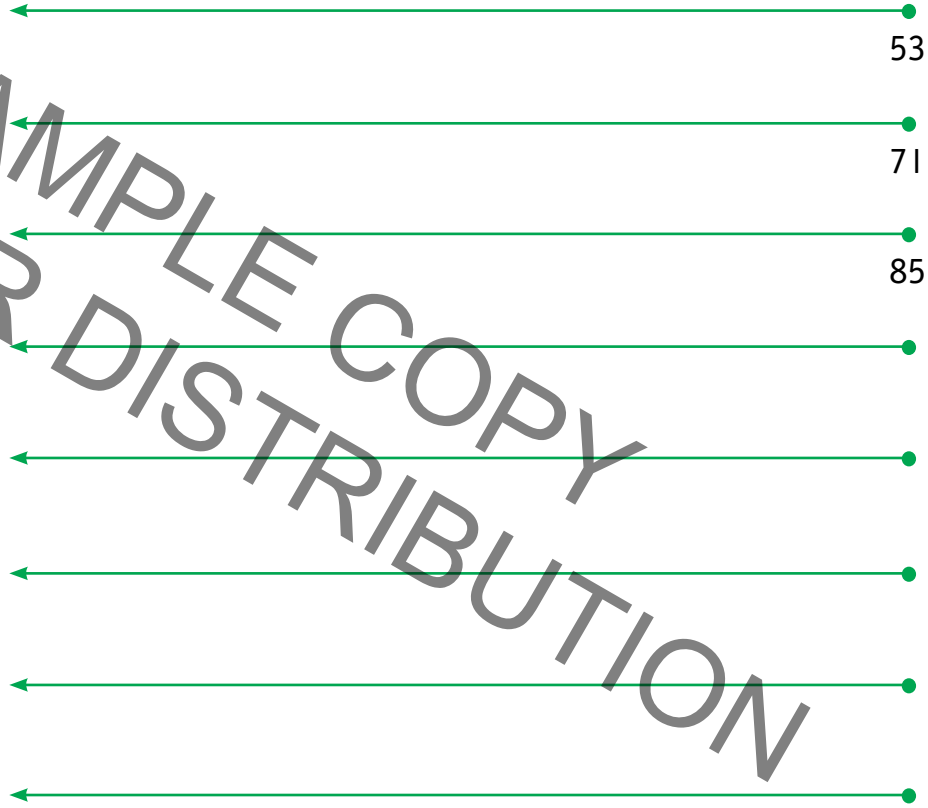
d 376 – 123 = _____

e 457 – 243 = _____

f 8,375 – 2,136 = _____

g 9,842 – 1,248 = _____

h 7,502 – 3,235 = _____






3 Jin loves olives. He had 2,473 jars in the pantry. Thieves broke in and stole 1,247 jars.

a How many did he have left? _____

b How did you work out your answer? _____

_____

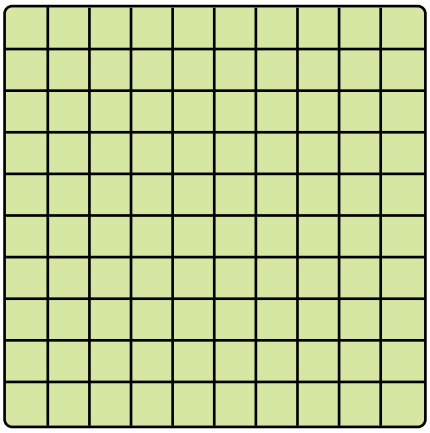
c Show another way. _____

d Which way was best? _____

e How can you check if you are correct? _____

# Subtraction from round numbers

TERM 1
Week 4



1 Use the hundred square to help.

a 100 − 56 = _____, 56 + _____ = 100

b 100 − 23 = _____, 23 + _____ = 100

c 100 − 49 = _____, 49 + _____ = 100

d 100 − 64 = _____, 64 + _____ = 100

e 100 − 11 = _____, 11 + _____ = 100

f 100 − 77 = _____, 77 + _____ = 100

2 Change from $1?


a _____ b _____ c _____ d _____ e _____

3

| | | | | |
|---|---|---|---|---|
| a 200 − 125 | b 600 − 542 | c 500 − 413 | d 400 − 320 | e 500 − 426 |
| f 300 − 23 | g 300 − 153 | h 800 − 532 | i 500 − 165 | j 900 − 506 |
| k 1000 − 144 | l 1000 − 770 | m 1000 − 238 | n 1000 − 341 | o 1000 − 21 |

## Mastery Checklist

I can:
- ☐ use a vertical algorithm to subtract
- ☐ use various strategies to subtract
- ☐ use a number line to subtract
- ☐ subtract 2, 3 and 4-digit numbers

## Work backwards

If I subtract 13 from a number, then double the answer, I get 28.

What is the number? _____





**Number** Operations: Subtracting increasingly large whole numbers; Subtraction can be carried out mentally, using known facts, place value and partitioning, or column methods; Standard written algorithms rely on place value, regrouping, and renaming

# Work backwards

Four children brought home fish for dinner. Tam caught the smallest fish, 25 cm shorter than Grace's. Grace's fish was 10 cm longer than Teddy's. Teddy's fish was 12 cm longer than Harry's fish, which was 25 cm long. How long were the other fish?

Harry → Teddy → Grace → Tam

Harry's fish = 25 cm

Teddy's fish = 25 + 12 = _____

Grace's fish = _____

Tam's fish = _____

**Check backwards:** 22 + 25 – _____ – _____ = _____ cm = Harry's fish

1 The temperature in Tauranga on Wednesday was 5 degrees higher than in Wellington. Wellington was 8 degrees cooler than Rotorua, which was 2 degrees hotter than Hamilton. Hamilton's temperature was 24 degrees, so what temperatures were reported at the other towns?

Hamilton = _____

Rotorua = _____

Wellington = _____

Tauranga = _____

2 In the maths test, Dee gained a better score than last week, but still 10 less than Kay. Kay's score was 5 less than her friend, Len. Len gained 12 more than Rod, who scored 85. Whose mark was highest and what were the other's scores?

_____

_____

_____

3 Write your own problem with this ending.
*Pete's house is 32 km from school. Who lives farthest from school?*

_____

_____

_____

I can solve problems by:

☐ finding unknown amounts ☐ writing algorithms to solve a problem

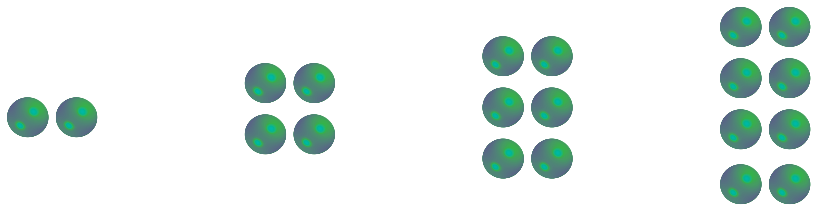
# Patterns

TERM 1
Week 5

**A**

0 4 8 12 16 20

**B**



**C**

2 5 8 11 14 17

**D**



1 a How is pattern **A** made? _____

b What are the next three numbers? _____ _____ _____

c What will the 12th number be? _____

2 Draw the next term for **B**.

3 a What is the next number in **C**? _____

b What is the rule for **C**? _____

c Will 27 be in **C**? _____ Why? _____

4 a How many squares will be in the next term for **D**? _____

b Draw it.

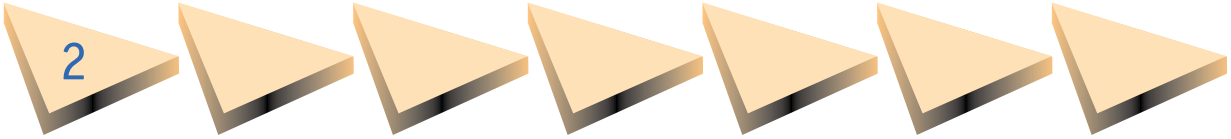


**Algebra** Equations and relationships: Recognising, continuing, and describing growing patterns (including numerical and non-numerical patterns) that change by adding, subtracting, by a constant whole number

# Patterns using shapes and numbers

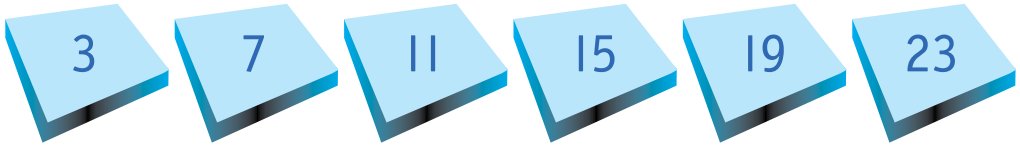


1 a Start at 2. Make a pattern by adding four.




b Start at 1. Make a pattern by adding four.


c




How was this pattern made? _____

d Each pattern rule is add 4. Why are the patterns different? _____

_____

**Look at page 24.**

2 a What is happening to change the terms in **B**? _____

b Write the pattern in numbers. _____ _____ _____

c How many spots will there be in the 10th term? _____ 14th term? _____

d Draw another pattern like **B** using triangles.

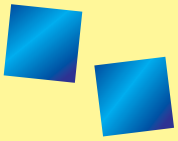
3 a What shape is used for **D**? _____

b Will the next term use a circle? _____

Why? _____

## Challenge!

How many squares will be in the 10th shape for **D**? ☐



# Patterns with numbers

TERM 1
Week 5

**1** Finish each pattern and write the rule.

**a** 2, 4, 6, 8 ____, ____, ____ Rule _____

**b** 10, 13, 16, 19 ____, ____, ____ Rule _____

**c** 30c, 25c, 20c, 15c ____, ____, ____ Rule _____

**d** 20 cm, 30 cm, 40 cm, 50 cm ____, ____, ____ Rule _____

**e** 1, 10, 19, 28 ____, ____, ____ Rule _____

**f** 1, 2, 4, 8 ____, ____, ____ Rule _____

**g** 48, 42, 36, 30 ____, ____, ____ Rule _____

**h** 2, 9, 16, 23 ____, ____, ____ Rule _____

**i** $\frac{1}{5}$, $\frac{2}{5}$, $\frac{3}{5}$, $\frac{4}{5}$ ____, ____, ____ Rule _____

**j** 39, 35, 31, 27 ____, ____, ____ Rule _____



**2** **a** Start with 20. Make a pattern by adding 4.


**b** Start with 86. Make a pattern by taking away 10.


**c** Write the instructions for this pattern. _____

_____


## Looking for patterns

Finish this pattern. 1, 3, 7, 15, ☐ ☐

What did you do? ☐

**Mastery Checklist** I can:

- ☐ work out the rule for a number pattern
- ☐ continue patterns
- ☐ follow a rule to make a number pattern



**Algebra** Equations and relationships: Recognising, continuing, creating, and describing growing patterns (including numerical patterns) that change by adding, subtracting, or multiplying by a constant whole number

# Frog jumps

Froggy jumps by **twos** to visit Ducky. He jumps to lily pad **2**, then **4** and so on until he gets there.

Froggy's jumps: **2, 4, 6** _____ How many jumps? _____

Next, Froggy jumps by **fours** from Ducky to the flies for a snack, starting at **12**.

Froggy's jumps: **12** _____ How many jumps? _____

Now Froggy jumps by **fives** from the flies to visit his mum, starting at **5**.

Froggy's jumps: **5** _____ How many jumps? _____

Make up your own pattern for Froggy's next set of jumps.

_____




I can solve problems by:

☐ completing patterns by adding ☐ describing the patterns I see

# Checkpoint 1

**1** Which number completes the pattern?

Shade one bubble.

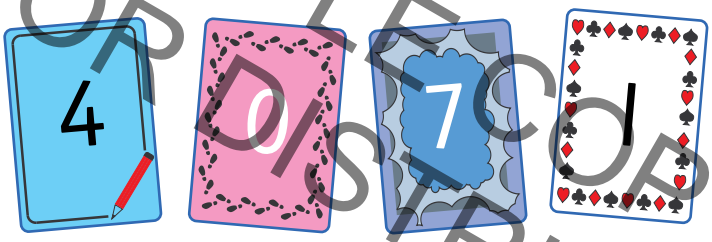

1,228 ○ 1,282 ○ 1,238 ○ 1,283 ○

**2**

| | + 1 | + 10 | + 100 | + 1,000 |
|---|---|---|---|---|
| 7,832 | | | | |
| 2,950 | | | | |
| 6,104 | | | | |

**3** Using all four cards, what is the smallest number you can make?

Shade one bubble.



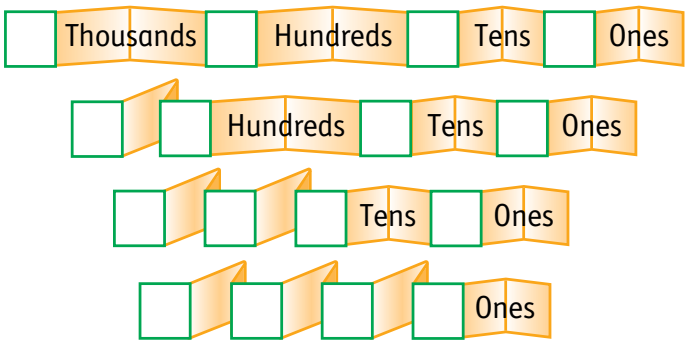

7,140 ○ 4,017 ○ 1,047 ○ 1,470 ○

**4** Which number is closest to 500?

475 ○ 520 ○ 560 ○ 490 ○

**5** Fill in 5,479.

Write your answers in the boxes.



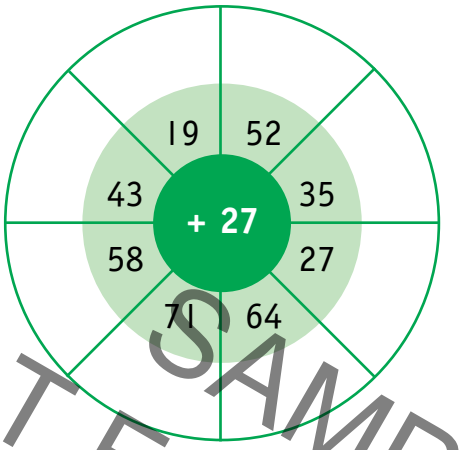
# Checkpoint 1

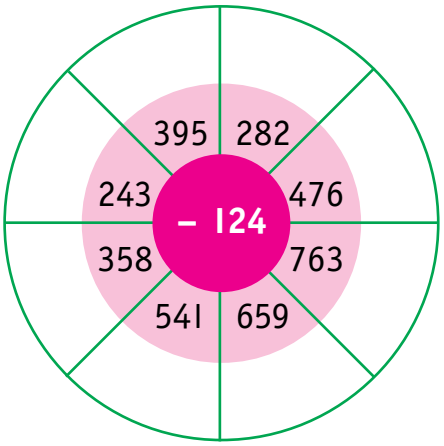
**6** Which number is 356 rounded to the closest ten?

Shade one bubble.

360 ○ 350 ○ 400 ○ 355 ○

**7**





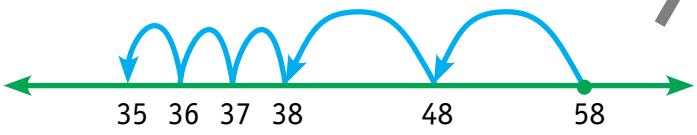

**8** Write the algorithm and calculate the answer.

7,248 + 1,309

| Th | H | T | O |
|---|---|---|---|
| | | | |
| + | | | |
| | | | |

**9** Which operation does this number line show?

Shade one bubble.




58 + 23 ○ 35 – 23 ○ 58 – 23 ○ 38 – 3 ○

**10** Write the addition and subtraction facts.

Write your answers in the boxes.

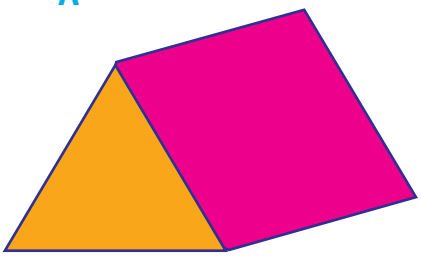
□ + □ = □ □ + □ = □

□ – □ = □ □ – □ = □

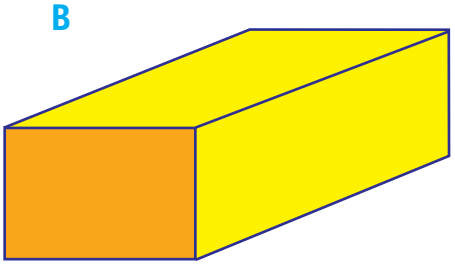
# Prisms



A



B

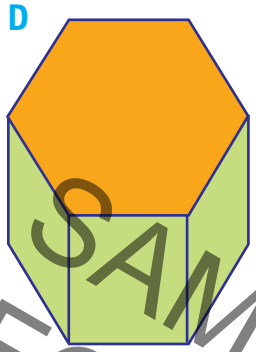


**Prisms:**

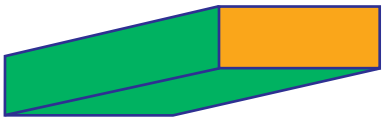
- **have two matching ends**
- **all other faces are rectangles**
- **are named by the shape of the matching ends.**

C

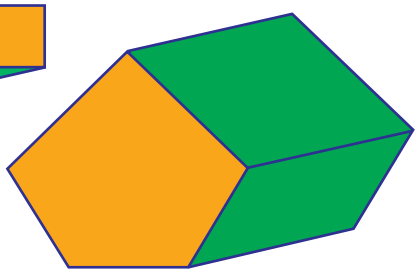
D



E



F





1 Name the shape of each orange face (end).

A _____ B _____

C _____ D _____

E _____ F _____

2 Use the orange face name (end) to name each prism.

A Triangular prism B _____

C _____ D _____

E _____ F _____

3 How many faces and ends does each prism have? Remember that you can't see them all.

A _____ B _____ C _____

D _____ E _____ F _____

4 What shape are all the faces that aren't ends? _____

5 What is a prism? _____

_____

_____

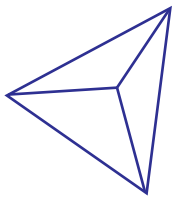
_____

# Pyramids

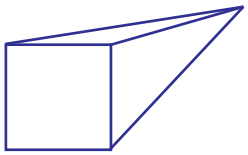


**1** Name these pyramids.

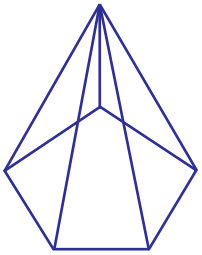
**a**



**b**



**c**



_____ _____ _____

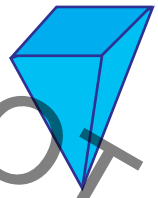
_____ _____ _____

**Pyramids:**

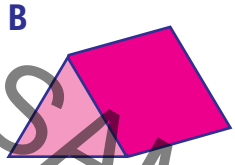
- **have one base and all other faces are triangles**
- **are named by the shape of the base.**

**2** Circle the pyramids. Draw a square around the prisms.

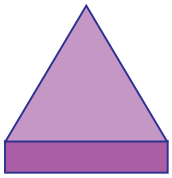
**A**



**B**

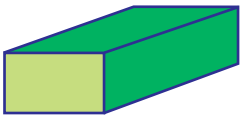


**C**



**D**

**E**



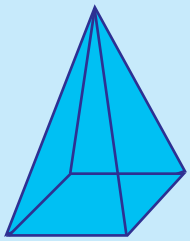
**a** How many faces has shape **D**? _____

**b** How many faces has shape **A**? _____

**c** Which picture shows a square pyramid? _____

**d** Which picture shows a rectangular prism? _____

**3** Draw each face.



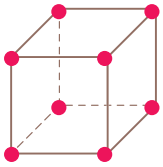
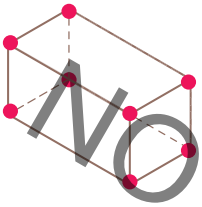
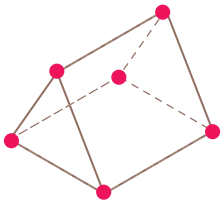
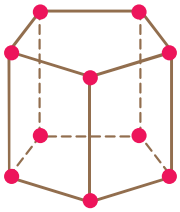
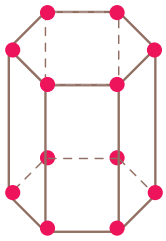
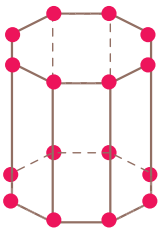
**Challenge!** How many everyday items can you name that are pyramid-shaped or triangular prisms?

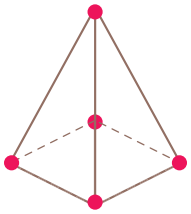
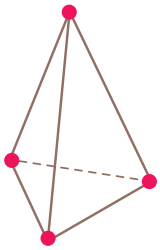
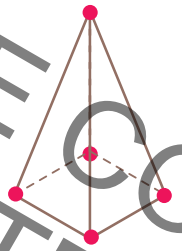
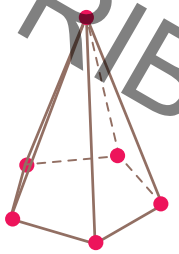
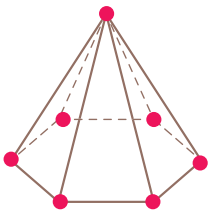
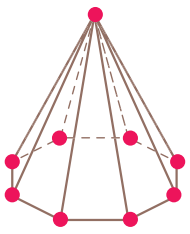
# Constructing 3D objects



build
3D objects

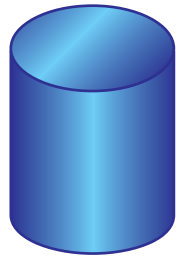
Use clay and small pieces of sticks or straws to construct the 3D objects. Then write how many faces, edges and corners.

| Prism | Faces | Edges | Corners |
|---|---|---|---|
|  | 6 | 12 | 8 |
|  | | | |
|  | | | |
|  | | | |
|  | | | |
|  | | | |

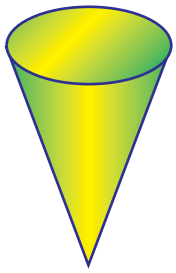
| Pyramid | Faces | Edges | Corners |
|---|---|---|---|
|  | 5 | 8 | 5 |
|  | | | |
|  | | | |
|  | | | |
|  | | | |
|  | | | |

# Cones, cylinders and spheres

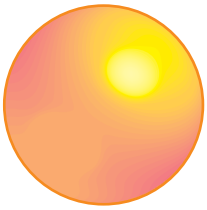




cylinder



cone



sphere

1 Name three things that are cylinders.

a _____ b _____ c _____

2 Name three things that are cones.

a _____ b _____ c _____

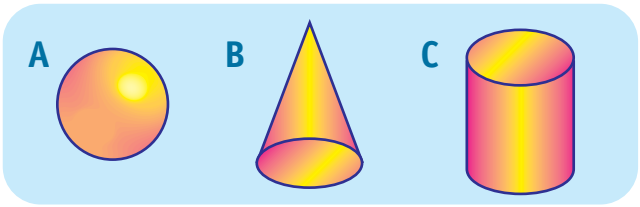
3 Name three things that are spheres.

a _____ b _____ c _____

4 Which object above can be most easily stacked? _____

Why? _____

5




Am I **A**, **B** or **C**?

a I have 1 curved surface and 1 flat surface. _____

b I have only 1 surface. _____

c I have 2 flat surfaces and 1 curved surface. _____

6 How many surfaces has **A**? _____ **B**? _____ **C**? _____



**Mastery Checklist** I can:

- ☐ describe the features of prisms
- ☐ describe the features of pyramids
- ☐ make prisms and pyramids
- ☐ describe the features of cones, cylinders and spheres

# How can you make prisms?

1 Write the time when you start this page, using 'to' or 'past'. _____

2 Make a prism. Choose from the following ways.
Use pattern blocks.
Use paper.
Use clay or another solid material.

build a prism

3 Describe what you did and how you did it. Draw it.

_____

_____

_____

_____

_____

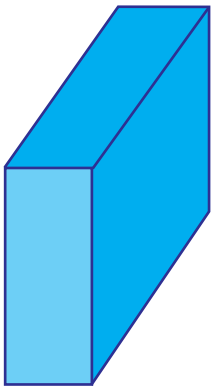
_____

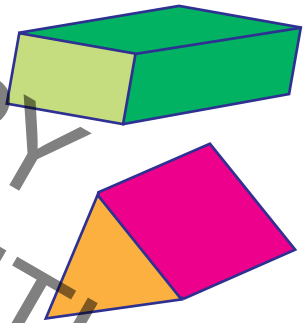
_____

_____



4 Draw your prism from a different view.





5 What did you find out about prisms?

_____

_____

6 Write the time when you finished working on this page. _____

How long were you working on this page? _____

I can investigate by:

☐ understanding properties of prisms ☐ drawing prisms from different views



**Geometry** Spatial reasoning: Visualising 3D shapes and connecting them with 2D diagrams, verbal descriptions, and the same shapes drawn from different perspectives;
**Measurement** Measuring: Measuring duration

# Change from a dollar






Kai has $1 to spend on a snack at the fun fair. Draw two different combinations of change Kai could get if he buys these things.

1

| Purchase | Change |
|---|---|
| a candy floss | 20 20 or 10 10 10 10 |
| b toffee apple | |
| c donut | |
| d hot dog | |
| e drink | |
| f pretzel | |
| g ice cream | |
| h ice block | |

# Subtraction



**1** Subtract.

| | | | |
|---|---|---|---|
| **a** 17 – 9 = _____ | **b** 12 – 4 = _____ | **c** 10 – 3 = _____ | **d** 16 – 7 = _____ |
| **e** 15 – 8 = _____ | **f** 26 – 9 = _____ | **g** 18 – 12 = _____ | **h** 23 – 5 = _____ |
| **i** 19 – 7 = _____ | **j** 29 – 17 = _____ | **k** 15 – 9 = _____ | **l** 21 – 7 = _____ |

**2** **a** 15 pencils, 3 broke. How many not broken? ☐ – ☐ = ☐

**b** 29 jellybeans, 8 eaten. How many left? ☐ – ☐ = ☐

**c** 36 books, 5 torn. How many not torn? ☐ – ☐ = ☐

**d** 22 keys, 0 lost. How many keys? ☐ – ☐ = ☐

**e** 17 cakes, all eaten. How many left? ☐ – ☐ = ☐

**f** $48, $12 spent. How much left? ☐ – ☐ = ☐



**3** Write a problem for each. Then write a number sentence.

**a**


_____

_____

_____

☐ – ☐ = ☐

**b**


_____

_____

_____

☐ – ☐ = ☐

**4** Subtract.

| | | |
|---|---|---|
| **a** 797 – 80 = _____ | **b** 152 – 40 = _____ | **c** 170 – 30 = _____ |
| **d** 316 – 70 = _____ | **e** 225 – 8 = _____ | **f** 426 – 90 = _____ |
| **g** 580 – 120 = _____ | **h** 723 – 510 = _____ | **i** 691 – 270 = _____ |

**Challenge!** You have 36 lollies.

If you eat 3 every night, how many days will they last? ☐

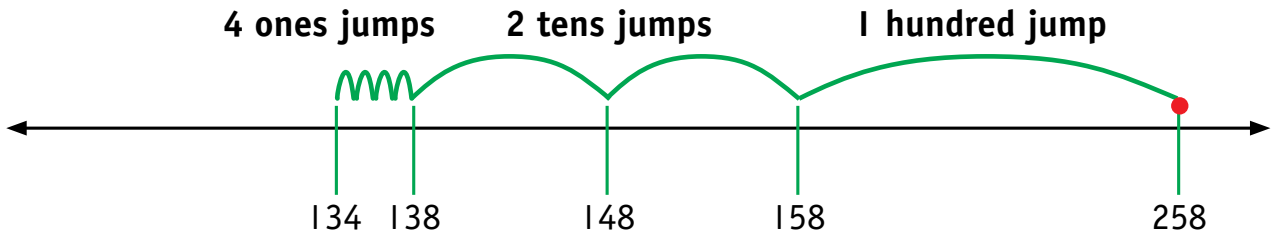
What if you ate 4 each night? ☐ Or 6 each night? ☐

# Use a number line



Look at this subtraction on the number line.

$258 - 124 = \square$




**2** Use the number lines to help you find the difference.

**a** 132 – 117 = _____

**b** 348 – 151 = _____

**c** 842 – 374 = _____

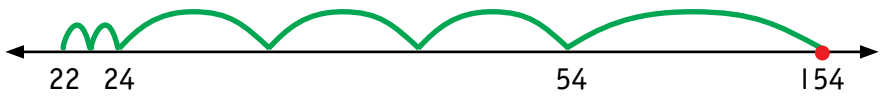
**d** 268 – 132 = _____

**e** 473 – 311 = _____



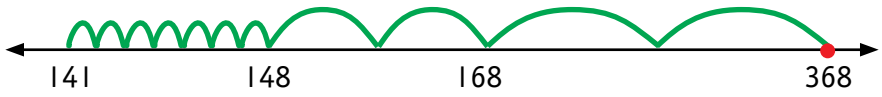
**2** Write an equation for each number line.

**a**



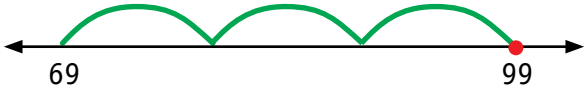

□ – □ = □

**b**




□ – □ = □

**c**




□ – □ = □

# Subtraction facts



**1** **a** 9 – 4 = 5

90 – 40 = 50

900 – 400 = 500

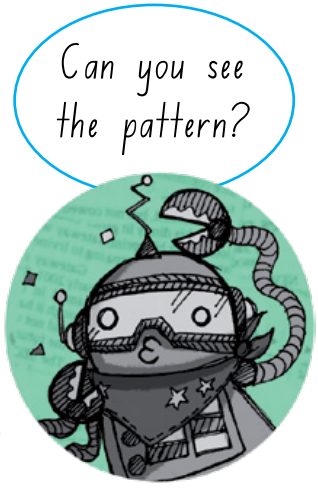
9,000 – _____ = _____

**b** 7 – 3 = _____

70 – 30 = _____

700 – 300 = _____

_____ – _____ = _____




**c** 5 – 2 = _____

_____ – _____ = _____

_____ – _____ = _____

_____ – _____ = _____

**d** 8 – 6 = _____

_____ – _____ = _____

_____ – _____ = _____

_____ – _____ = _____

**e** 9 – 8 = _____

_____ – _____ = _____

_____ – _____ = _____

_____ – _____ = _____

**f** 6 – 1 = _____

_____ – _____ = _____

_____ – _____ = _____

_____ – _____ = _____



**2** One addition fact tells us 4 things.

eg 5 + 3 = 8 3 + 5 = 8 8 – 5 = 3 8 – 3 = 5

**a** 7 + 2 = _____, _____ + _____ = _____, _____ – _____ = _____, _____ – _____ = _____

**b** 54 + 61 = _____, _____ + _____ = _____, _____ – _____ = _____, _____ – _____ = _____

**c** 133 + 254 = _____, _____ + _____ = _____, _____ – _____ = _____, _____ – _____ = _____

**d** 7,853 + 1,126 = _____, _____ + _____ = _____, _____ – _____ = _____, _____ – _____ = _____

**3** Write a problem to go with each equation, then solve the problem.

**a** 845 – 373 = _____

_____

_____

_____

**b** 9,400 – 3,271 = _____

_____

_____

_____

**Challenge!** Ari had 14 marbles. He gave 2 away and had 16 left.

What is wrong with Ari's story? _____

How many did Ari give away if he had 2 left? _____



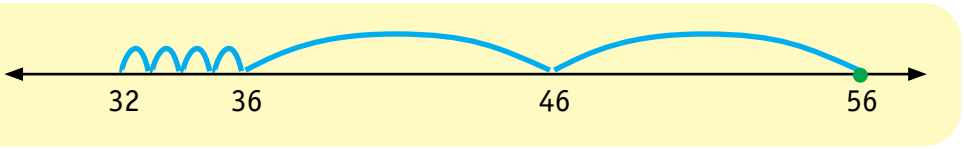
**Number** Operations: Subtracting up to four-digit numbers;
**Algebra** Equations and relationships: Recognising, continuing, growing patterns (including numerical patterns)

# Mixed subtraction

TERM 1
Week 7

1 Use a number line.

eg 56 – 24 = 32




a 75 – 31 = _____

b 389 – 107 = _____

c 6,738 – 4,708 = _____

d 2,364 – 1,043 = _____

2 a 4,208 – 2,341 = _____

$$\begin{array}{r} 4208 \\ -\ 2341 \\ \hline \phantom{0000} \end{array}$$

b 6,286 – 3,056 = _____

$$\begin{array}{r} 6286 \\ -\ 3056 \\ \hline \phantom{0000} \end{array}$$

c 7,035 – 3,652 = _____

$$\begin{array}{r} 7035 \\ -\ 3652 \\ \hline \phantom{0000} \end{array}$$

d 9,239 – 6,530 = _____

$$\begin{array}{r} 9239 \\ -\ 6530 \\ \hline \phantom{0000} \end{array}$$

e 5,787 – 1,204 = _____

$$\begin{array}{r} 5787 \\ -\ 1204 \\ \hline \phantom{0000} \end{array}$$

f 8,703 – 7,730 = _____

$$\begin{array}{r} 8703 \\ -\ 7730 \\ \hline \phantom{0000} \end{array}$$

3 Jo had 2,138 baby mice. She sold 1,452. How many did she have left? _____

4 Ali picked 149 apples. He gave 73 to his friend. How many did he keep? _____

## Trial and error

Look at page 33. If you had $3, what would you buy?

How much change would you get? ☐

_____

_____

_____

**Mastery Checklist** I can:

- ☐ subtract money
- ☐ show change
- ☐ use a number line to subtract
- ☐ write subtraction stories
- ☐ write subtraction number sentences
- ☐ make patterns with subtraction
- ☐ use a vertical subtraction method

# Addition of money



John spent $5

Ali spent $3.50

Ng spent $4.50



Mary spent $8.10


Cario

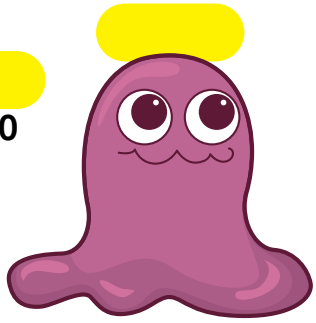
Big Ears



Flame


Tum Tum


Toot



Blobby

Big Ice



Gurk

1 Which two toys did each child buy?

a John _____

b Ali _____

c Ng _____

2 How much change will they each get from a $5 note?

a John _____ b Ali _____

c Ng _____

3 Which 3 toys did Mary buy?

_____

4 How much change did she get from a $10 note?

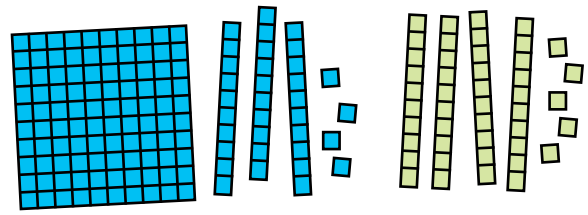
_____

# Addition to 3 digits



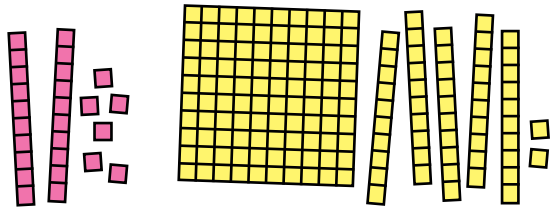
**1** How many in each group? Find the total.

**a**



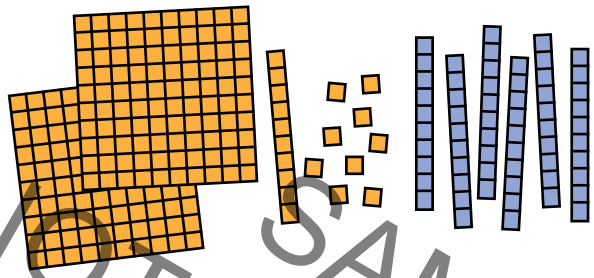
_____ + _____ = _____

**b**



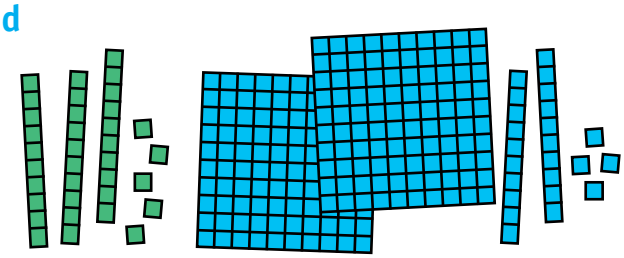
_____ + _____ = _____

**c**



_____ + _____ = _____

**d**



_____ + _____ = _____



**2** **a** 173 + 16 = _____

**b** 231 + 45 = _____

**c** 127 + 150 = _____

**d** 284 + 115 = _____

**e** 353 + 125 = _____

**f** 126 + 472 = _____

**3** **a**
$$\begin{array}{r} 355 \\ +\ 2\square 6 \\ \hline \square 91 \\ \hline \end{array}$$

**b**
$$\begin{array}{r} 2\square 7 \\ +\ 634 \\ \hline \square 7\square \\ \hline \end{array}$$

**c**
$$\begin{array}{r} \square\square\square \\ +\ 241 \\ \hline 999 \\ \hline \end{array}$$

**d**
$$\begin{array}{r} 125 \\ +\ 8\square\square \\ \hline 1\square 16 \\ \hline \end{array}$$

**4** Match each to its answer.

**a** 172 + 27

**c** 35 + 243

**e** 41 + 146

278 199 289 296 379 187

**b** 283 + 13

**d** 333 + 46

**f** 49 + 240


**Challenge!** Can you buy all the toys on page 94 with $20? Use a calculator.

# Bar model for addition

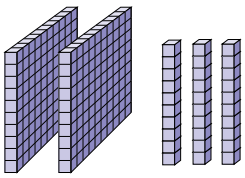
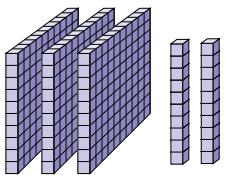
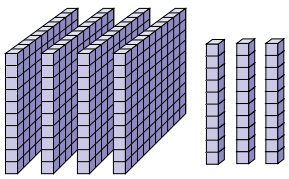
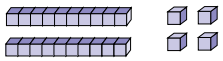
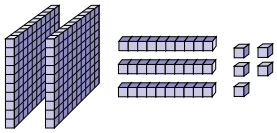
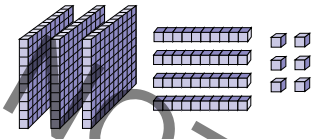
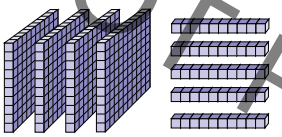
TERM 1
Week 8

| Problem | Bar model | Equation |
|---|---|---|
| 1 Nullah counted crabs at the beach. He counted 75 crabs on Monday. After he counted some more on Tuesday, he had counted 139 crabs altogether. How many crabs did Nullah count on Tuesday? | 75 \| ?<br>139<br>? = 64 | 75 + 64 = 139 |
| 2 Kylie saw 134 lizards on her hike, before lunch. Then after lunch she saw 127 more. How many lizards did she see altogether? | 134 \| 127<br>?<br>? = _____ | _____ + _____ = _____ |
| 3 Nellie counted 22 tuatara paintings, Kirra counted 36 kea paintings and Maali counted 38 kiwi paintings. How many paintings did they see altogether? | 22 \| 36 \| 38<br>?<br>? = _____ | _____ + _____ + _____ = _____ |
| 4 Kai picked 239 berries on Saturday. He picked more berries on Sunday but forgot to count them. He had 529 berries altogether. How many berries did he pick on Sunday? | ? = _____ | _____ + _____ = _____ |
| 5 Amahau's family carved 3,214 pounamu in summer and 4,528 more in winter. How many pounamu did they carve altogether? | ? = _____ | _____ + _____ = _____ |

# 3 and 4-digit addition



1 Write a number sentence and the answer.

| + |  |  |  |
|---|---|---|---|
|  | 230 + 24 = 254 | | |
|  | | | |
|  | | | |
|  | | | |



2 a
$$\begin{array}{r} 264 \\ +\ 124 \\ \hline \\ \hline \end{array}$$

b
$$\begin{array}{r} 417 \\ +\ 381 \\ \hline \\ \hline \end{array}$$

c
$$\begin{array}{r} 181 \\ +\ 505 \\ \hline \\ \hline \end{array}$$

d
$$\begin{array}{r} 843 \\ +\ 150 \\ \hline \\ \hline \end{array}$$

e
$$\begin{array}{r} 7843 \\ +\ 156 \\ \hline \\ \hline \end{array}$$

f
$$\begin{array}{r} 3278 \\ +\ 611 \\ \hline \\ \hline \end{array}$$

g
$$\begin{array}{r} 8090 \\ +\ 103 \\ \hline \\ \hline \end{array}$$

h
$$\begin{array}{r} 5438 \\ +\ 250 \\ \hline \\ \hline \end{array}$$

i
$$\begin{array}{r} 8043 \\ +\ 1715 \\ \hline \\ \hline \end{array}$$

j
$$\begin{array}{r} 2842 \\ +\ 5053 \\ \hline \\ \hline \end{array}$$

k
$$\begin{array}{r} 7051 \\ +\ 2028 \\ \hline \\ \hline \end{array}$$

l
$$\begin{array}{r} 5602 \\ +\ 2195 \\ \hline \\ \hline \end{array}$$

## Challenge!

Nikau drove from Auckland to Wellington, 644 km. Then he drove from Picton to Christchurch, 336 km. Finally he drove from Christchurch to Wānaka, 425 km.

How far did Nikau drive altogether from Auckland to Wānaka? ☐

If he drives back the same way, how far did he drive going there and back again? ☐

# Mental addition

TERM 1
Week 8

1 a 65 + 29 = 65 + 30 - 1 = _____

b 38 + 43 = 38 + 40 + 3 = _____

c 43 + 39 = _____ = _____

d 59 + 38 = _____ = _____

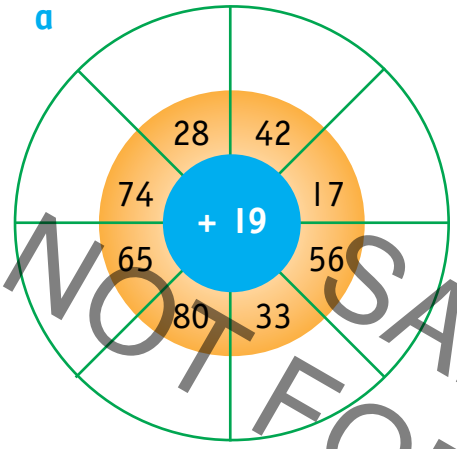
e 38 + 61 = _____ = _____

f 47 + 22 = _____ = _____

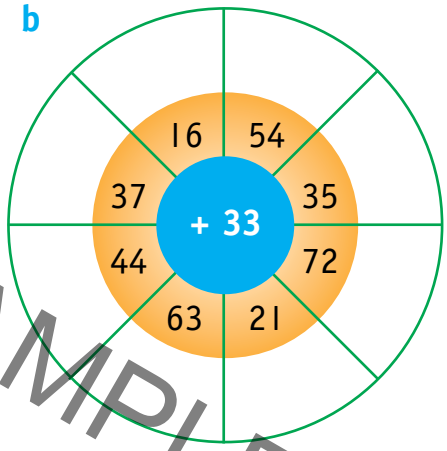
g 77 + 13 = _____ = _____

h 23 + 49 = _____ = _____

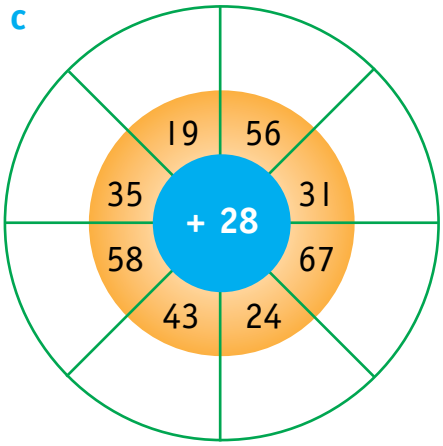
2 a




b




c




3 Estimate first.

| | Estimate | Answer | | Estimate | Answer |
|---|---|---|---|---|---|
| a 17 + 15 | | | d 28 + 13 | | |
| b 39 + 24 | | | e 51 + 37 | | |
| c 35 + 63 | | | f 46 + 29 | | |

4 Jon paid 25c for an apple, 30c for an orange and 45c for a banana.

a How much did he spend? _____

b How much change from $2? _____

## Work backwards

Look back at the toys on page 94.
Manaia spent exactly $7.20.
Which items did she buy?

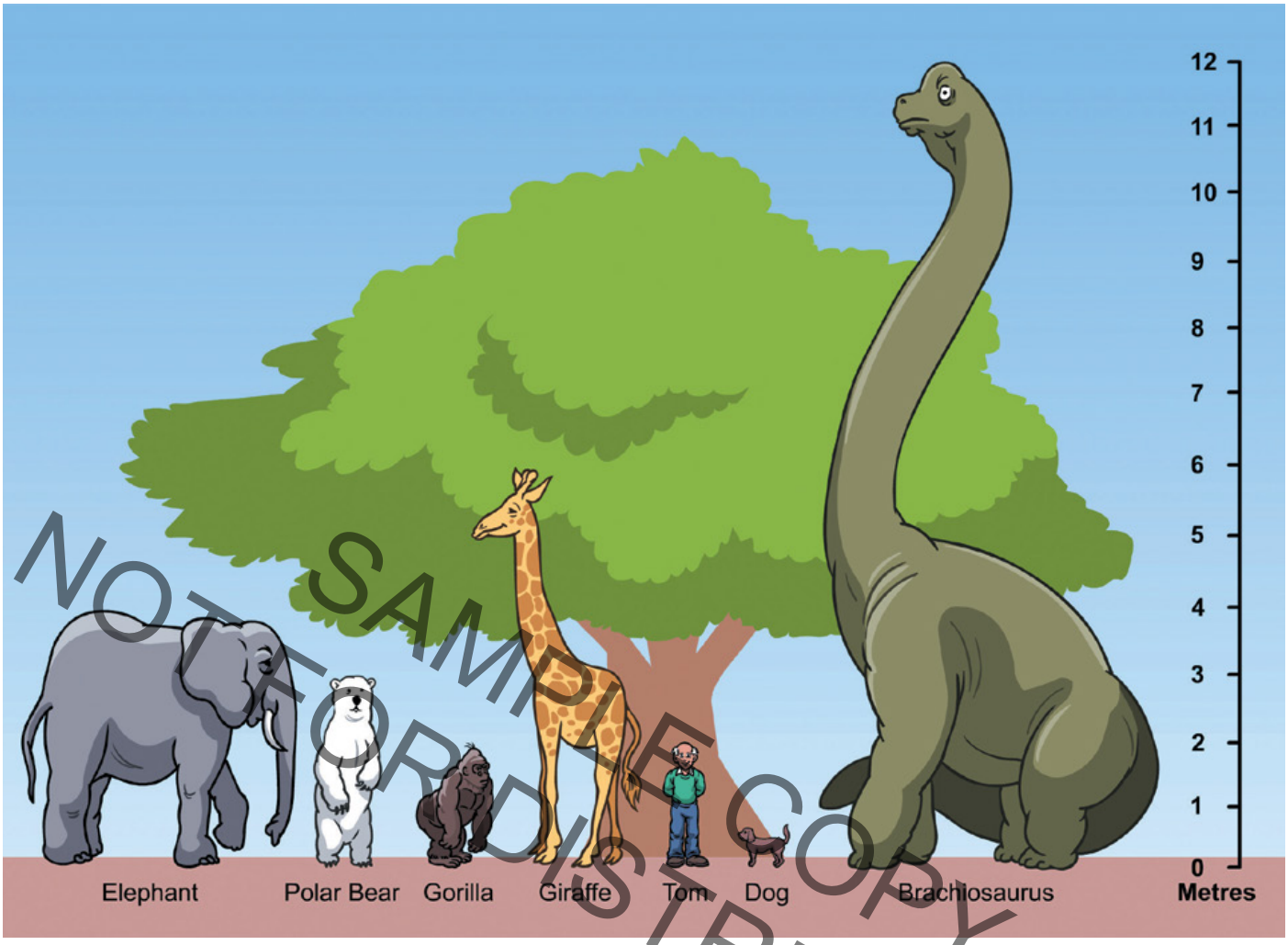
## Mastery Checklist

I can:

- ☐ add costs and work out change
- ☐ use place value blocks to add 3-digit numbers
- ☐ use algorithms to add 2, 3 and 4-digit numbers
- ☐ use a bar model to add
- ☐ regroup numbers to add mentally
- ☐ estimate answer to addition

# Metres








1 Which animal is the tallest? _____

2 Which animal is the shortest? _____

3 How tall is the giraffe? _____

4 How tall is the elephant? _____

5 How much taller is the polar bear than Tom? _____

6 How much shorter is the gorilla than the elephant? _____

7 If Tom stood on the elephant's back how high would he be? _____

8 Are all dogs the same height? _____

9 Name a tall dog _____ and a short dog. _____

10 Write the animals in order from shortest to tallest.

_____

_____

_____

# Measuring in metres and centimetres

TERM 1
Week 9

measure length in cm and m

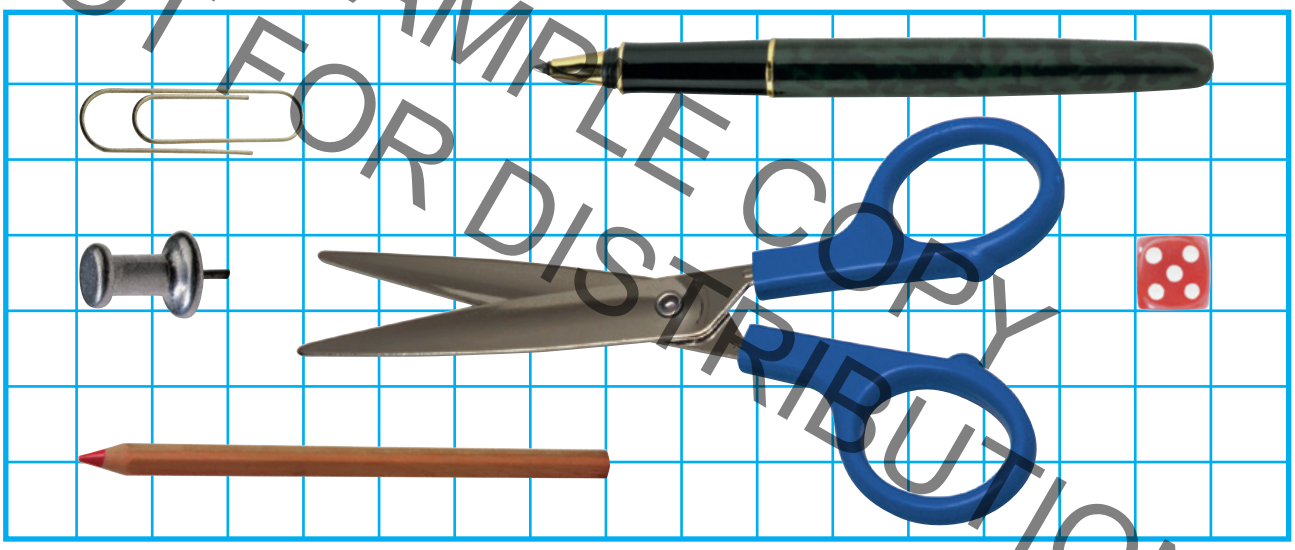
Estimate then measure the length of each item.

| | | Estimate | Measure |
|---|---|---|---|
| 1 a | length of your table | about _____ m | _____ m |
| b | length of classroom | about _____ m | _____ m |
| c | length of school corridor | about _____ m | _____ m |

| | | Estimate | Measure |
|---|---|---|---|
| 2 a | length of this book | about _____ cm | _____ cm |
| b | length of your pencil | about _____ cm | _____ cm |
| c | length of your desk | about _____ cm | _____ cm |



3



a What is the longest? _____ b What is the shortest? _____

c How long is the pen? _____ d How long is the paperclip? _____

e Which two items together are 5 cm? _____

f The pushpin is _____ cm longer than the die.

g The paperclip is _____ cm shorter than the scissors.

4 Find something in your classroom that is:

a 1 m _____ b 30 cm _____ c 2 m _____

d 10 cm _____ e 50 cm _____ f 80 cm _____



**Measurement** Measuring: Estimating and measuring length (cm and m), using tools with labelled markings and whole-number metric units; Comparing and ordering objects using whole-number metric units of length

# Measuring and estimating length



**m = metre**
**cm = centimetre**

**1** Use the number bank to complete each sentence.

**Number Bank** 1 2 4 10 30 180

**a**

The door is _____ m high.

**b**


The can is _____ cm high.

**c**

The man is _____ cm tall.

**d**

The hen is _____ cm tall.

**e**

The car is _____ m long.

**f**

The door is _____ m wide.



**2**


The bus stop sign is 1 m high.

**a** How high is the bus? _____

**b** How long is the bus? _____

**3** Use a ruler to measure these lines to the nearest cm.

**a** 

**b** 

**c** 

**d** 

**a** ☐ **b** ☐ **c** ☐ **d** ☐

# Metres



**There are 100 centimetres in 1 metre.**

**1 m = 100 cm** **$\frac{1}{2}$ m = 50 cm**

**1** If 1 centimetre on this page = 1 metre on the ground, how long is each line?

**a** _____ m

**b** _____ m

**c** _____ m

**d** _____ m

**2** Convert the lengths.

**a** 3 m = _____ cm **b** 7 m = _____ cm **c** $2\frac{1}{2}$ m = _____ cm

**d** $1\frac{1}{2}$ m = _____ cm **e** 10 m = _____ cm **f** 5 m = _____ cm

**g** $9\frac{1}{2}$ m = _____ cm **h** 9 m = _____ cm **i** $4\frac{1}{2}$ m = _____ cm

**j** 12 m = _____ cm **k** 15 m = _____ cm **l** $18\frac{1}{2}$ m = _____ cm




**3** What is the difference in length between the:

**a** pink ribbon and the red ribbon? _____

**b** longest and the shortest ribbons? _____

**c** yellow ribbon and the red ribbon? _____

**Mastery Checklist** I can:

- ☐ compare lengths in metres, centimetres and half metres
- ☐ find the difference between lengths in m, cm and half metres
- ☐ estimate and measure lengths in m, cm and half metres
- ☐ convert lengths between centimetres, metres and half metres



**Measurement** Measuring: Using the appropriate tool for measuring length; Measuring length (cm and m) using tools with labelled markings and metric units

# Inenga roa

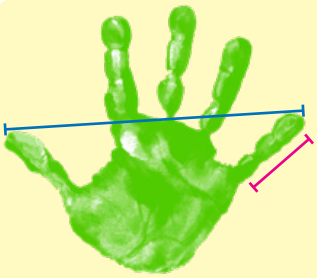
Is it more accurate to estimate using matikara or kōiti?

1 Measure your matikara on a ruler:

_____ cm

2 Measure the lengths below in matikara. Use fractions if needed.

3 Based on the number of matikara, estimate these lengths in centimetres.



**matikara:** from tip of thumb to tip of little finger on outspread fingers

**kōiti:** length of the little finger

| | 2 Estimate in matikara. | 3 Estimate in cm. | 4 Measure in cm. | 5 ✓ |
|---|---|---|---|---|
| a width of your desk | | | | |
| b height of your desk | | | | |
| c length your desk | | | | |

4 Measure the same lengths with a ruler.

5 Tick the estimates that were within 2 cm of the true measurement.

6 Measure your kōiti on a ruler: _____ cm

7 Measure the lengths below in kōiti . Use fractions if needed.

8 Based on the number of kōiti , estimate these lengths in centimetres.

| | 7 Estimate in kōiti. | 8 Estimate in cm. | 9 Measure in cm. | 10 ✓ |
|---|---|---|---|---|
| a width of your desk | | | | |
| b height of your desk | | | | |
| c length your desk | | | | |

9 Copy the measurements from the table above.

10 Tick the estimates within 2 cm.

11 a Which is more accurate? Which did you get more ticks for: matikara or kōiti?

b Why do you think this is?

_____

_____

I can investigate by:

☐ using inenga roa ☐ measuring with a ruler

# Checkpoint 2

**1** Order from smallest to largest. p 2

9,390 9,309 9,399 9,319 9,380 9,331

_____ _____ _____ _____ _____ _____

**2** What is the value of the underlined number? p 5

**a** 5,7<u>8</u>2 _____

**b** <u>9</u>,603 _____

**3** Use the numerals 6, 7, 8, 9 to write a number with: p 5

**a** 6 in the hundreds place. _____

**b** 9 in the ones place. _____

**c** 7 in the thousands place. _____

**4** Write each number in words. p 7

**a** 1,042 _____

_____

**b** 7,932 _____

_____

**c** 8,650 _____

_____

**5** Round to the nearest hundred. p 8

**a** 468 _____ **b** 215 _____

**6** Round to the nearest thousand. p 8

**a** 4,695 _____ **b** 2,398 _____

**7** Write 'is less than' or 'is more than'. p 9

**a** 479 _____ 749

**b** 1,280 _____ 1,820

**c** 1,005 _____ 1,500

**d** 3,600 _____ 3,006

**8** 7,426 is the same as: p 10

**a** _____ tens _____ ones

**b** _____ hundreds _____ tens _____ ones

**c** _____ thousands _____ ones

**9** Double: **a** 7 _____ **b** 19 _____ p 13

**10** What must be added to make 100? p 14

63 + _____ = _____

**11** Fill in the boxes. p 14

**a**
$$\begin{array}{r} 2\square \\ +\ 5\ 4 \\ \hline \square\ 9 \\ \hline \end{array}$$

**b**
$$\begin{array}{r} \square 2 \\ +\ 3\ 4 \\ \hline 7\ \square \\ \hline \end{array}$$

**c**
$$\begin{array}{r} 6\ 4 \\ +\ \square\square \\ \hline 7\ 8 \\ \hline \end{array}$$

**12** p 14

**a**
$$\begin{array}{r} 1\ 7\ 4 \\ +\ 1\ 1\ 3 \\ \hline \end{array}$$
_____

**b**
$$\begin{array}{r} 3\ 8\ 3 \\ +\ 2\ 1\ 5 \\ \hline \end{array}$$
_____

**c**
$$\begin{array}{r} 4\ 6\ 0 \\ +\ 3\ 3\ 7 \\ \hline \end{array}$$
_____

**13** p 16

**a**
$$\begin{array}{r} 4\ 7\ 3\ 1 \\ +\ 3\ 4\ 5\ 7 \\ \hline \end{array}$$
_____

**b**
$$\begin{array}{r} 3\ 2\ 9\ 8 \\ +\ 6\ 5\ 0\ 1 \\ \hline \end{array}$$
_____

**14** Write the next two rows. p 17

48 – 13 = 35

58 – 13 = 45

68 – 13 = 55

_____

_____

**15** Complete: p 18

| | 49 | 53 | 50 | 56 | 54 |
|---|---|---|---|---|---|
| –47 | | | | | |
| –39 | | | | | |

**16** Use the number lines. p 19

**a** 32 – 17 = _____

**b** 624 – 325 = _____

# Checkpoint 2

**17** Write the next two terms and the rule. p 24

a 5 8 11 14 17 _____ _____

Rule _____

b 20 25 30 35 _____ _____

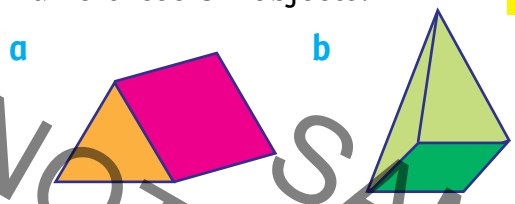
Rule _____

c 63 58 53 48 _____ _____

Rule _____

**18** Name these 3D objects. p 28 & 29

a b



_____ _____

_____

**19** How many faces has: p 30

a a cube? _____ b a triangular pyramid? _____

**20** What am I? p 31

a I curved surface _____

b 4 triangular faces _____

**21** Write the coins to make the amounts. p 33

a 80c _____

b $2.40 _____

c $7.10 _____

**22** Complete. p 33

a

| + | $6 | $1 | $21 | $2.20 | $1.10 | 40c |
|---|---|---|---|---|---|---|
| $6 | | | | | | |

b

| − | $1 | $3.70 | $1.90 | 80c | $5 | $7 |
|---|---|---|---|---|---|---|
| 70c | | | | | | |

**23** Use the number line. p 35

872 − 346 = _____



**24** Write three more facts. p 36

20 − 13 = 7 _____ − _____ = _____

_____ + _____ = _____

_____ + _____ = _____

**25** My frog jumped 58 cm. p 37

Thea's frog jumped 37 cm.

What was the difference? _____

**26** p 37

a

$$\begin{array}{r} 7894 \\ -\ 3452 \\ \hline \end{array}$$

b

$$\begin{array}{r} 9265 \\ -\ 6717 \\ \hline \end{array}$$

**27** Sam had $5. He bought one chocolate for $3.20 and one lollipop for 60c. p 38

a How much did he spend? _____

b How much change did he get? _____

**29** p 40

| 64 | ? |
|---|---|
| 102 | |

? = _____

**30** Circle the correct answer. p 45

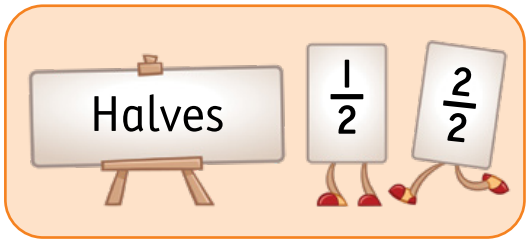
a A door is about 2 cm 2 m high.

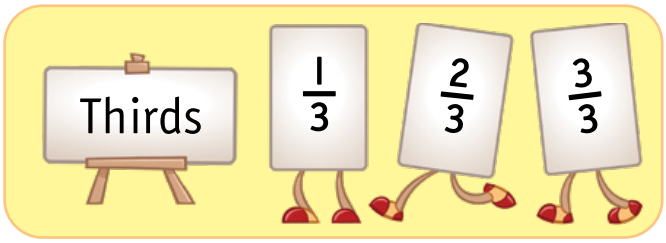
b A book cover is about 20 cm 1 m wide.

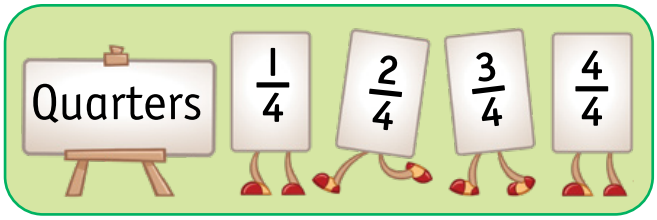
c A bedroom is about 50 m 4 m long.

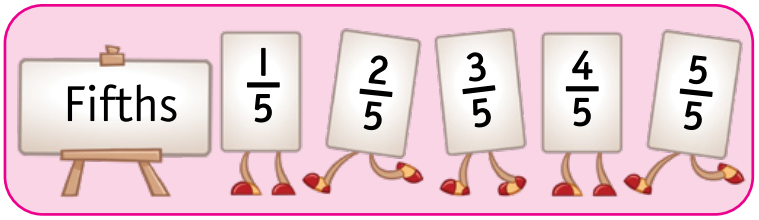
# Fractions in a line

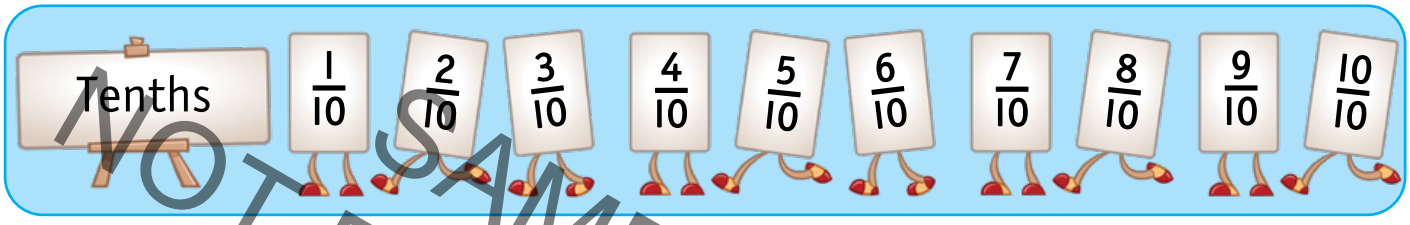







**1** Write each set of fractions in order, smallest to largest.

**a** $\frac{1}{4}, \frac{3}{4}, \frac{2}{4}, \frac{4}{4}$

**b** $\frac{3}{3}, \frac{1}{3}, \frac{2}{3}$

**c** $\frac{1}{5}, \frac{2}{5}, \frac{3}{5}, \frac{5}{5}, \frac{4}{5}$

**d** $\frac{1}{10}, \frac{9}{10}, \frac{3}{10}, \frac{2}{10}, \frac{4}{10}, \frac{5}{10}, \frac{6}{10}, \frac{7}{10}, \frac{8}{10}, \frac{10}{10}$

**e** $\frac{3}{5}, \frac{2}{5}, \frac{1}{5}, \frac{4}{5}$

**f** $\frac{2}{2}, \frac{1}{2}$

**2** Colour the fraction. Then write and colour a smaller fraction.

**a** $\frac{4}{5}$

**b** $\frac{5}{10}$

**c** $\frac{3}{4}$

**d** $\frac{2}{3}$

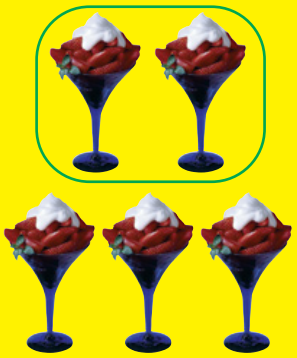
# Fraction names



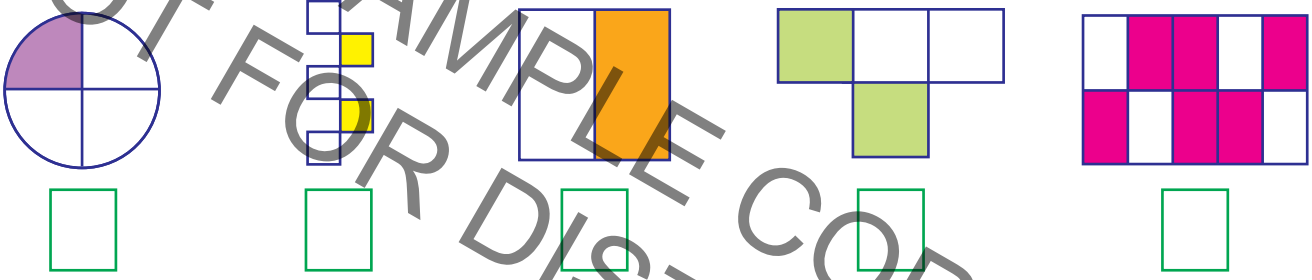
**1** Match.

| | | |
|---|---|---|
| $\frac{2}{10}$ | 2 out of 3 equal parts | four-fifths |
| $\frac{2}{3}$ | 2 out of 10 equal parts | two-thirds |
| $\frac{4}{5}$ | 3 out of 4 equal parts | two-tenths |
| $\frac{3}{4}$ | 4 out of 5 equal parts | three-quarters |

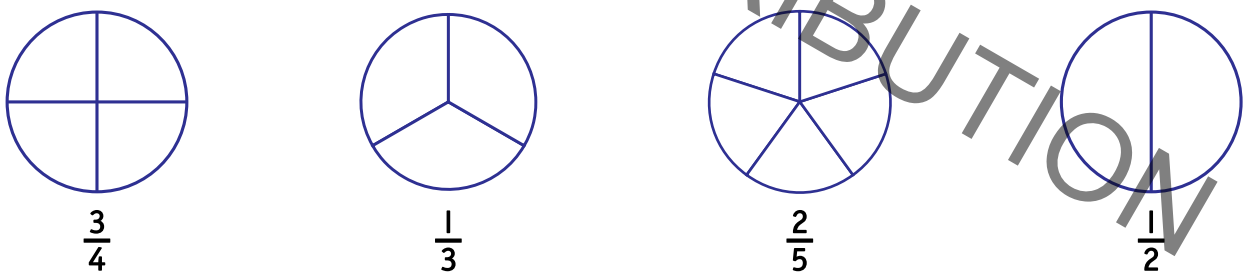
$\frac{2}{5}$ = numerator
$\frac{2}{5}$ = denominator
This means 2 equal parts out of 5.



**2** Write the fraction coloured.



**3** Colour to match the fraction.



$\frac{3}{4}$ $\frac{1}{3}$ $\frac{2}{5}$ $\frac{1}{2}$

**4** Write the fractions from question 3 in order from smallest to largest.

**5** Draw a diagram to show:

$\frac{4}{5}$

$\frac{3}{10}$

# Unit fractions

TERM 2
Week 1

**1** Colour and complete.

**a** Colour one half.

1 out of 2 = $\frac{1}{2}$

**b** Colour one third.

1 out of _____ = $\frac{1}{3}$

**c** Colour one quarter.

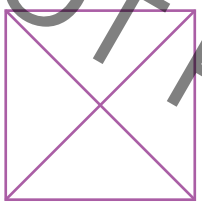
1 out of _____ = $\frac{1}{4}$

**d** Colour one fifth.

_____ out of 5 = $\frac{1}{5}$

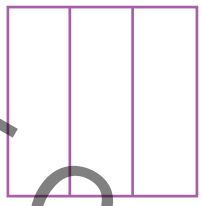
**2** Colour the fractions. Then order the fractions from smallest to largest.

**a** $\frac{1}{4}$

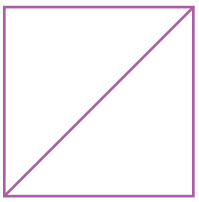


**b** $\frac{1}{5}$

**c** $\frac{1}{3}$



**d** $\frac{1}{2}$



smallest _____ _____ _____ largest

**3** Circle the larger fraction in each pair.

**a** $\frac{1}{2}$ $\frac{1}{3}$

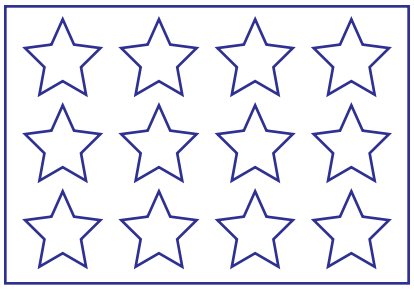
**b** $\frac{1}{5}$ $\frac{1}{4}$

**c** $\frac{1}{4}$ $\frac{1}{3}$

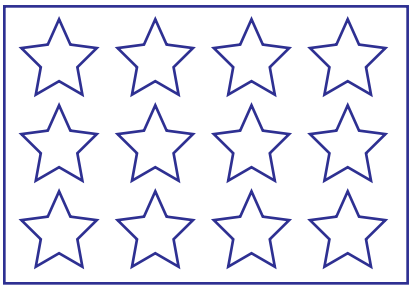
**d** $\frac{1}{2}$ $\frac{1}{4}$

**4** **a** Colour the correct fractions.

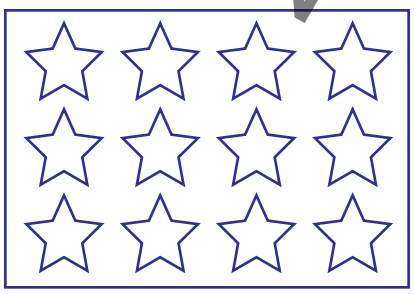
$\frac{1}{3}$



$\frac{1}{4}$



$\frac{1}{2}$



**b** Order the fractions of the group of 12 stars from smallest to largest. _____ _____ _____

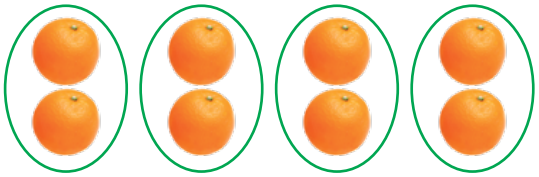
**5** **a** The denominator of the fraction tells how many _____.

**b** As the denominator gets bigger, the fraction gets _____.

# Fractions of a group

TERM 2
Week 1

We can make a fractional part of a group by dividing it into smaller equal groups.
$\frac{1}{4}$ means one of four equal parts. Eg $\frac{1}{4}$ of 8 is the same as 8 divided by 4.



$\frac{1}{4}$ of 8 is 2

**1** What is one-quarter of:

**a** 8 mangoes? _____

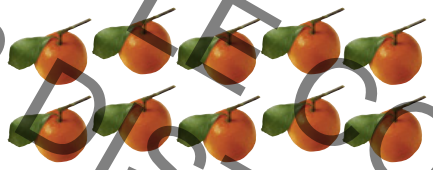
**b** 12 peas? _____

**c** 16 mushrooms? _____

**2** What is one-fifth of:

**a** 5 chillies? _____

**b** 10 oranges? _____



**c** 15 pumpkins? _____

**3** Draw.

**a** $\frac{1}{5}$ of 10 bananas

**b** $\frac{1}{4}$ of 24 cherries

**c** $\frac{3}{4}$ of 8 apples

**4** **a** $\frac{1}{2}$ of a bunch of grapes = 10. 1 whole bunch of grapes = _____

**b** $\frac{1}{2}$ of a dozen eggs = 6. 1 whole dozen eggs = _____

**c** $\frac{1}{4}$ of a bag of sweets = 3. 1 whole bag of sweets = _____

**d** $\frac{1}{5}$ of a box of plums = 6. 1 whole box of plums = _____

**e** $\frac{1}{10}$ of a packet of biscuits = 5. 1 whole packet of biscuits = _____

## Mastery Checklist

I can:
- ☐ recognise and represent fractions in shapes, words and fraction notation
- ☐ represent and order unit fractions
- ☐ put fractions in order
- ☐ compare fractions
- ☐ work out fractions of a group

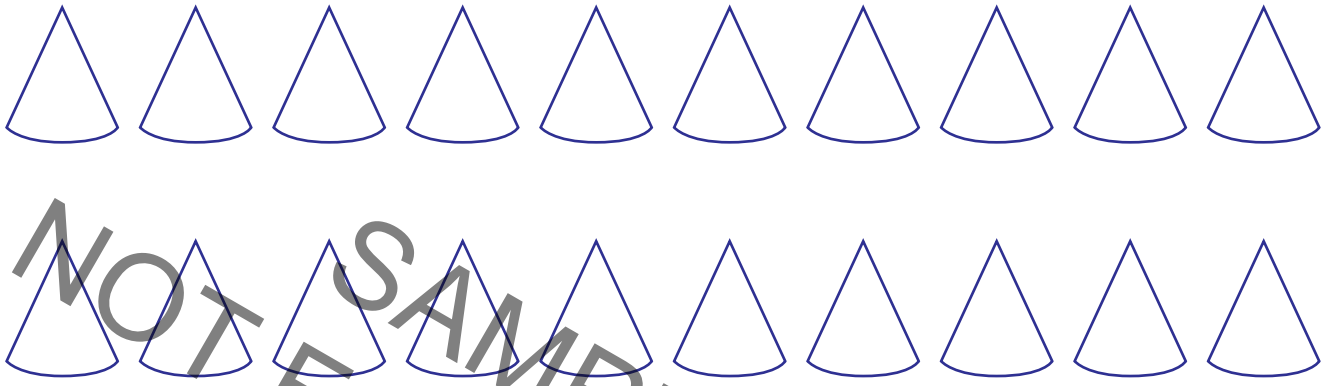
# Fractions at the party

1 There are 20 party hats to give out.

$\frac{1}{2}$ of them are red. $\frac{1}{4}$ of them are blue.

$\frac{1}{5}$ of them are green. The rest are pink.

Colour the hats correctly. Circle and label the groups with their fractions.





2 Answer true or false.

a $\frac{1}{2}$ of 20 hats is more than $\frac{1}{5}$ of 20 hats. _____

b $\frac{1}{5}$ of 20 hats is more than $\frac{1}{4}$ of 20 hats. _____

c $\frac{1}{4}$ of 20 hats is half as much as $\frac{1}{2}$ of 20 hats. _____

d $\frac{1}{2}$ is the same as $\frac{1}{5}$ of the hats and $\frac{1}{4}$ of the hats together. _____

How do you know? _____

e $\frac{1}{2}$ of the hats plus $\frac{1}{4}$ of the hats is all the hats. _____

How do you know? _____

3 Write two of your own statements about the fractions of the hats.

_____

_____

_____

_____

_____

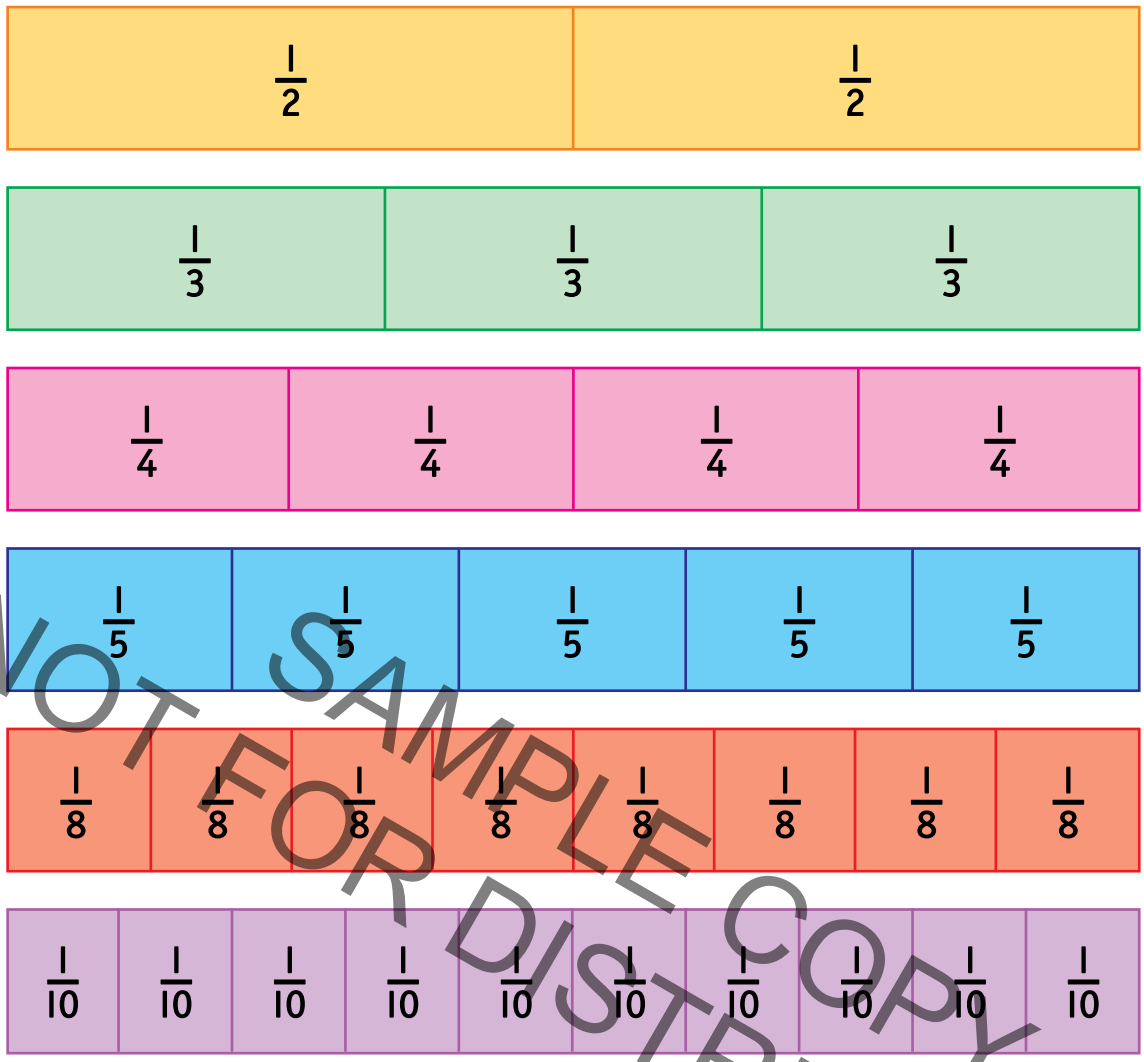
I can solve problems by:

☐ understanding fractions of an amount ☐ using diagrams

# Equivalent fractions

**equivalent** – having the same value, equal to








**1** How many in 1 whole?

**a** eighths _____ **b** fifths _____ **c** thirds _____ **d** tenths _____ **e** quarters _____

**2** How many:

**a** quarters make $\frac{1}{2}$? _____ **b** tenths make $\frac{1}{2}$? _____

**c** eighths make $\frac{1}{2}$? _____ **d** eighths make $\frac{1}{4}$? _____

**3** Find the fraction which is equivalent to:

**a** $\frac{3}{4}$ _____ **b** $\frac{2}{10}$ _____ **c** $\frac{2}{5}$ _____ **d** $\frac{6}{10}$ _____ **e** $\frac{4}{5}$ _____

**4** Answer true or false.

**a** $\frac{4}{10}$ equals $\frac{1}{5}$ _____ **b** $\frac{3}{10}$ is less than $\frac{1}{5}$ _____

**c** $\frac{7}{10}$ is more than $\frac{3}{5}$ _____ **d** $\frac{9}{10}$ is more than $\frac{4}{5}$ _____

**e** $\frac{1}{2}$ is less than $\frac{3}{5}$ _____ **f** $\frac{1}{2}$ is less than $\frac{1}{3}$ _____

# Denominators

$\frac{2}{4}$ = numerator
$\frac{2}{4}$ = denominator




The denominator 2 divides one whole into two equal parts.


The denominator 4 divides one whole into 4 equal parts.

1 $\frac{1}{4}$ is one of four parts.

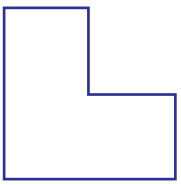
a $\frac{2}{4}$ is _____ of four parts.

b $\frac{3}{4}$ is _____ of four parts.

c $\frac{4}{4}$ is _____ of four parts.

d Are all four parts the same size? _____ Why? _____

2 a Divide this shape into thirds.



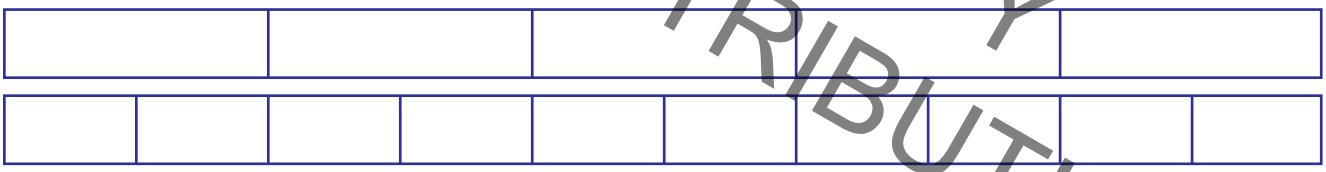
b $\frac{1}{3}$ means one of _____ parts.

c Write all the thirds in order. _____

3 a $\frac{1}{5}$ means one of _____ parts.

b Write all the fifths in order. _____

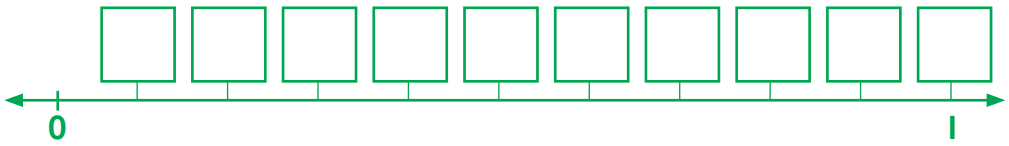
4 a Colour one fifth. b Colour an equivalent number of tenths.



c $\frac{1}{5} = \frac{\square}{10}$ d $\frac{8}{10} = \frac{\square}{5}$ e $\frac{\square}{10} = \frac{1}{2}$

5 Place these on the number line.

$\frac{1}{2}, \frac{3}{5}, \frac{7}{10}, \frac{2}{5}, \frac{2}{10}$




6 a _____ + $\frac{1}{2}$ = 1 whole

b _____ + $\frac{2}{5}$ = 1 whole

c _____ + $\frac{2}{3}$ = 1 whole

d _____ + $\frac{2}{4}$ = 1 whole

# Mixed numbers



1 What fraction is the coloured part?

a 

b 

c 

2 Draw diagrams to show the fraction.

a $\frac{1}{10}$

b $\frac{1}{5}$

c $\frac{2}{4}$

d $\frac{2}{5}$

e $\frac{3}{8}$

f $\frac{2}{2}$

**2** ← **numerator**
**3** ← **denominator**

The **denominator** tells us how many parts altogether.
The **numerator** tells us how many parts we have.

3 Draw lines and colour to show the fraction.

a $1\frac{1}{4}$

b $2\frac{1}{4}$

c $1\frac{3}{4}$

d $3\frac{1}{2}$

e $1\frac{1}{2}$

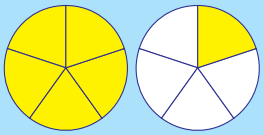
f $4\frac{1}{2}$

g $5\frac{3}{4}$

h $3\frac{2}{4}$

i $4\frac{1}{4}$

**Sometimes we have whole numbers with fractions.**



This shows 1 whole and 1 fifth.

$1\frac{1}{5}$



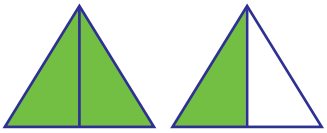
## Draw a diagram

Draw a diagram to show $5\frac{3}{8}$. How many eighths altogether?

# Improper fractions

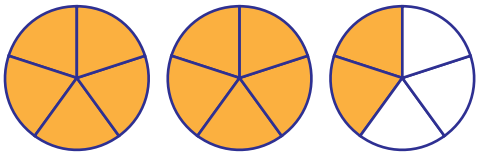


**1** How many parts coloured altogether?

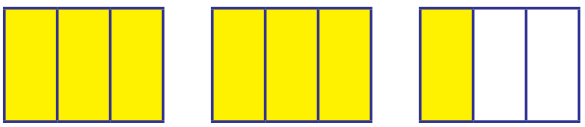


**a** _____ halves = $\frac{\square}{2}$

**b** _____ quarters = $\frac{\square}{4}$



**c** _____ fifths = $\frac{\square}{5}$



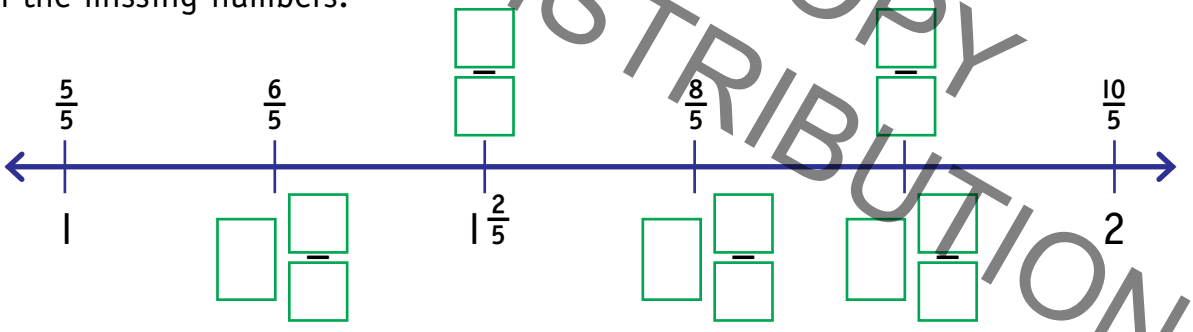
**d** _____ thirds = $\frac{\square}{3}$



**2** Write the mixed numbers from above.

**a** $\square\frac{\square}{\square}$ **b** $\square\frac{\square}{\square}$ **c** $\square\frac{\square}{\square}$ **d** $\square\frac{\square}{\square}$

**3** Fill in the missing numbers.




**4** Complete.

**a** $1\frac{2}{10} = \frac{\square}{10}$ **b** $2\frac{1}{2} = \frac{\square}{2}$

**c** $3\frac{2}{3} = \frac{\square}{3}$ **d** $\frac{8}{6} = \square\frac{\square}{6}$

**e** $\frac{10}{4} = \square\frac{\square}{4}$ **f** $\frac{13}{5} = \square\frac{\square}{5}$

**Mastery Checklist** I can:
- ☐ represent fractions in their simplest form
- ☐ represent mixed numbers and improper fractions
- ☐ convert between mixed numbers and improper fractions

# Double or half recipes

1 This recipe makes 20 muffins. You need 40 muffins. Write a new list of ingredients using doubling.

**Ingredients for 20 muffins**

- $3\frac{1}{2}$ cups self-raising flour
- $1\frac{1}{4}$ cup of butter
- $1\frac{1}{2}$ cup of sugar
- 2 large eggs
- $1\frac{1}{3}$ cup of milk
- $2\frac{1}{2}$ tsp vanilla essence
- $\frac{1}{2}$ cup diced apple

**Ingredients for 40 muffins**

- _____ cups self-raising flour
- _____ cup of butter
- _____ cup of sugar
- _____ large eggs
- _____ cup of milk
- _____ tsp vanilla essence
- _____ cup diced apple

2 This recipe makes 40 cookies. You only need 20. Write a new list of ingredients using halving.

**Ingredients for 40 cookies**

- 150 g butter
- 1 cup sugar
- 2 cups brown sugar
- 3 eggs
- $\frac{1}{2}$ tsp vanilla essence
- $\frac{1}{4}$ tsp salt
- $2\frac{1}{2}$ cups self-raising flour
- 300 g milk choc chips

**Ingredients for 20 cookies**

- _____ g butter
- _____ cup sugar
- _____ cups brown sugar
- _____ eggs
- _____ tsp vanilla essence
- _____ tsp salt
- _____ cups self-raising flour
- _____ g milk choc chips

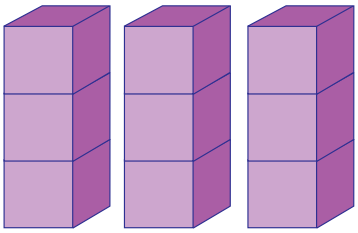
I can solve problems by:

☐ doubling and ☐ halving

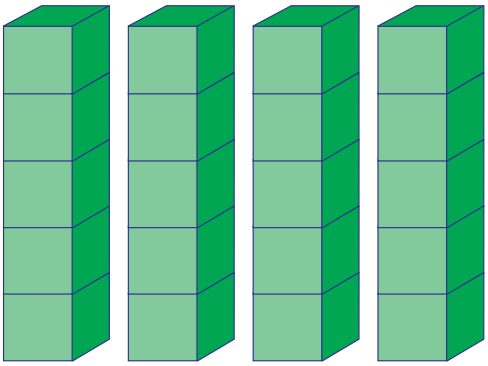
# Repeated addition



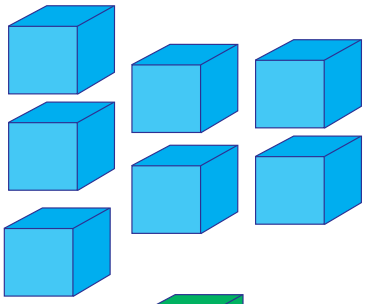
A



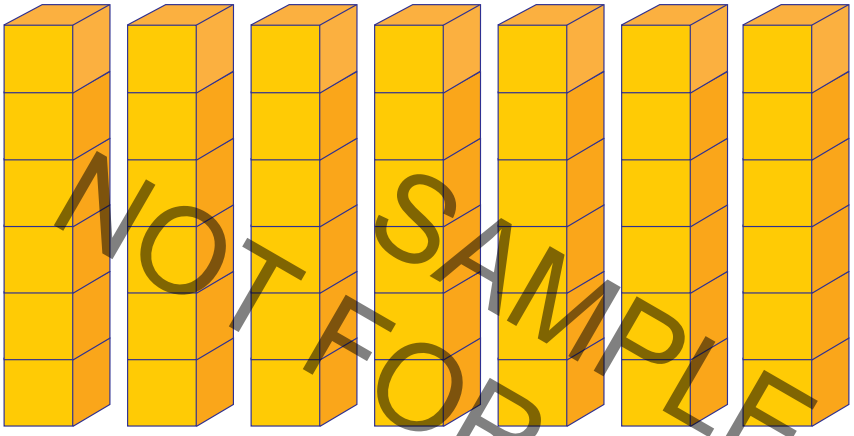
B



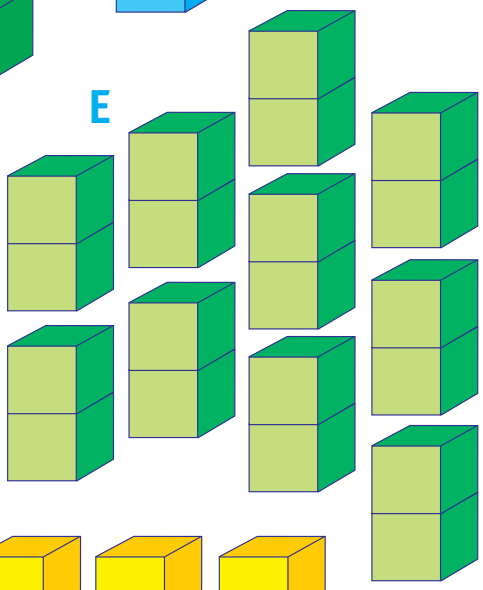
C



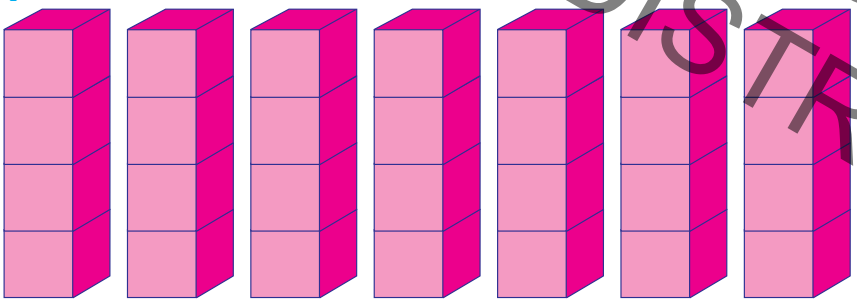
D



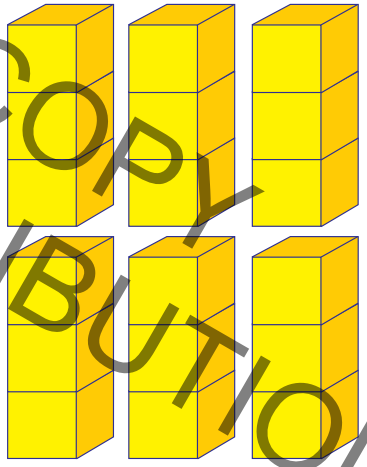
E



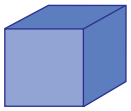
F



G



H

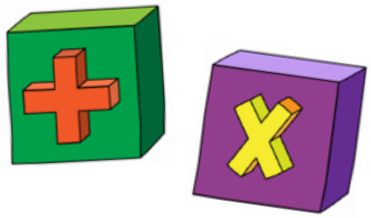




1

| | | |
|---|---|---|
| A | 3 + 3 + 3 = | 3 × 3 = |
| B | 5 + 5 + 5 + 5 = | |
| C | | |
| D | | |
| E | | |
| F | | |
| G | | |
| H | | |

2 Put A and G together and write an addition and a multiplication number sentence.



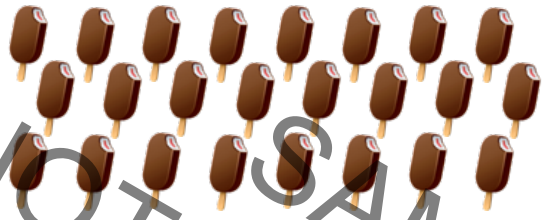
# Multiplication



**1** Use different colours to match.

| | | | | |
|---|---|---|---|---|
| **a** | 2 + 2 + 2 + 2 | 6 bundles of 6 | 4 × 2 | 25 |
| **b** | 5 + 5 + 5 + 5 + 5 | 4 lots of 2 | 6 × 6 | 8 |
| **c** | 6 + 6 + 6 + 6 + 6 + 6 | three nines | 5 × 5 | 10 |
| **d** | 9 + 9 + 9 | 5 groups of 5 | 7 × 4 | 36 |
| **e** | 4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 | 1 lot of 10 | 3 × 9 | 27 |
| **f** | 10 | 7 groups of 4 | 1 × 10 | 28 |

**2 a**



8 + 8 + 8 = ☐ ice-creams

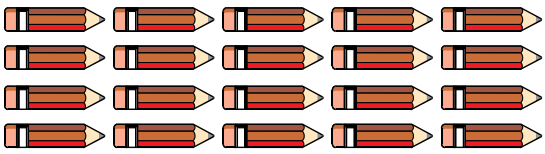
3 × 8 = ☐

**b**

9 + 9 + 9 + 9 + 9 + 9 + 9 = ☐ hearts

☐ × 9 = ☐

**c**



5 + 5 + 5 + 5 = ☐ pencils

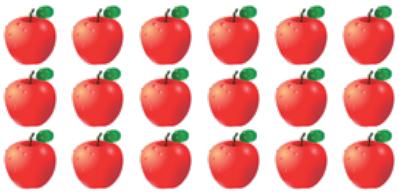
4 × ☐ = ☐

**d**

7 = ☐ cakes

☐ × ☐ = ☐

**e**



☐ + ☐ + ☐ = ☐ apples

☐ × ☐ = ☐

**f**

☐ + ☐ = ☐ balloons

☐ × ☐ = ☐

# Sharing





1 These dogs all need good homes. How many dogs are there? _____

2 How many dogs would each person get if they were fairly shared by:

a 4 people? _____ b 3 people? _____

c 2 people? _____ d 24 people? _____

e 6 people? _____ f 8 people? _____

g 1 person? _____ h 12 people? _____

3 Tom took half the dogs. How many did he take? _____

4 Jacky took one quarter of the dogs. How many did she take? _____

5 If five people wanted the dogs, would they each get a fair share? _____

Why? _____

_____

6 Are there other ways to share which are not fair? _____

# Fair shares

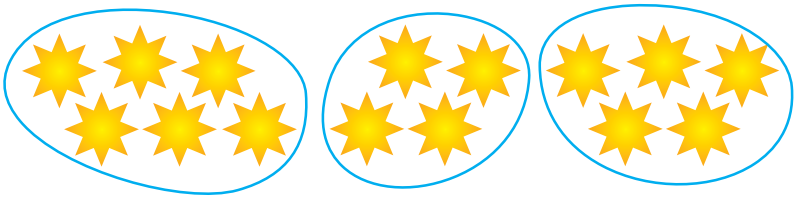
**Fair shares** means an equal number in each share.



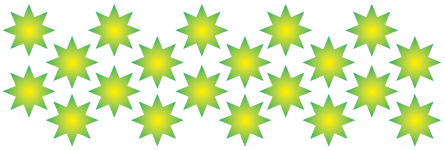
1 a Are these shares fair? _____

b Why? _____

_____

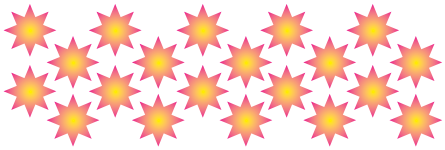


2 a Make 5 fair shares.



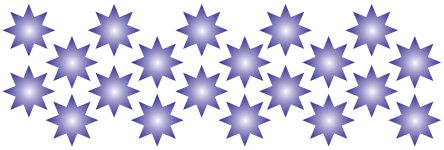
One share _____

b Make 4 fair shares.



One share _____

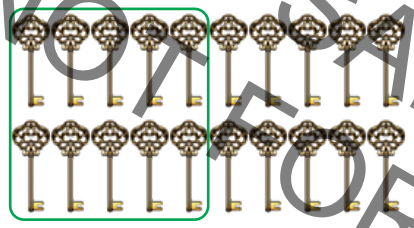
c Make 10 fair shares.



One share _____

3 Circle to make fair shares. How many in each share?

a



_____ ÷ 2 = _____

b

_____ ÷ 3 = _____

**÷ means share**

6 shared into 2 groups

6 ÷ 2 = 3

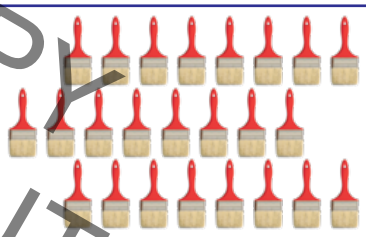
d

_____ ÷ 5 = _____

e

_____ ÷ 10 = _____

f



_____ ÷ 2 = _____

g

_____ ÷ 4 = _____

h

_____ ÷ 3 = _____

i

_____ ÷ 4 = _____

4 a Share 20 lollies into 5 packets. How many in each packet? _____ ÷ _____ = _____

b Share 15 apples onto 5 plates. How many on each plate? _____ ÷ _____ = _____

c Put 10 children into 2 equal groups. How many in each group? _____ ÷ _____ = _____

d Put 50 crayons equally into 10 boxes. How many in each box? _____ ÷ _____ = _____

e Share 27 marbles among 3 girls. How many for each girl? _____ ÷ _____ = _____

# Vegetable garden

Nicau is planning gardens of lettuces, tomatoes and radishes. He wants to plant them in rows of equal numbers of plants. He has 30 lettuce, 32 tomato and 36 radish plants. How can he plant them in these garden beds?

**Key:** ● = lettuce ▲ = tomato ◆ = radish



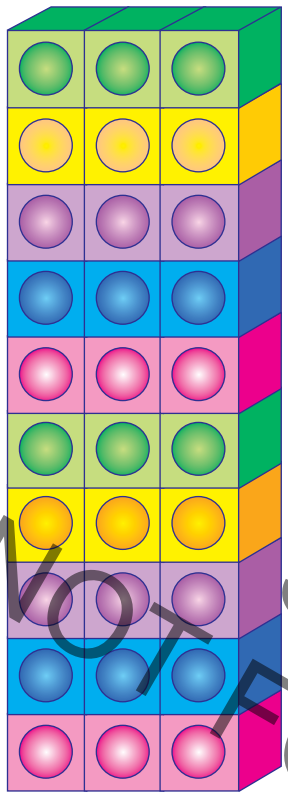
I can solve problems by:

☐ sharing into equal groups ☐ drawing arrays

# Number facts 3×



**1**



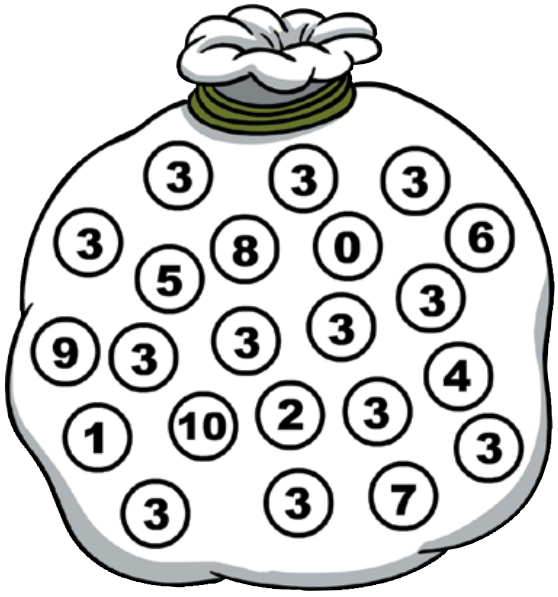
| | | |
|---|---|---|
| 0 | a | 0 × 3 = 3 × 0 = 0 |
| 3 | b | 1 × 3 = 3 × 1 = 3 |
| 6 | c | 2 × 3 = 3 × 2 = ☐ |
| 9 | d | 3 × 3 = 3 × 3 = ☐ |
| 12 | e | 4 × 3 = 3 × ☐ = ☐ |
| 15 | f | ☐ × 3 = 3 × 5 = ☐ |
| 18 | g | 6 × 3 = 3 × ☐ = ☐ |
| 21 | h | 7 × 3 = 3 × ☐ = ☐ |
| 24 | i | ☐ × 3 = 3 × ☐ = 24 |
| 27 | j | ☐ × 3 = 3 × ☐ = ☐ |
| 30 | k | 10 × 3 = 3 × 10 = ☐ |

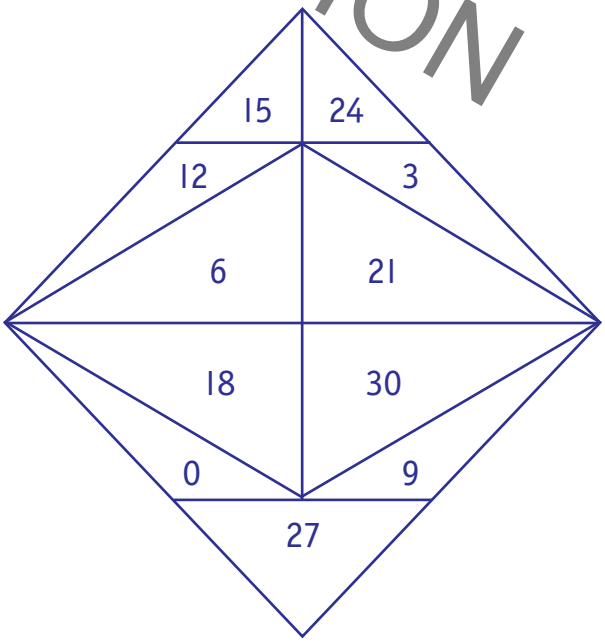
**NOTICE!**
**Memorise the 3× table.**




**2**


**3** Pick (3) and another number from the bag. Multiply them. Colour the two numbers in the bag and then colour the answer in the rhombus the same colour.



# Number facts 5×

TERM 2
Week 4

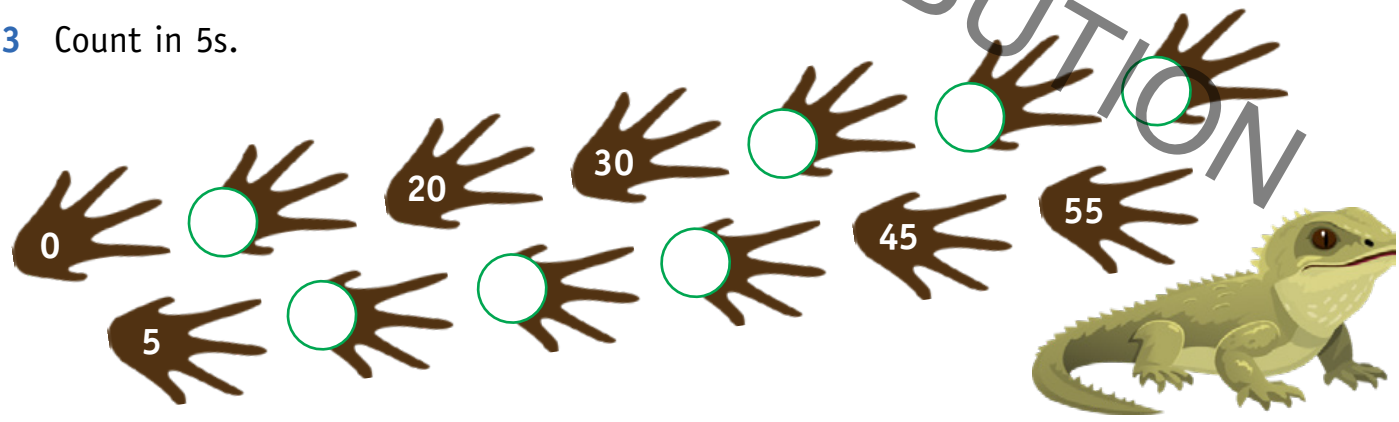


1 How many hands? _____

2 How many fingers?

| | | | |
|---|---|---|---|
| a | 2 hands _____ | b | 12 hands _____ |
| c | 7 hands _____ | d | 0 hands _____ |
| e | 6 hands _____ | f | 3 hands _____ |
| g | 4 hands _____ | h | 10 hands _____ |
| i | 9 hands _____ | j | 8 hands _____ |
| k | 11 hands _____ | l | 5 hands _____ |

3 Count in 5s.




4 Complete from memory.

| × | 4 | 1 | 5 | 9 | 3 | 7 | 12 | 10 | 6 | 0 | 11 | 8 | 2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | | | | | | | | | | | | | |



**Number** Operations: Memorising multiplication facts for 2s to 10s; Using known and derived facts to multiply mentally, including multiplying by 0 and 1; Multiplying two-digit numbers by a one-digit number; Number Structures: Counting forwards in 5s

# Number facts 0×, 5×



**1** How many petals on:

**a** 1 flower? _____ **b** 7 flowers? _____

**c** 3 flowers? _____ **d** 10 flowers? _____

**e** 2 flowers? _____ **f** 4 flowers? _____

**g** 9 flowers? _____ **h** 6 flowers? _____

**i** 5 flowers? _____ **j** 8 flowers? _____

**k** How many petals on no flowers? _____

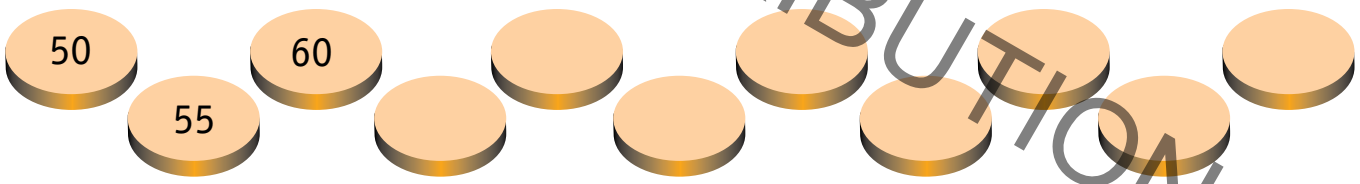
**l** 11 × 5 = _____ **m** 12 × 5 = _____

*Any number times zero is always equal to zero.*

**2** **a** 0 × 6 = ☐ **b** 3 × 0 = ☐ **c** 2 × 0 = ☐ **d** 0 × 8 = ☐

**e** 9 × 0 = ☐ **f** 0 × 4 = ☐ **g** 66 × 0 = ☐ **h** 999 × 0 = ☐

**3** Count by 5s.




**4**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |
| 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 |

**a** Colour the ×3 numbers yellow.

**b** Colour the ×5 numbers blue.

**c** Which numbers turn green?

_____

_____

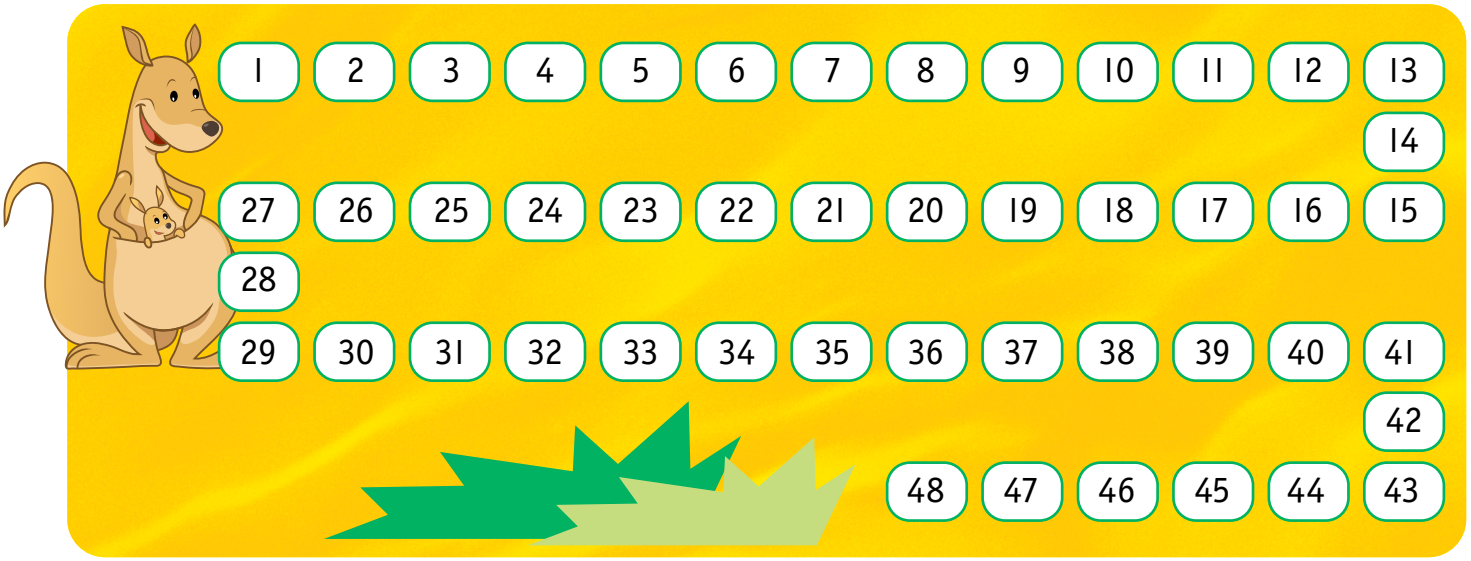
**d** Why? _____

_____

_____

# Number facts 4×

TERM 2
Week 4




Kanga jumps along the path 4 spaces each time.

1 Colour the numbers she will land on.

2 How far did she go in:

a 0 jumps? _____ b 1 jump? _____ c 2 jumps? _____ d 3 jumps? _____

e 4 jumps? _____ f 5 jumps? _____ g 6 jumps? _____ h 7 jumps? _____

i 8 jumps? _____ j 9 jumps? _____ k 10 jumps? _____

3 A dog has 4 paws. Add groups of 4 to find how many paws on:

a 1 dog 4 × 1 = _____ b 2 dogs 4 × 2 = _____

c 3 dogs 4 × 3 = _____ d 4 dogs 4 × 4 = _____

e 5 dogs 4 × 5 = _____ f 6 dogs 4 × 6 = _____

g 7 dogs 4 × 7 = _____ h 8 dogs 4 × 8 = _____

i 9 dogs 4 × 9 = _____ j 10 dogs 4 × 10 = _____

k How many paws would no dogs have? 4 × 0 = _____

4 a 4 × 10 = _____ b 10 × 4 = _____ c 4 × 6 = _____ d 1 × 4 = _____ e 4 × 0 = _____

f 0 × 4 = _____ g 9 × 4 = _____ h 4 × 4 = _____ i 7 × 4 = _____ j 8 × 4 = _____

5 A butterfly has 4 spots on its wings. How many spots on 5 butterflies? ☐

6 Each car has 4 wheels. How many wheels on 7 cars? ☐





**Number** Operations: Memorising multiplication facts for 2s to 10s; Using known and derived facts to multiply mentally, including multiplying by 0 and 1; Number Structures: Counting forwards in 4s

# Number facts 3×, 4×, 5×, 10×



**1** Count backwards in:

**a** 3s from 21, ____, ____, ____, ____, ____, ____

**b** 4s from 38, ____, ____, ____, ____, ____, ____

**c** 10s from 100, ____, ____, ____, ____, ____, ____

**0×**

**0 × 3 = 0**

**0 × 5 = 0**

**0 × 10 = 0**

**2** Write the number sentence and answer. How many:

| | | | | |
|---|---|---|---|---|
| **a** | wheels on 8 trikes? | 3 x 8 = 24 | on 3 trikes? | 3 x 3 = 9 |
| **b** | eyes on 9 owls? | | on 5 owls? | |
| **c** | corners on 7 squares? | | on 4 squares? | |
| **d** | toes on 6 feet? | | on 8 feet? | |
| **e** | sides on 5 triangles? | | on 10 triangles? | |
| **f** | arms on 4 starfish? | | on 9 starfish? | |
| **g** | fingers on 4 hands? | | on 7 hands? | |
| **h** | ears on 10 horses? | | tails on 10 horses? | |
| **i** | feet on 1 dog? | | feet on 3 dogs? | |



**3** **a** One ticket to a show costs $10. What is the cost of 6 tickets?


**b** Ten children get 5 lollies each. How many lollies altogether?

**4** Complete this from memory.

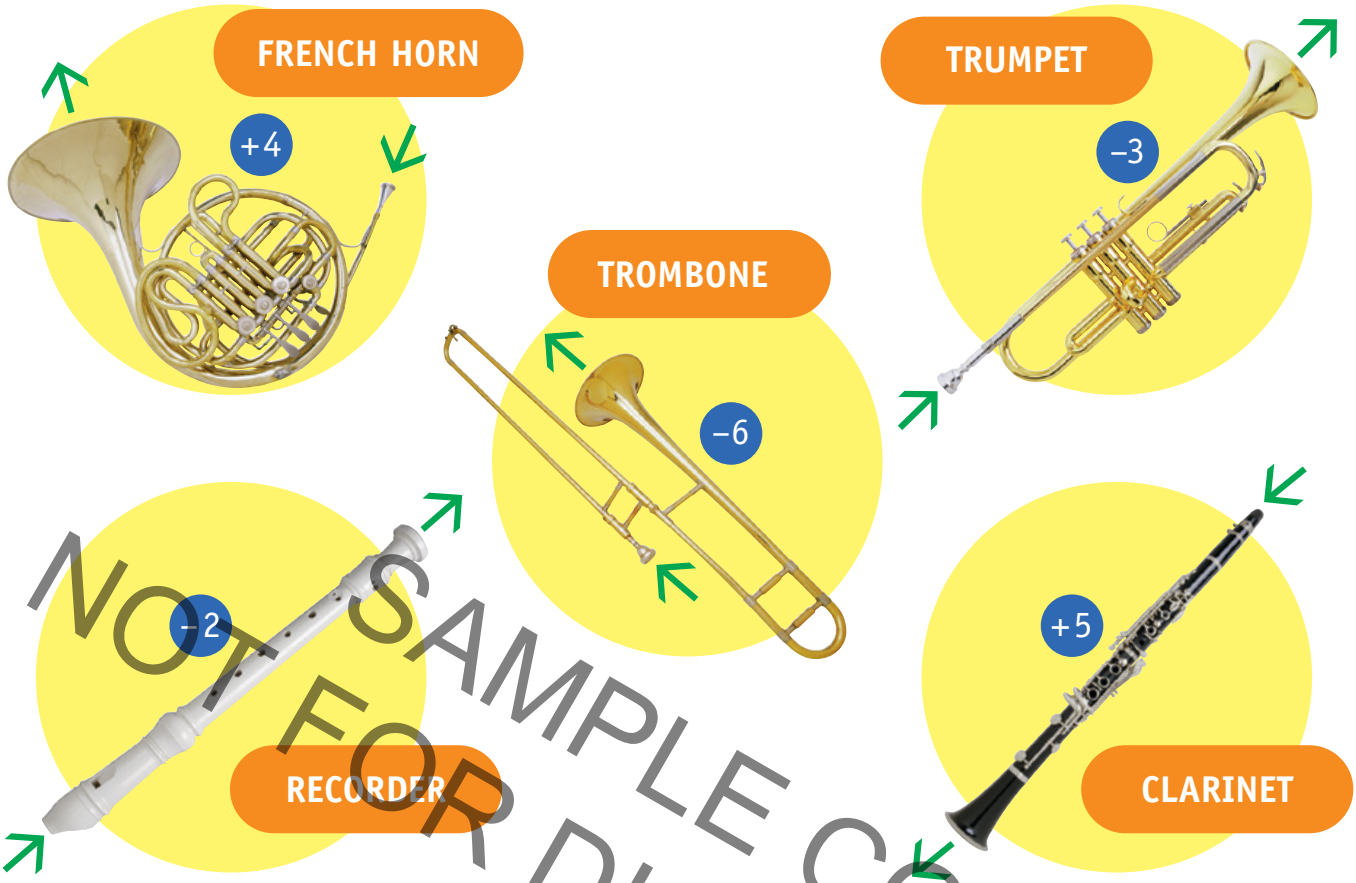
| × | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | | | | | | | | | | | |

**Mastery Checklist** I can:

- ☐ memorise the 3×, 5×, 4×, 10× tables
- ☐ remember what happens when multiplying by 0
- ☐ count back in 3s, 4s, 5s and 10s
- ☐ write number sentences
- ☐ complete number facts from memory

# Number patterns

TERM 2
Week 5






These are magical instruments.

When a number is blown in one end, it changes four times and all four numbers come out the other end. Each instrument has its own rule for making number patterns.

1 What numbers come out of the French horn if 7 is put in?

_____ _____ _____ _____

2 What numbers come out of the trombone if 34 is put in?

_____ _____ _____ _____

3 What happens to a 14 in a:

a trumpet? _____ _____ _____ _____

b clarinet? _____ _____ _____ _____

c recorder? _____ _____ _____ _____

4 What must be put in the clarinet for 40 to come out at the end of 4 changes?

_____



**Algebra** Equations and relationships: Creating growing patterns (including numerical patterns) that change by adding, subtracting by a constant whole number

# Pattern rules

TERM 2
Week 5

1 Look at page 82. Complete these:

| | | | | | | |
|---|---|---|---|---|---|---|
| a | for the trumpet. | Start with 18. | _____ | _____ | _____ | _____ |
| | Rule = _____ | Start with 25. | _____ | _____ | _____ | _____ |
| b | for the clarinet. | Start with 18. | _____ | _____ | _____ | _____ |
| | Rule = _____ | Start with 23. | _____ | _____ | _____ | _____ |
| c | for the recorder. | Start with 18. | _____ | _____ | _____ | _____ |
| | Rule = _____ | Start with 15. | _____ | _____ | _____ | _____ |
| d | for the French horn. | Start with 16. | _____ | _____ | _____ | _____ |
| | Rule = _____ | Start with 11. | _____ | _____ | _____ | _____ |
| e | for the trombone. | Start with 24. | _____ | _____ | _____ | _____ |
| | Rule = _____ | Start with 29. | _____ | _____ | _____ | _____ |



2 This is your kazoo. Decide how it changes numbers and how many changes it makes before it runs out of puff.

KAZOO

3 Use your kazoo.

a Start with 84. _____ _____ _____ _____

b Start with 110. _____ _____ _____ _____

4 Invent a musical instrument and make it add and subtract numbers.

a Instrument name

_____

b Changes it makes

_____

c Use your instrument.

Start at 92.

_____

Draw it here.

# Number patterns

TERM 2
Week 5

**1** Write the next three rows.

**a**

4 + 9 = 13
14 + 9 = 23
24 + 9 = 33

**b**

8 + 7 = 15
18 + 7 = 25
28 + 7 = 35

**c**

9 + 7 = 16
19 + 7 = 26
29 + 7 = 36

**d**

46 − 12 = 34
56 − 12 = 44
66 − 12 = 54

**e**

89 − 5 = 84
89 − 15 = 74
89 − 25 = 64

**f**

6 + 6 + 6 = 18
7 + 7 + 7 = 21
8 + 8 + 8 = 24



**2** Can you explain the patterns in Question 1?

**a, b, c** _____

_____

_____

**d** _____

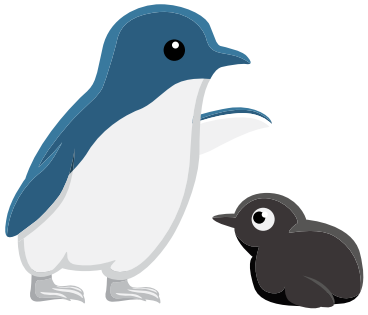
**e** _____

**f** _____

**3** Follow the patterns.

**a** 1, 2, 4, 7, ____, 16, ____, ____, ____

**b** 1, 4, ____, 16, ____, ____, 49, ____, ____



# Describing patterns

TERM 2
Week 5

**1** Write the missing term, then write a reason for your answer.

**a** $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$, _____

Reason _____

**b** $1.80, $1.70, _____, $1.50, $1.40, $1.30

Reason _____

**c** 2, 7, 12, _____, _____, 27

Reason _____

**d** 25, 40, _____, 70, _____, _____

Reason _____

**e** 36, 45, 54, 63, _____, 81

Reason _____

**f** 10, 120, 230, _____, _____, 560

Reason _____



**2**

| | |
|---|---|
| 9 × 6 | 5 × 3 |
| 3 × 4 | double 27 |
| 8 + 7 | 4 × 4 |
| 36 − 4 | 1 dozen |
| 9 + 3 + 4 | 9 × 5 |
| 100 − 55 | 8 × 4 |

Colour the terms that are equal.

**3** Use a calculator.

**a** Press AC **b** Press 5 **c** Press + + **d** Press =

**e** What does your calculator show? _____ **f** Press = again.

**g** Keep pressing = and write the answers. _____ _____ _____ _____

**h** What is the pattern? _____

**Mastery Checklist** I can:
- ☐ create and continue addition and subtraction patterns
- ☐ explain the rule in addition and subtraction patterns

# Checkpoint 3

**1** Which is the largest fraction?

Shade one bubble.

$\frac{1}{3}$ ○ $\frac{1}{4}$ ○ $\frac{1}{8}$ ○ $\frac{1}{2}$ ○ $\frac{1}{5}$ ○

**2** **a** I have 9 dogs. How many is $\frac{1}{3}$ of the group?

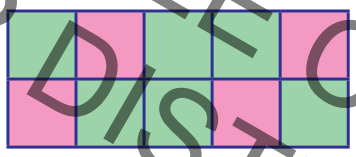
**b** $\frac{1}{4}$ is 5 cats. How many in the whole group?

Write your answer in the boxes.



**3** 4 out of 10 squares are coloured pink.
What is another name for $\frac{4}{10}$?

Shade one bubble.



$\frac{4}{4}$ ○ $\frac{2}{4}$ ○ $\frac{1}{2}$ ○ $\frac{2}{5}$ ○

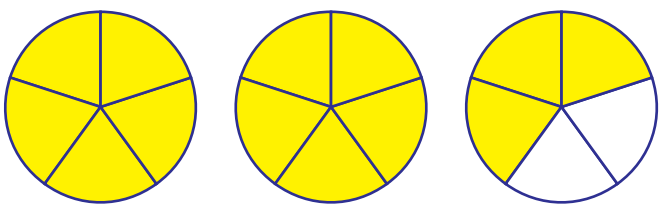
**4** Add to make a whole.

Write your answer in the boxes.

**a** $\frac{4}{8} + \frac{\square}{8} = \frac{\square}{8}$

**b** $\frac{7}{10} + \frac{\square}{10} = \frac{\square}{\square}$

**5** Write this as an improper fraction and as a mixed number.



$\frac{\square}{\square}$ $\square\frac{\square}{\square}$

# Checkpoint 3

**6** Double this recipe.

| | |
|---|---|
| _____ | = 2 eggs = |
| _____ | = $1\frac{1}{2}$ cups milk = |
| _____ | = 2 cups flour = |
| _____ | = $\frac{1}{4}$ cup sugar = |
| _____ | = 1 tsp maple syrup = |

**7** Halve this recipe.

| |
|---|
| _____ |
| _____ |
| _____ |
| _____ |
| _____ |

**8** Complete the equations.

**Write your answers in the boxes.**

+ ☐ = ☐ ☐ × ☐ = ☐

**9**

a Make 6 fair shares. How many in each share? ☐

b Share into 3 groups. How many in each group? ☐

**10** Complete from memory.

| × | 10 | 1 | 11 | 2 | 0 | 5 | 3 | 4 | 8 | 6 | 9 | 7 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | |

**11** Complete the number pattern.

30, 29, 27, 24, 20, ☐, ☐

# Position





1 Draw the cake they choose.

| Mandy | Mahaka | Milly | Mikaera | Moia |
|---|---|---|---|---|
| top row, on the left | bottom row, 2nd from the right | middle row, on the right | bottom row, on the left | top row, in the middle |

2 Write the position of:

a the cupcake with the cherry on top. _____

b the meringue snowman. _____

c the cream frog. _____

d the apricot cheesecake. _____

e the strawberry slice. _____

3 Write the names and positions of the three cakes you like best.

a _____

b _____

c _____

# Rows and columns



1 Which letter is:

a third column, top row? _____

b last column, bottom row? _____

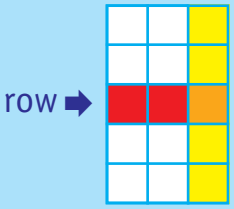
c fifth column, second row? _____

d second last column, third row from the bottom? _____

e third column from the right, fourth row from the top? _____

f These letters spell a word. What is the word? _____

| | | | | | |
|---|---|---|---|---|---|
| U | P | G | A | D | C |
| D | S | K | V | E | B |
| F | B | Y | O | A | N |
| G | R | O | T | E | F |
| H | I | L | N | M | R |




2 Here is the map of 3B's classroom.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| Tim | Ubeen | Kirsty | Zoe | | Samad | | | | |
| Lionel | Bob | Adam | | Ayaka | Gill | | Temaea | | |
| | Chris | Brian | Amy | Samir | Lilly | | Gopal | | |
| Aliki | Sam | Hanxi | Judith | Joe | Ajit | | Leah | | |
| | | | | Miss Brown | | | | | |



a How many children are in Miss Brown's class? _____

b Who is sitting next to Brian? _____

c Who is sitting in front of the teacher? _____ _____

d Who is sitting behind Lionel? _____

e How many children are in Ayaka's row? _____

f Rodger wants to sit in the third row. Who will he sit next to? _____

g Joe was talking. He was sent to sit behind Kirsty. Mark his new seat on the map.

h Draw in red how Joe would get to his new seat.

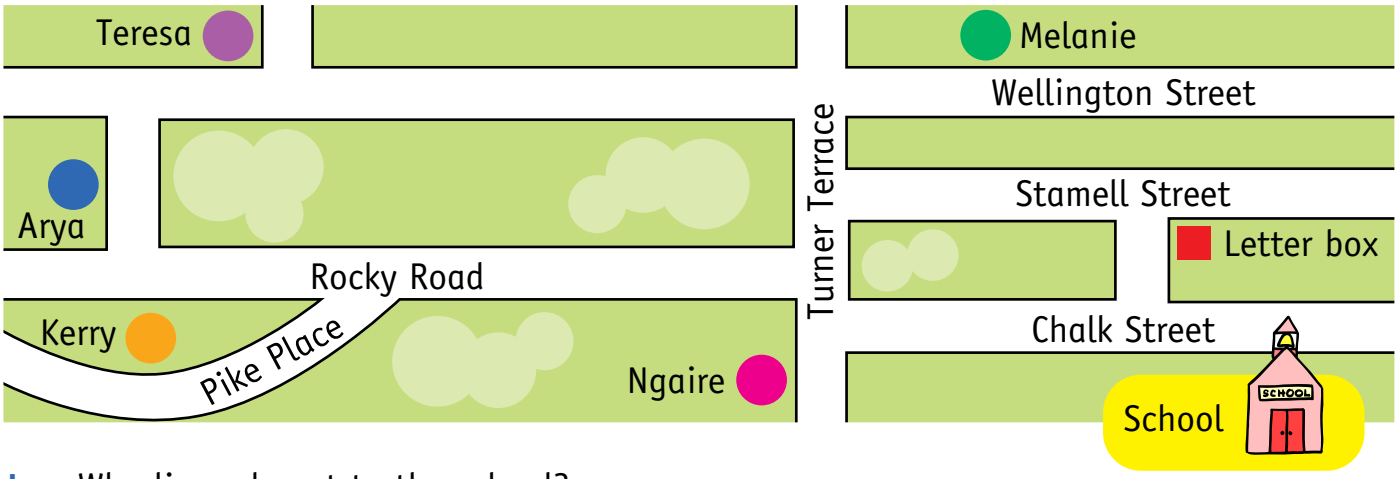
i Aliki wanted to borrow a pencil. She walked across the front of the room and down the aisle between Ajit and Leah. She asked the person in the third row on her left. Who did she ask? _____

j Write directions for the path Adam would take to sit next to Samad.

_____

# Street map

TERM 2
Week 6




1 a Who lives closest to the school? _____

b On which street does Melanie live? _____

c Who lives at the corner of two streets? _____

d Arya went to visit her friend. She walked out her front gate, turned left, then turned right. She walked past Turner Terrace and entered a house on her left.

Who did she visit? _____

e Draw the path she followed in red.

f Who lives furthest from Ngaire? _____

2 Teresa's mum asked her to post a letter on her way to school. In green, draw her path to school.

3 Write directions to tell how Kerry walks home from school.

_____

_____



## Challenge! Find the hidden message.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | |
| a | b | c | d | e | f | g | h | i | j | k | |

a Column 1, row 2
b Column 4, row 6
c Column 5, row 3
d Column 2, row 6
e Column 3, row 3
f Column 2, row 1
g Column 6, row 1
h Column 6, row 7
i Column 3, row 8
j Column 4, row 4
k Column 1, row 5

| | | | | | | |
|---|---|---|---|---|---|---|
| 8 | W | T | C | Y | U | I |
| 7 | A | R | E | P | O | A |
| 6 | S | N | D | O | F | G |
| 5 | S | D | F | J | X | H |
| 4 | C | V | B | E | N | K |
| 3 | A | N | G | M | I | L |
| 2 | G | E | R | D | B | Y |
| 1 | S | P | F | H | I | L |
| | 1 | 2 | 3 | 4 | 5 | 6 |

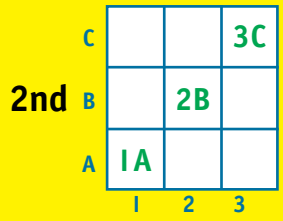


**Geometry** Pathways: Following and creating a sequence of step-by-step instructions for moving people or objects to a different location; Using simple maps to locate objects and places relative to other objects and places; Use numeric and general grid references to identify positions on a grid

# Grids




**For position on a grid, read the column (bottom) first then the row (side).**






1 Write the position of the:

a basket. _____ b lamp. _____ c armchair. _____

d teapot. _____ e wooden chest. _____ f vase. _____

g bath. _____ h plate. _____ i bell. _____

2 Draw:

a a pencil in 1C. b a spoon in 3A. c an egg cup in 2E.

d a cup in 5B. e a bed in 4D. f a book in 3B.

g a mat in 1A. h a jug in 2C. i a broom in 5C.

3 Name all the blank spaces.

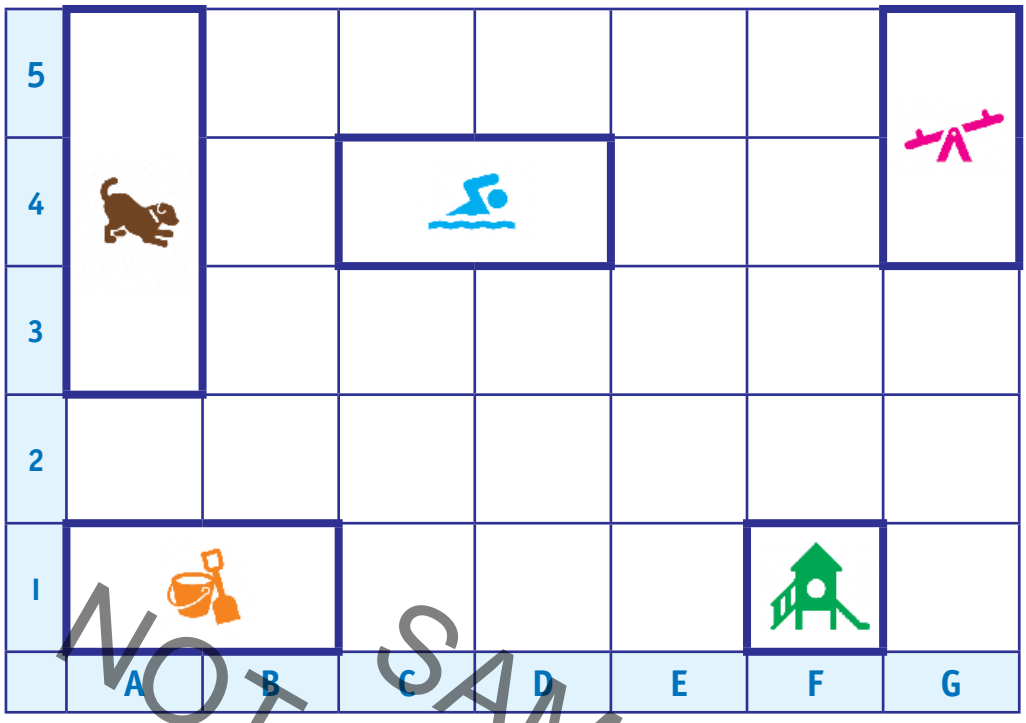
_____

## Challenge!

Use centimetre grid paper. Outline an 8 × 8 grid and label the rows and columns.
Draw 10 symbols (e.g. ● ■ ✱) on the grid.
Swap with a friend. Name the position of each symbol on your friend's grid.

# Grid maps

TERM 2
Week 6




**Key**

- Dog park
- Sandpit
- Swimming pool
- Playground
- Cubby house



1 a What are the coordinates for the cubby house? _____

b What is at G5? _____

c Put a tree in square D2.

2 a From the sandpit, go up 3 squares, then right 2 squares.

Where are you now? _____

b What are the coordinates for where you are? _____

3 Give directions from the cubby house to the dog park.

_____

_____

_____

## Mastery Checklist

I can:
- ☐ use columns and rows to identify a position
- ☐ understand directions on a street map
- ☐ draw paths on a map
- ☐ use grid references to identify and plot positions
- ☐ use grid references to follow and give directions



**Geometry** Pathways: Use alphanumeric and general grid references to identify regions and plot positions on a grid map;
Following and creating a sequence of step-by-step instructions for moving people to a different location, including the distance to be travelled

# Number facts practice



**1** Write a multiplication fact for each badge. Do some have more than one?

**a**


10 x 9 =

**b**


**c**


**d**


**e**


**f**


**g**


**h**


**i**


**j**


**k**

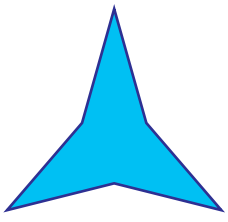

**l**




**2**

| × | 2 | 8 | 5 | 10 | 0 | 7 | 3 | 1 | 6 | 9 | 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | | | | | | | | | | | |
| 10 | | | | | | | | | | | |
| 5 | | | | | | | | | | | |
| 3 | | | | | | | | | | | |

**3 a**



Mum drew a star with 3 points.

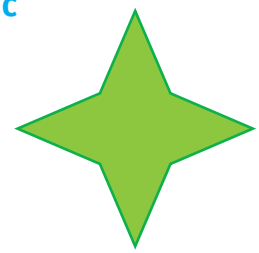
How many points on 9 stars? ☐

**b**

Aunt Tui drew a star with five points.

How many points on 9 stars? ☐

**c**



Uncle Kai drew a star with four points.

How many points on 9 stars? ☐

**d**

How many more points are there on Aunt Tui's stars than on Uncle Kai's stars? ☐

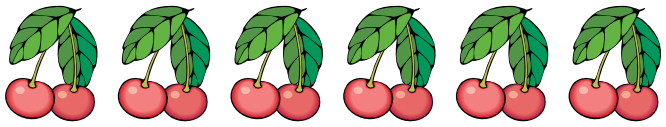
# Vertical multiplication

TERM 2
Week 7

**1** Write two number sentences for this picture.

□ × □ = □

□ × □ = □



**2** Write a number sentence and the answer.

**a** 10 cars. 4 people in each car. How many people? □ × □ = □

**b** 5 tricycles. 3 wheels on each tricycle. How many wheels? □ × □ = □

**c** 3 cases each holding 8 pencils. How many pencils? □ × □ = □

**d** 5 rows with 10 boys in each row. How many boys? □ × □ = □

**e** 8 nests with 5 eggs in each nest. How many eggs? □ × □ = □

**f** 10 pies on each tray. There are 6 trays. How many pies? □ × □ = □



**3** Write the answers and match.

| | | | | | |
|---|---|---|---|---|---|
| 6 × 3 = ____ | 8 × 2 = ____ | 7 × 5 = ____ | 10 × 9 = ____ | 4 × 1 = ____ | 8 × 4 = ____ |

7 × 5 = □ 6 × 3 = □ 8 × 2 = □ 8 × 4 = □ 10 × 9 = □ 4 × 1 = □

**4** Write a vertical multiplication algorithm for each.

**a** 2 × 6 =

**b** 5 × 3 =

**c** 4 × 7 =

**d** 3 × 9 =

**Challenge!**

3 rows of 3 cookies on each tray.

How many cookies on 1 tray? □

How many cookies on 5 trays? □

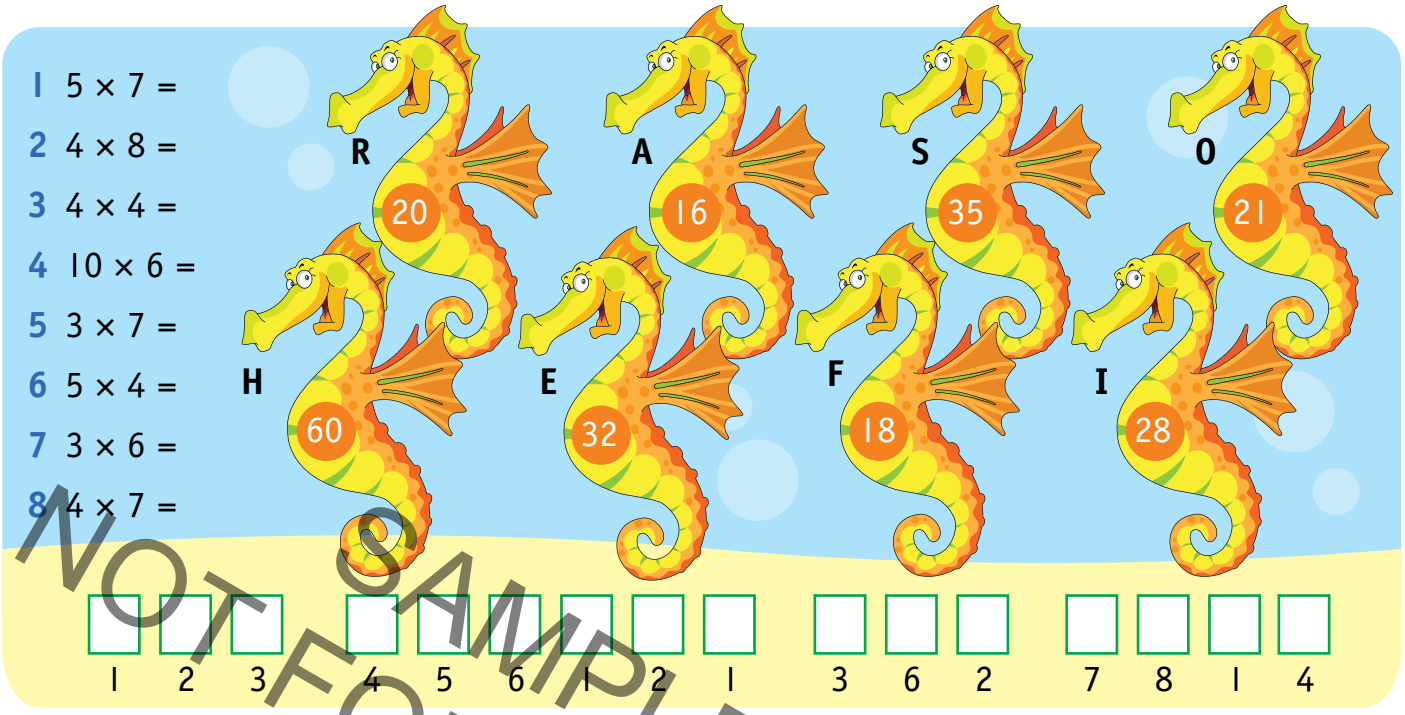
How many cookies on 10 trays? □

# Products

**Product is the answer when numbers are multiplied.**



Match the number sentence to its answer.
Then write the letter in the secret message.






1 a
$$\begin{array}{r} 8 \\ \times\ 5 \\ \hline \quad \end{array}$$

b
$$\begin{array}{r} 9 \\ \times\ 3 \\ \hline \quad \end{array}$$

c
$$\begin{array}{r} 10 \\ \times\ 0 \\ \hline \quad \end{array}$$

d
$$\begin{array}{r} 7 \\ \times\ 10 \\ \hline \quad \end{array}$$

e
$$\begin{array}{r} 5 \\ \times\ 7 \\ \hline \quad \end{array}$$

f
$$\begin{array}{r} 4 \\ \times\ 8 \\ \hline \quad \end{array}$$

g
$$\begin{array}{r} 10 \\ \times\ 4 \\ \hline \quad \end{array}$$

h
$$\begin{array}{r} 4 \\ \times\ 3 \\ \hline \quad \end{array}$$

i
$$\begin{array}{r} 3 \\ \times\ 9 \\ \hline \quad \end{array}$$

j
$$\begin{array}{r} 9 \\ \times\ 5 \\ \hline \quad \end{array}$$

k
$$\begin{array}{r} 5 \\ \times\ 6 \\ \hline \quad \end{array}$$

l
$$\begin{array}{r} 6 \\ \times\ 2 \\ \hline \quad \end{array}$$

2 Write the product of:

a 6 and 4 _____ b 3 and 6 _____ c 10 and 2 _____ d 2 and 5 _____

e 4 and 3 _____ f 7 and 4 _____ g 6 and 3 _____ h 8 and 3 _____

3 Write a multiplication fact for each product.

a _____ × _____ = 12 b _____ × _____ = 30 c _____ × _____ = 45

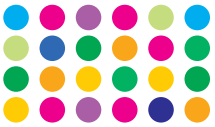
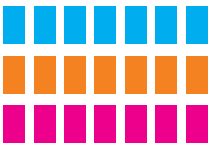
d _____ × _____ = 24 e _____ × _____ = 40 f _____ × _____ = 60

**Challenge!** Can you write more multiplication facts for these numbers?

# Missing facts

TERM 2
Week 7

1 Fill in the missing facts.

| | | | | | |
|---|---|---|---|---|---|
| eg |  | 4 groups of 6 | 6<br>× 4 | 6 × 4 | 24 |
| a | | 3 groups of 5 | | | |
| b | | | 5<br>× 5 | | |
| c | | | | | |
| d | | | | | 16 |
| e |  | | | | |
| f | | | | 2 × 9 | |
| g | | 5 groups of 7 | | | |
| | | | 8<br>× 3 | | |



**Mastery Checklist** I can:

- ☐ find multiplication facts for numbers
- ☐ remember the 3×, 4×, 5× and 10× tables
- ☐ solve multiplication stories
- ☐ use horizontal and vertical methods to multiply
- ☐ draw diagrams to represent multiplication facts
- ☐ find products of numbers

# Operations

**1** Manaaki has 8 pairs of socks. How many socks altogether?

8 × 2 = ☐

Answer ☐ socks

**2** Marama bought 7 apples for 10 cents each. How much did he spend?

☐ × ☐ = ☐

Answer ☐

**3** Mrs Tiredout has 5 children. Each child has 4 T-shirts. How many T-shirts altogether?

☐ × ☐ = ☐

Answer ☐ T-shirts

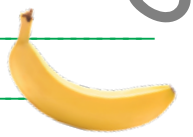
**4** Tui gathers 4 eggs every day. How many eggs in 1 week?

☐ × ☐ = ☐

Answer ☐ eggs

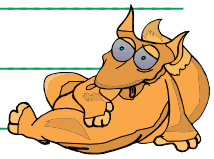
You write the questions.

**5**



☐ × ☐ = ☐ Answer 30 bananas

**6**



☐ × ☐ = ☐ Answer 48 monsters

**7** Use a calculator.

Farmer Joe had 25 cows in each of 4 paddocks and 34 sheep in each of 3 paddocks.

a How many cows? ☐ × ☐ = ☐

b How many sheep? ☐ × ☐ = ☐

c How many animals altogether?

_____

I can solve problems by:

☐ using multiplication ☐ writing questions and algorithms

# Using multiplication facts






These are stamps used in the country of Weirdo.

1 Wrod only ever bought 5c stamps. How many could he buy for:

a 40c? _____ b 30c? _____ c 15c? _____ d 5c? _____ e 50c? _____

2 Wred only bought 10c stamps. How many could she buy for:

a 60c? _____ b 90c? _____ c 20c? _____ d 50c? _____ e 70c? _____

3 Weid only bought $2 stamps. How many could he buy for?

a $14? _____ b $8? _____ c $18? _____ d $6? _____ e $12? _____

4 Wido had $13. Could she buy eight $2 stamps? _____

Why? _____

5 How much for: a seven 5c stamps? _____ b five $5 stamps? _____

6 Wodi has 85c. How many 10c stamps can she buy? _____

7 a How much to buy 1 of each stamp? _____

b How much change from $10? _____


## Challenge! Make a list

Werd has a package to send. List the ways she can make $3.10 using 5 or less stamps.



**Number** Operations: Using place value and known and derived facts to multiply and divide mentally
Financial mathematics: Calculating the total cost of several items with different prices, or of multiples of the same item, including giving change

# Division

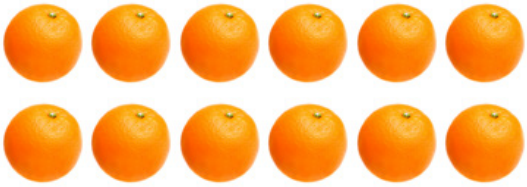


**1** Circle equal groups. Write the number sentence.

**a** Share between 3

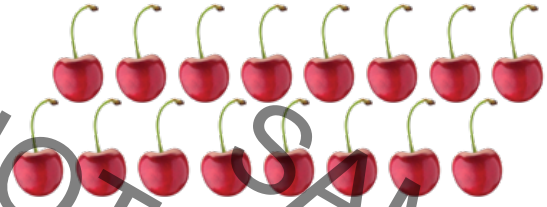
_____ ÷ 3 = _____

**b** Share between 3



_____ ÷ 3 = _____

**c** Share between 4



_____ ÷ 4 = _____

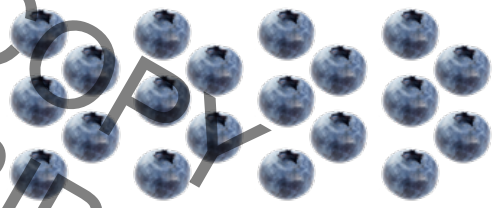
**d** Share between 4

_____ ÷ 4 = _____

**e** Share between 5

_____ ÷ 5 = _____

**f** Share between 5



_____ ÷ 5 = _____



**2** Draw a picture to find the answer.

**a** Mary and Bob shared 16 muffins.

How many each?

16 ÷ _____ = _____

**b** Rex and Spot shared 15 bones with their friend Dash. How many each?

15 ÷ _____ = _____

# The division sign

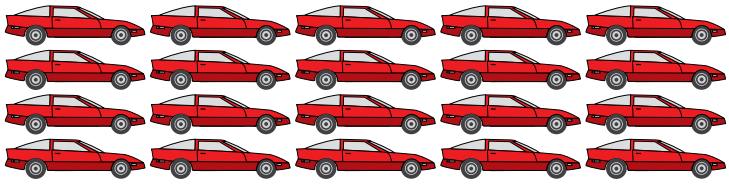
÷ means to divide.

TERM 2
Week 8

1 Divide 20 cars into 4 equal groups.

20 ÷ 4 = _____

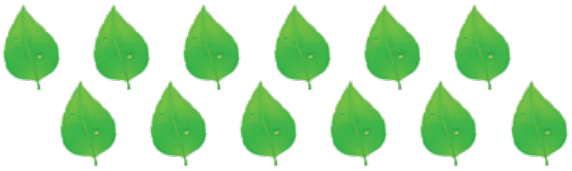
There are _____ cars in each group.



2 Divide 12 leaves into 3 equal groups.

12 ÷ 3 = _____

There are _____ leaves in each group.



3 Divide 24 stars into 4 equal groups.

24 ÷ 4 = _____

There are _____ stars in each group.

4 Divide 18 cats into 3 equal groups.

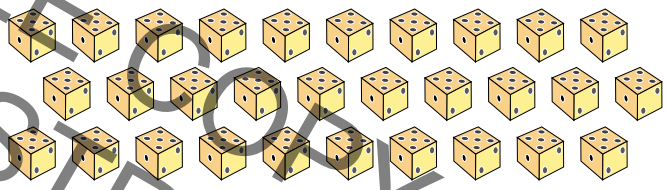
18 ÷ 3 = _____

There are _____ cats in each group.

5 Divide 30 dice into 10 groups.

30 ÷ 10 = _____

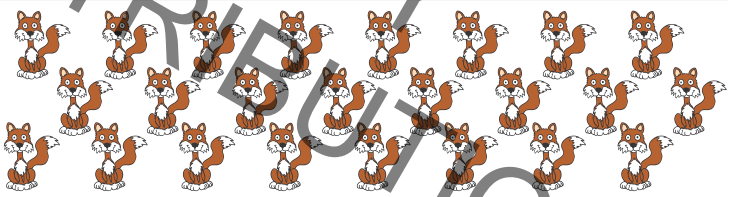
There are _____ dice in each group.



6 Divide 24 foxes into groups of 4.

24 ÷ 4 = _____

There are _____ groups of foxes.



7 Divide 15 girls into groups of 3.

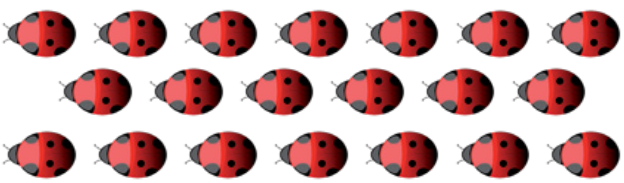
15 ÷ 3 = _____

There are _____ groups of girls.

8 Divide 20 bugs into groups of 5.

20 ÷ 5 = _____

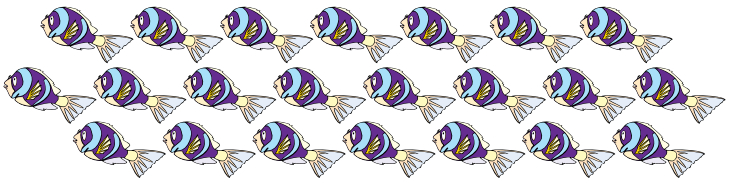
There are _____ groups of bugs.



9 Divide 22 fish into groups of 2.

22 ÷ 2 = _____

There are _____ groups of fish.



# Fractions and division



Finding a **fraction of a set** is a **division** question.
The **denominator** is the **divisor**.
What is $\frac{1}{2}$ of 10? $10 \div 2 = 5$ $\frac{1}{2}$ of $10 = 5$

**1** Write the equation to find the answer.

**a** $\frac{1}{2}$ of 24 is _____ $24 \div 2 =$ _____
**b** $\frac{1}{3}$ of 27 is _____ _____
**c** $\frac{1}{4}$ of 32 is _____ _____
**d** $\frac{1}{5}$ of 35 is _____ _____
**e** $\frac{1}{10}$ of 90 is _____ _____
**f** $\frac{1}{8}$ of 16 is _____ _____

**2** Answer true or false.

**a** $\frac{1}{2}$ of 18 is 9 _____
**b** $\frac{1}{3}$ of 30 is 9 _____
**c** $\frac{1}{4}$ of 24 is 8 _____
**d** $\frac{1}{5}$ of 40 is 4 _____
**e** $\frac{1}{10}$ of 80 is 8 _____
**f** $\frac{1}{8}$ of 40 is 5 _____

**3** Write the equation to find the missing fraction. The **answer** is the **denominator** this time.

Eg $\frac{1}{3}$ of 12 is 4 $12 \div 4 = 3$
**a** _____ of 12 is 6 _____
**b** _____ of 20 is 2 _____
**c** _____ of 20 is 5 _____
**d** _____ of 45 is 9 _____
**e** _____ of 24 is 3 _____

Finding the **whole set** when **given a fraction** is the inverse operation – **multiplication**.
The **denominator** and the **fraction amount** need to be multiplied.
$\frac{1}{2}$ of the set is **7**. What is the whole set? $2 \times 7 = 14$ The set is 14.

**4** Write the equation to find the answer.

**a** $\frac{1}{5}$ is 5. The set is _____. $5 \times 5 =$ _____
**b** $\frac{1}{4}$ is 9. The set is _____. _____
**c** $\frac{1}{8}$ is 6. The set is _____. _____
**d** $\frac{1}{3}$ is 5. The set is _____. _____

**5** Write an equation to find the missing number.

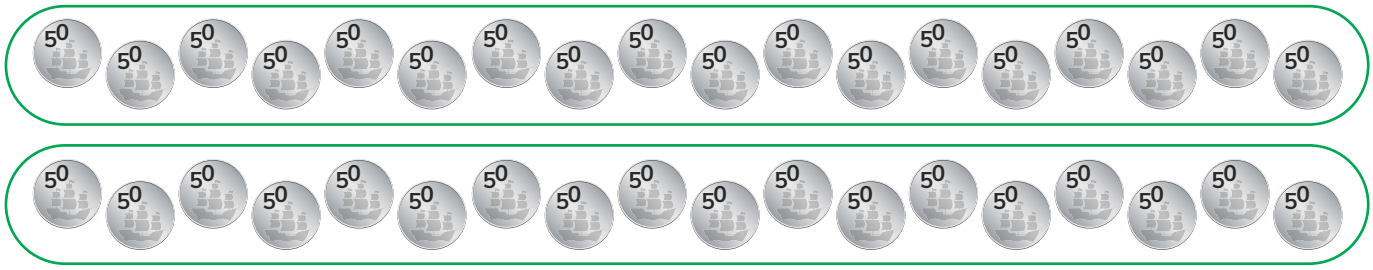
**a** $\frac{1}{8}$ of _____ is 7 _____
**b** $\frac{1}{4}$ of _____ is 7 _____
**c** $\frac{1}{10}$ of _____ is 7 _____
**d** $\frac{1}{3}$ of _____ is 7 _____

## Mastery Checklist

I can:
- ☐ work out fair shares
- ☐ make equal groups
- ☐ write division equations
- ☐ work out fractions of a group
- ☐ work out the whole number when given a fraction of a group

# Grandpa's treat

Grandpa has 36 fifty-cent coins. He says that he could share them evenly among his grandchildren even if he had 2, 3, 4, 5, 6, 7, 8 or 9 grandchildren. Is he right? Show your working. For example:




Yes, he can share between 2 grandchildren. **36 ÷ 2 = 18  2 × 18 = 36**

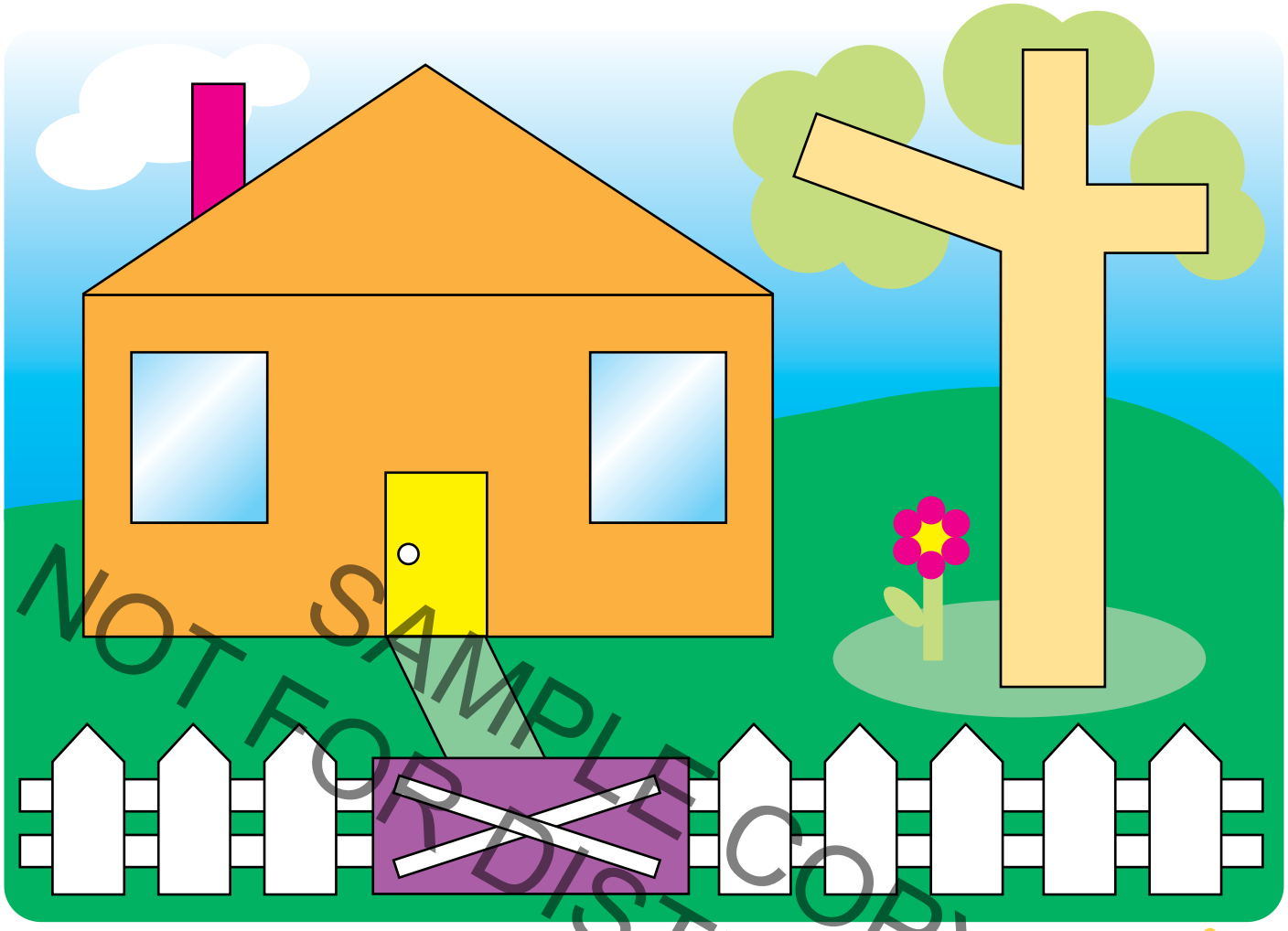


I can solve problems by:

☐ using multiplication and division facts ☐ writing equations

# Centimetres and millimetres







estimate and measure cm

1 a Is a millimetre smaller than a centimetre? _____

b How many millimetres in one centimetre? _____

2 Measure in centimetres:

a the width of the house. _____ b the height of the window. _____

c the short side of the chimney. _____ d the height of the house wall. _____

e the height of a fence paling. _____ f the width of a tree branch. _____

3 Without measuring, name three things that are about 2 cm.

a _____ b _____ c _____

4 Measure the three things to see how close you are.

a _____ b _____ c _____

5 Draw a line that is:

a 4 cm 6 mm long.

b 3 cm 2 mm long.

# Millimetres

m is metre
cm is centimetre
mm is millimetre
10 mm = 1 cm
100 cm = 1 m



1 How many centimetres in:

a 2 m? _____ b 5 m? _____ c 3 m? _____ d $4\frac{1}{2}$ m? _____ e 1·5 m? _____

2 How many millimetres in:

a 3 cm? _____ b 7 cm? _____ c 10 cm? _____ d $\frac{1}{2}$ cm? _____ e 2·5 cm? _____

3 Change these to metres.

a 100 cm _____ b 700 cm _____ c 900 cm _____ d 350 cm _____ e 550 cm _____

4 Change these to centimetres.

a 50 mm _____ b 10 mm _____ c 40 mm _____ d 20 mm _____ e 70 mm _____

5 Name three things you might measure in millimetres.

a _____ b _____ c _____

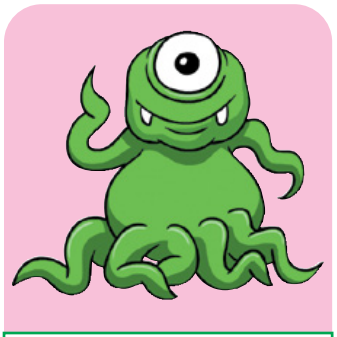
6 Draw these straight lines and label them.

A 10 mm B 40 mm C 55 mm D 25 mm E 38 mm F 73 mm



7 Give each alien a name and then measure its height on this page.

Name _____
Height _____



Name _____
Height _____

Name _____
Height _____

Name _____
Height _____

**Challenge!** Measure your height in: centimetres. _____
millimetres. _____




**Measurement** Measuring: Different measurement tools and scales use different-sized units; the unit must be recorded with the measurement amount; Using the appropriate tool for measuring length

# Length benchmarks



**1** Match.

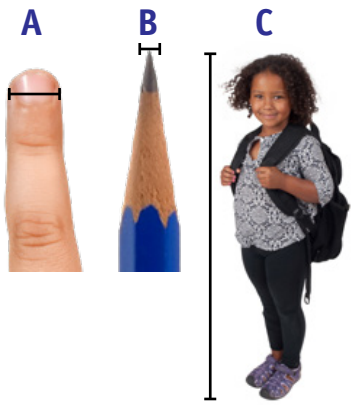
| | |
|---|---|
| **a** 1 metre | **A** 1 mm |
| **b** 1 centimetre | **B** 1 m |
| **c** 1 millimetre | **C** 1 cm |

**2** Match.

**a** 1 metre ____

**b** 1 centimetre ____

**c** 1 millimetre ____




**3** Match.

| | |
|---|---|
| **a** 1 m | **A** 10 mm |
| **b** $\frac{1}{2}$ m | **B** 100 cm |
| **c** 1 cm | **C** 50 cm |
| **d** $\frac{1}{2}$ cm | **D** 5 mm |

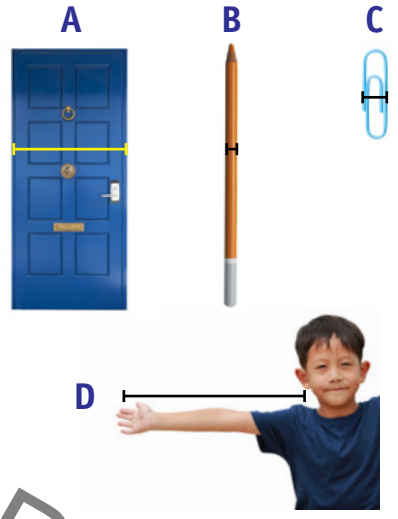
**4** Match.

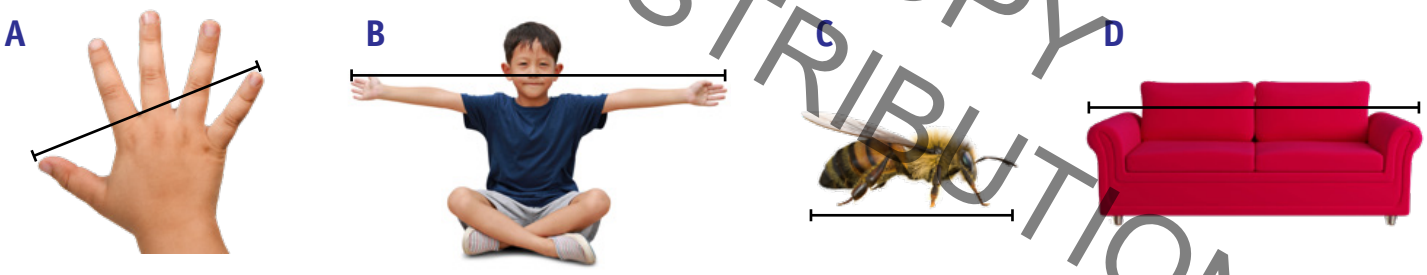
**a** 1 m ____

**b** $\frac{1}{2}$ m ____

**c** 1 cm ____

**d** $\frac{1}{2}$ cm ____




**5** Estimate the lengths of these items.

**a** **A**? _____ **b** **B**? _____ **c** **C**? _____ **d** **D**? _____

**6** Write an item you can see that is about this long.

**a** 5 m _____ **b** 5 cm _____

**c** 5 mm _____ **d** 10 cm _____

**7** Measure those items. Tick them if your estimates were close.

**8** **a** What measurement tools did you use? _____

_____

**b** Can you think of any other tools for measuring length?

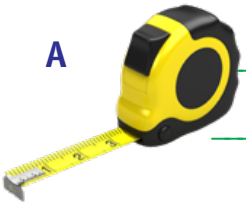
_____

# Measurement tools

TERM 2
Week 9

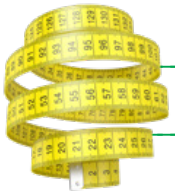
**1** Name each tool. **2** Circle the units each tool can measure in.

**A**



m cm mm

**B**

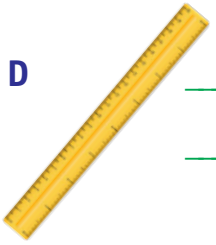


m cm mm

**C**

m cm mm

**D**

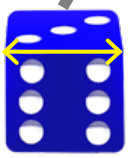


m cm mm



**3** Write the letter of the tool that would be useful for measuring each item below: **A**, **B**, **C**, **D**.

**a**



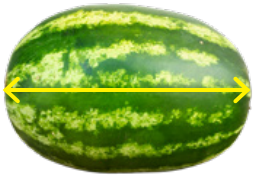
**b**

**c**

**d**

**e**

**f**



**4** Which units would you use to measure each length above?

**a** _____ **b** _____ **c** _____

**d** _____ **e** _____ **f** _____

## Mastery Checklist

I can:
- ☐ measure and estimate lengths in centimetres and millimetres
- ☐ convert between length units – metres, centimetres and millimetres
- ☐ find differences in length
- ☐ use benchmarks for estimation
- ☐ match tools and units to the length being measured



**Measurement** Measuring: Using the appropriate tool for measuring length; Different measurement tools and scales use different-sized units; the unit must be recorded with the measurement amount

# Classroom layout

In the old days, classrooms were just rows of desks to fit as many students as possible in one room.

If your classroom was just rows of desks, how many students could you fit in?

1 Measure these lengths in metres:

a width of your classroom

_____

b length of your classroom

_____

2 If 1 metre = 1 cm on the grid, draw an outline of your classroom.

3 Measure these lengths:

a width of your desk

_____

b length of your desk

_____

4 a How many desks will fit across the width of your classroom?

_____

b How many rows of desks will fit down the length of your classroom? _____

5 a Can you put the desks right up against each other? Why?

_____

b Measure how much space you think you need between the rows of desks.

_____

6 a Draw as many rows of desks as possible into your classroom outline – remember 1 m = 1 cm.

b How many students can sit at each desk? _____

c How many students could fit into your classroom full of desks? _____



I can solve problems by:

☐ measuring lengths ☐ drawing a diagram to scale

# Checkpoint 4

**1** Write the fraction. p 51

a three-fifths ☐

b seven-tenths ☐

**2** Order these fractions from smallest to largest. p 52

$\frac{1}{3}$, $\frac{1}{5}$, $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{6}$

_____ _____ _____ _____ _____

**3** Circle the larger fraction. $\frac{1}{2}$ , $\frac{1}{5}$ p 52

**4** a 16 apples in a box. p 53

What is $\frac{1}{4}$ of the box? _____

b $\frac{1}{5}$ of a box of berries = 3.

1 whole box of berries = _____

**5** True or false? p 55

a $\frac{1}{2}$ is the same as $\frac{2}{4}$ _____

b $\frac{1}{2}$ is more than $\frac{2}{5}$ _____

**6** Write the symbol: =, <, >. p 55

a $\frac{1}{2}$ ☐ $\frac{2}{3}$ b $\frac{4}{10}$ ☐ $\frac{3}{5}$

c $\frac{3}{4}$ ☐ $\frac{6}{8}$

**7** Colour to show $2\frac{5}{8}$. p 57

**8** Write $3\frac{1}{4}$ as an improper fraction. p 58

☐/☐

**9** Write the answer. p 59

a Double $2\frac{1}{2}$ = _____

b Half of $2\frac{1}{2}$ = _____

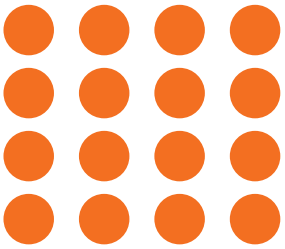
**10** Complete. p 61

a 3 + 3 + 3 = _____ × _____ = _____

b Draw an array to match.

**11** Share into 4 fair shares. p 63

How many in one share? _____



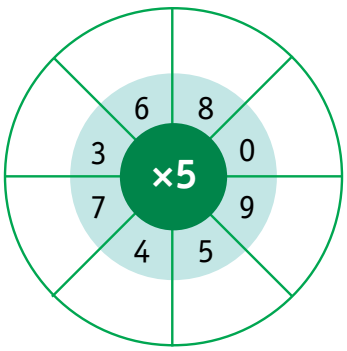
**12** a Draw 30 balls. p 63

b 30 ÷ 6 = _____

c 30 ÷ 3 = _____

d 30 ÷ 2 = _____

**13** p 66



# Checkpoint 4

**14** How many p 69

a paws on 6 cats? ____

b wheels on 7 cars? ____

c corners on 8 triangles? ____

d people in 9 trios? ____

e arms on 11 starfish? ____

f fingers on 6 hands? ____

**15** Write the missing terms. p 73

a $1.80, $1.60, _____, $1.20, _____

b 25, 33, 41, _____, _____, 65

**16** p 76

a What is on the top row in the middle?

_____

b Write the position of the jacket.

_____

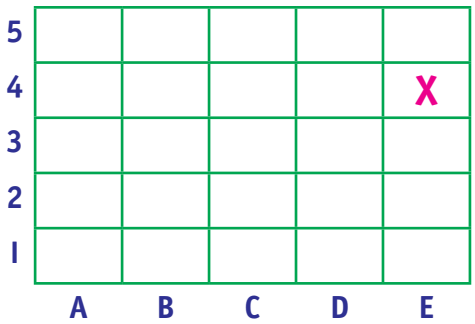
_____

**17** a Place a circle at B3. p 80

b Where is the X? _____

c From the X, go down 3 squares, then left 2 squares, and up 4 squares.

Where are you? _____




**18** p 82

a $\begin{array}{r} 4 \\ \times\ 1 \\ \hline \\ \end{array}$ b $\begin{array}{r} 5 \\ \times\ 3 \\ \hline \\ \end{array}$ c $\begin{array}{r} 4 \\ \times\ 9 \\ \hline \\ \end{array}$ d $\begin{array}{r} 10 \\ \times\ 6 \\ \hline \\ \end{array}$

**19** Each chapter in a book has 8 pages. How many pages has Liam read if he's read 4 chapters? p 82

_____

**20** p 87

Divide the stars into:

a 2 groups. _____ ÷ 2 = _____

b 3 groups. _____ ÷ 3 = _____

c 9 groups. _____ ÷ 9 = _____

d 6 groups. _____ ÷ 6 = _____

**21** a $\frac{1}{6}$ of 18 is _____ p 89

b $\frac{1}{5}$ is 3. The set is _____.

**22** a 1 m = _____ cm p 92

b $\frac{1}{2}$ m = _____ cm

c 20 cm = _____ mm

d 2·5 cm = _____ mm