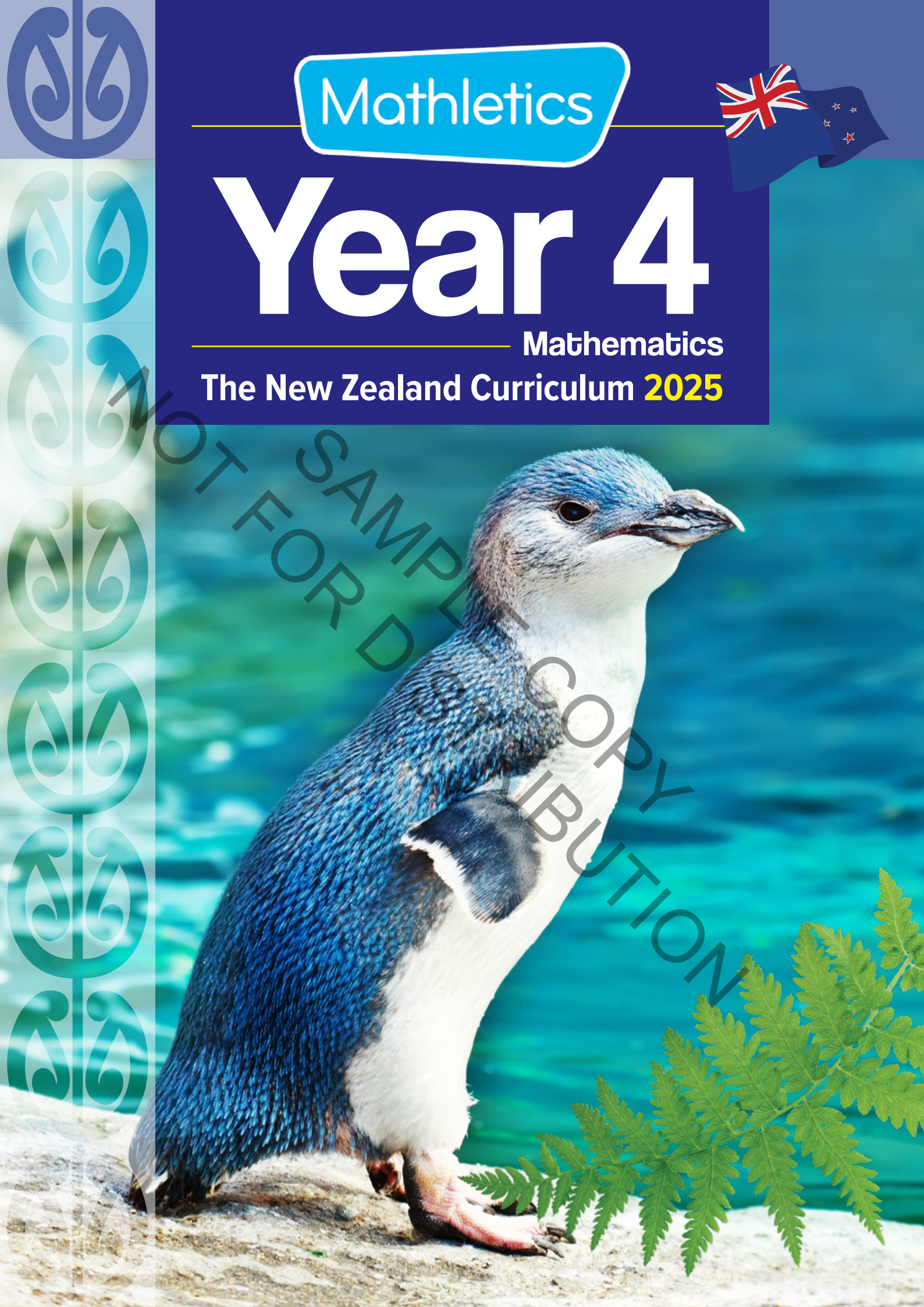
Mathletics

Year 4

Mathematics

The New Zealand Curriculum 2025



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The New Zealand Curriculum 2025

Year 4

Contents

Dictionary page vi Fast Fact Quizzes page 196

Term 1

Week	Topic	Page
1	Numbers to 1,000	2
2	Addition	7
3	Subtraction	12
4	Multiplication and sharing	17
5	Checkpoint 1 Patterns	22 24
6	Time	28
7	3D shapes	33
8	Data	38
9	Length Checkpoint 2	43 48

Term 2

Week	Topic	Page
1	Numbers over 1,000	50
2	Multiplication facts	55
3	Subtraction strategies	60
4	Fractions	65
5	Checkpoint 3 Number patterns	70 72
6	Money	76
7	Capacity	81
8	Graphs and tables	86
9	Temperature, volume and length Checkpoint 4	91 96

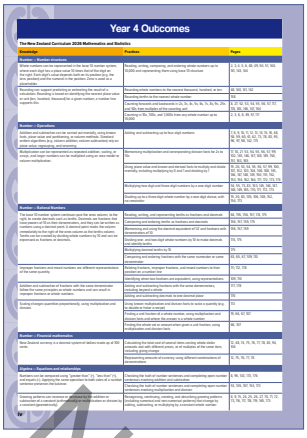
Term 3

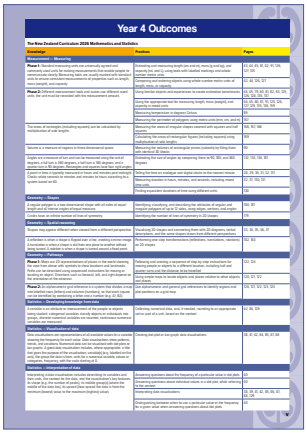
Week	Topic	Page
1	Addition strategies	98
2	Vertical multiplication	103
3	Division	108
4	Fraction thinking	113
5	Checkpoint 5 Patterns and tables	118 120
6	Position and pathways	124
7	Mass	129
8	Time calculations Angles	134 136
9	Length units Checkpoint 6	139 144

Term 4

Week	Topic	Page
1	Four-digit numbers	146
2	More multiplication facts	151
3	Division and multiplication	156
4	Decimal fractions	161
5	Checkpoint 7 Multiples	166 168
6	Area and perimeter	173
7	Calculation strategies	178
8	Decimals and fractions	183
9	2D shapes Checkpoint 8	188 193

New Edition





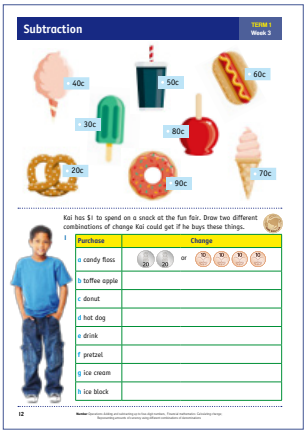
New Zealand Curriculum Alignment

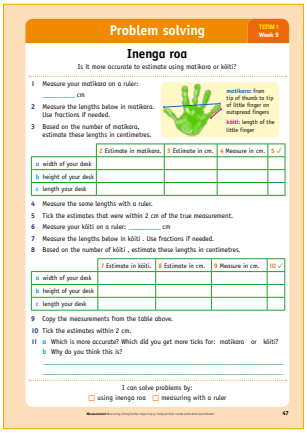
This NEW Edition fully aligns each student page with the refreshed New Zealand Curriculum: Mathematics and statistics years 0–8, 2025. The new New Zealand Curriculum teaching sequence statements appear on each student page.

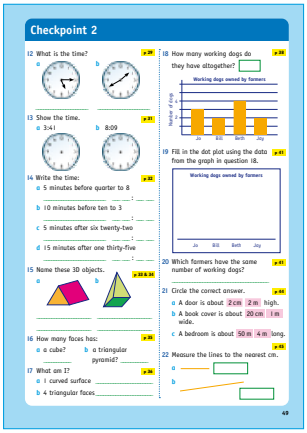
Knowledge and Practices

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 Program

Includes an integrated problem-solving program 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 Outcomes

The New Zealand Curriculum 2025 Mathematics and Statistics

Knowledge	Practices	Pages
Number — Number structures		
Whole numbers can be represented in the base 10 number system, where each digit has a place value 10 times that of the digit on the right. Each digit's value depends both on its position (e.g. the tens position) and the numeral in the position. Zero is used as a placeholder.	Reading, writing, comparing, and ordering whole numbers up to 10,000 and representing them using base 10 structure	2, 3, 4, 5, 6, 50, 51, 52, 53, 146, 148, 149, 150
Rounding can support predicting or estimating the result of a calculation. Rounding is based on identifying the nearest place value or unit (ten, hundred, thousand) for a given number; a number line supports this.	Rounding whole numbers to the nearest thousand, hundred, or 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

Year 4 Outcomes

The New Zealand Curriculum 2025 Mathematics and Statistics

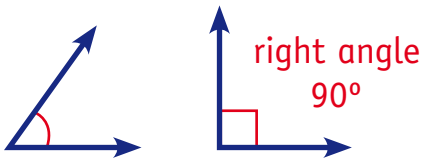
Knowledge	Practices	Pages
Measurement — Measuring		
Phase 1: Standard measuring units are universally agreed and commonly used units for making measurements that enable people to communicate clearly. Measuring tools are usually marked with standard units to ensure consistent measurements of properties such as length, mass (weight), and capacity.	Estimating and measuring length (cm and m), mass (g and kg), and capacity (mL and L), using tools with labelled markings and whole-number metric units	43, 44, 45,46, 83, 84, 130, 131, 139, 165
	Comparing and ordering objects using whole-number metric units of length, mass, or capacity	42, 44, 130, 131
Phase 2: Different measurement tools and scales use different-sized units; the unit must be recorded with the measurement amount.	Using familiar objects and experiences to create estimation benchmarks	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

Dictionary

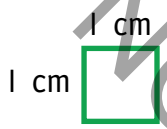
angle

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

Measured in degrees



area



The size of a surface

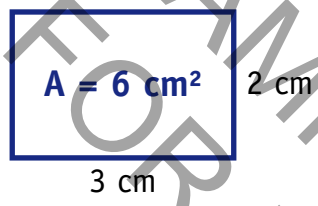
Measured in squares

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

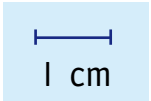
Measured in cups, litres (L) and millilitres (mL)

centimetre (cm)

A unit of length

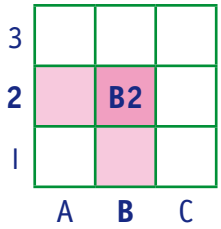
10 mm = 1 cm

100 cm = 1 m



coordinates

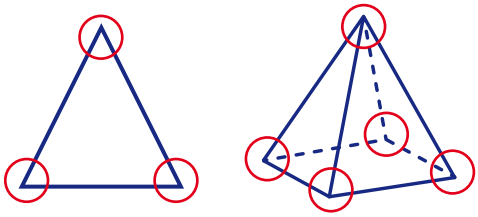
Position on a grid using letters and numbers for the rows and columns



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

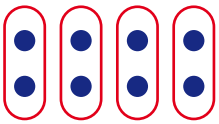
digit

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

Dictionary

division (÷)

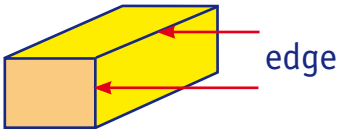
Sharing into equal groups



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

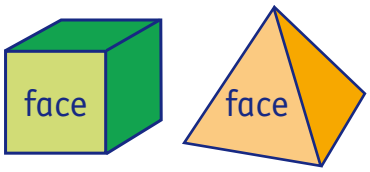
Make a good guess

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

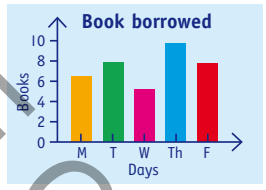
grams (g)

A unit of mass (weight)

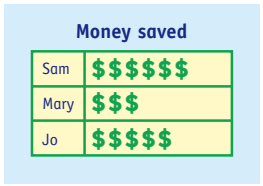
1,000 g = 1 kg

graph

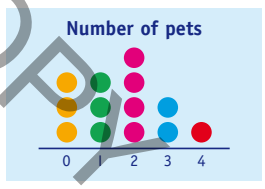
A diagram that shows a collection of data



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

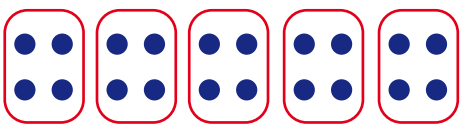
10 mm = 1 cm

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

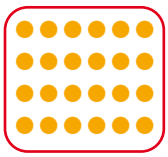
multiple
The product (answer) when you multiply a given number by another

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

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

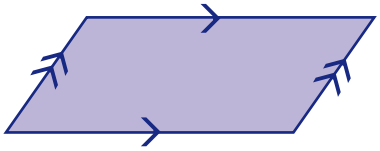


5 × 4 = 20



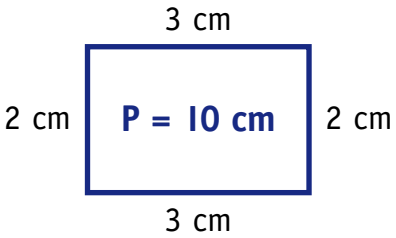
4 × 6 = 24

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

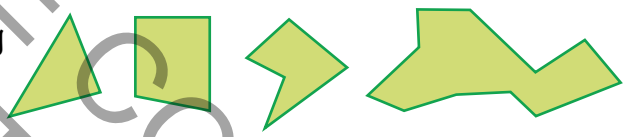
396 = 300 + 90 + 6

754 = 7 hundreds + 5 tens + 4 ones

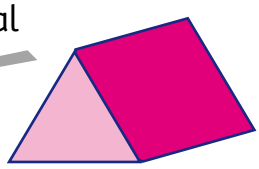
8·57 = 8 ones + 5 tenths + 7 hundredths

polygon
A closed shape with 3 or more straight sides

eg



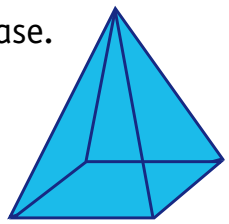
prism
A 3D shape with identical ends. All other faces are rectangles. The ends give a prism its name.



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.

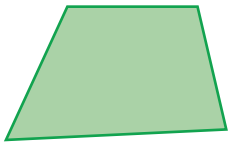


square pyramid

Dictionary

quadrilateral

A 2D shape with 4 straight sides



regular polygons

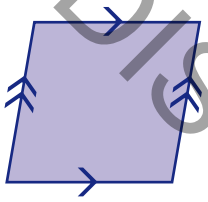
2D shapes with all sides the same length and all angles the same size

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

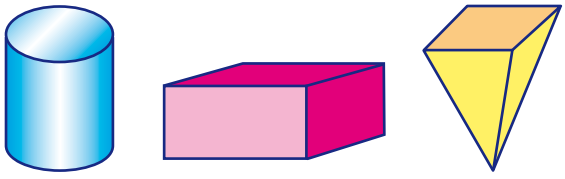
Round up 0 — 5 6 7 8 9

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

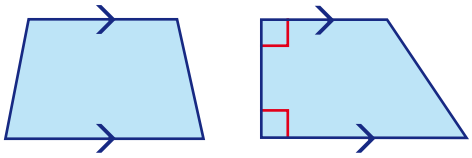
1 hour = 60 minutes

1 minute = 60 seconds

trapezium

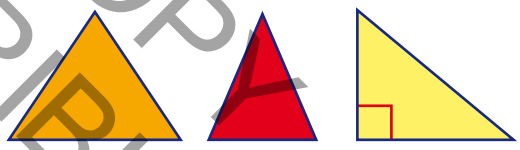
A quadrilateral that has one pair of parallel sides

Some have 2 right angles



triangle

A 2D shape with 3 straight sides

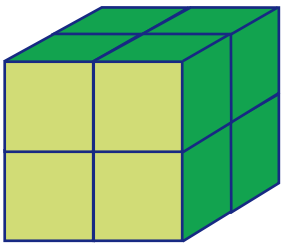


two-dimensional shapes (2D)

Shapes that only have length and width

volume

The amount of space a solid object takes up



Numbers to 1,000

10	20	30	40	50	60	70	80	90	100
110	120	130	140	150	160	170	180	190	200
210	220	230	240	250	260	270	280	290	300
310	320	330	340	350	360	370	380	390	400
410	420	430	440	450	460	470	480	490	500
510	520	530	540	550	560	570	580	590	600
610	620	630		650	660	670	680	690	700
710	720				760	770	780	790	800
810	820	830		850	860	870	880	890	900
910	920	930	940	950	960	970	980	990	1,000

1 Write:

a the 5 missing numbers.

b the numbers between 360 and 370. 361, 362

c 10 more than 160. _____ d 10 less than 700. _____

e 100 more than 180. _____ f 100 less than 910. _____

2 Count in 10s from 740 to 800. _____

3 Count in 100s from 440 to 840. _____

4 a Circle the numbers 10 more than 600, 770, 510, 850.

b Circle the numbers 100 less than 600, 770, 510, 850.

Counting in tens and hundreds

1 Complete.

a	196	197	198					
b	405	406	407					
c	770	769	768					

2 Complete the table.

Number	1 more	10 more	100 more
a 57			
b 300			
c 690			
d 799			
e 205			

3 Write the number 10 less than:

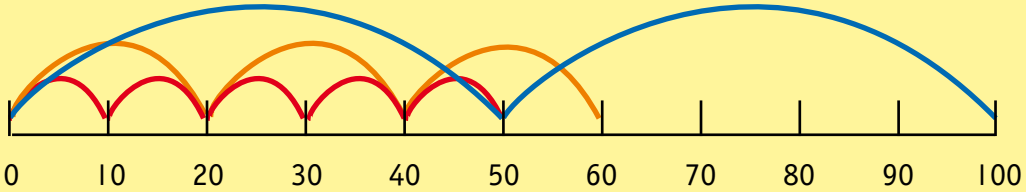
a 70 _____ **b** 330 _____ **c** 500 _____ **d** 405 _____

4

a	340	+ 10 →		+ 10 →		+ 10 →
b	572	+ 10 →		+ 10 →		+ 10 →
c	870	− 10 →		− 10 →		− 10 →
d	600	− 10 →		− 10 →		− 10 →

Challenge! Who will land on 850? _____

Flea jumps in tens, **Grasshopper** jumps in 20s, **Frog** jumps in 50s.



Place value

1 How many?

a

Hundreds	Tens	Ones
100 100 100 100 100	10 10 10 10 10 10	1 1 1

_____

b

Hundreds	Tens	Ones
100 100 100 100 100 100		1 1 1 1 1 1 1

_____

2 Complete: eg 549 = 5 hundreds, 4 tens and 9 ones

a 362 = _____ hundreds, _____ tens and _____ ones

b 791 = _____ hundreds, _____ tens and _____ ones

c _____ = 6 hundreds, 3 tens and 7 ones

d _____ = 8 hundreds and 4 tens

e 963 = _____ hundreds, _____ tens and _____ ones

f 602 = _____ hundreds, _____ tens and _____ ones

g _____ = 8 hundreds, 4 tens and 7 ones

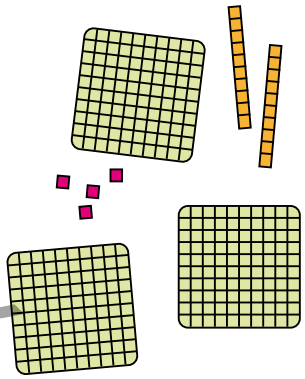
3 Beware! These are not in place value order. Write the number:

a _____ = 2 hundreds, 4 ones and 3 tens

b _____ = 8 ones, 6 tens and 4 hundreds

c _____ = 9 ones and 7 hundreds

d _____ = 1 hundreds and 2 tens



4 Complete.

a 264 = 200 + 60 + ☐

b 670 = ☐ + 70 + 0

c 712 = ☐ + 10 + ☐

d 354 = ☐ + ☐ + ☐

e 617 = 600 + ☐ + ☐

f 409 = ☐ + ☐ + 9

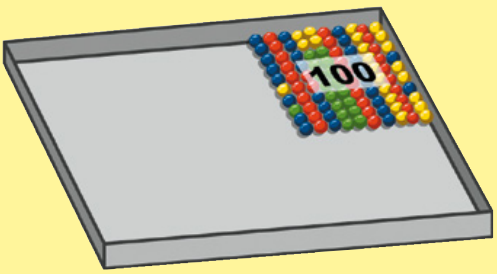
g 555 = ☐ + ☐ + ☐

h 830 = ☐ + ☐ + ☐

Challenge!

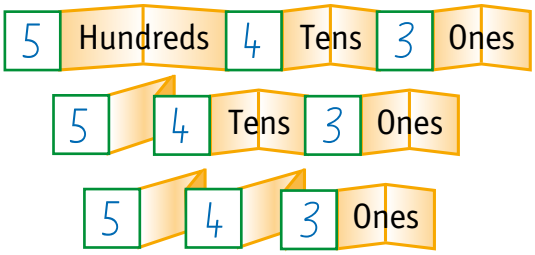
About how many marbles would fill the tray?

☐



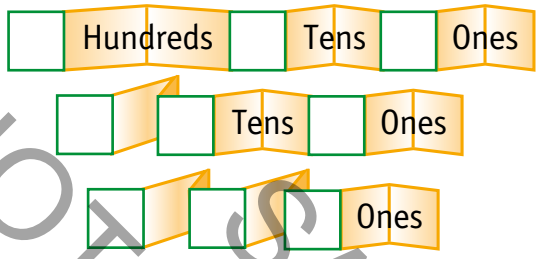
Place value

543

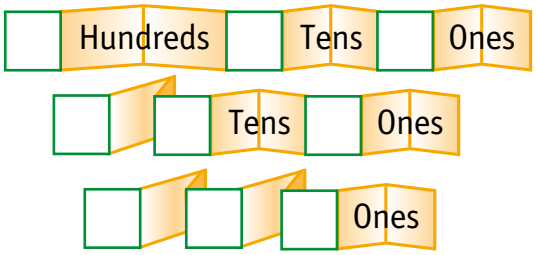


1 Show the numbers on the numeral expanders.

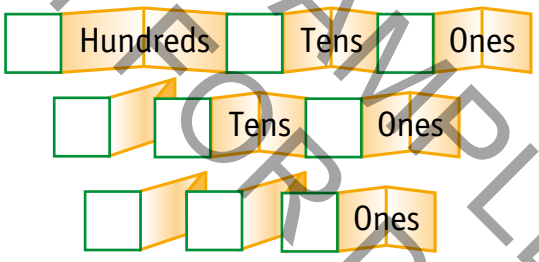
a 679



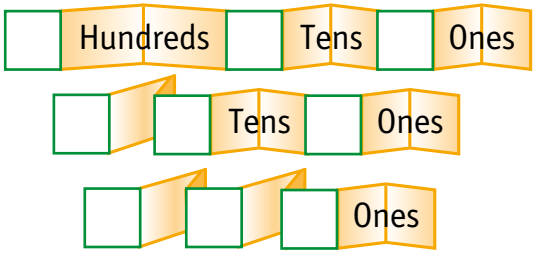
b 107



c 820



d 716



2 Write the hundreds, tens and ones.

a 642

_____ hundreds + _____ tens + _____ ones

_____ tens + _____ ones

_____ ones

b 495

_____ hundreds + _____ tens + _____ ones

_____ tens + _____ ones

_____ ones

c 281

_____ hundreds + _____ tens + _____ ones

_____ tens + _____ ones

_____ ones

d 95

_____ hundreds + _____ tens + _____ ones

_____ tens + _____ ones

_____ ones

Write and order 3-digit numbers

TERM 1
Week 1

1 Complete each counting pattern.

a 260, 270, 280, ____, ____, ____, ____, ____

b 770, 670, 570, ____, ____, ____, ____, ____

c 118, 128, 138, ____, ____, ____, ____, ____

d 475, 465, 455, ____, ____, ____, ____, ____

e 920, 820, 720, ____, ____, ____, ____, ____

2 Write each number.

a three hundred and forty-two _____ **b** seven hundred and ten _____

c nine hundred and one _____ **d** four hundred and fourteen _____

3 Write in words.

a 509 _____

b 213 _____

4 Underline the larger number. Write **is less than** or **is greater than** to compare the two numbers.

a 269 _____ 312 **b** 786 _____ 867 **c** 499 _____ 501

d 301 _____ 199 **e** 614 _____ 641 **f** 221 _____ 212

Looking for patterns

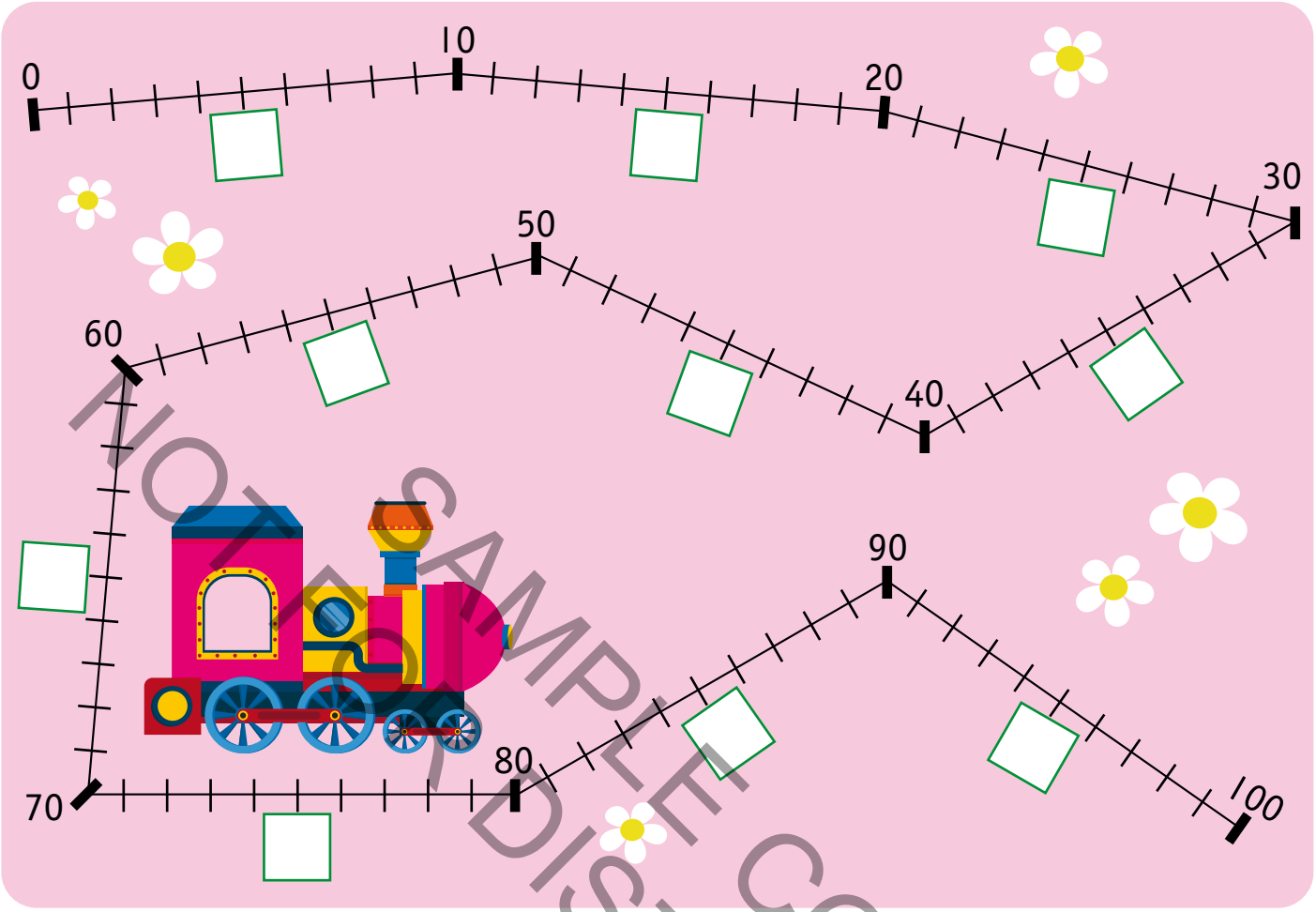
Make different 3-digit numbers with these numbers.
How many numbers can you make? How many are odd?
How many are even? Repeat with 3 different numbers.
Can you see a pattern?

Mastery Checklist I can:

- ☐ count in 10s and 100s to 1,000
- ☐ find 1, 10 and 100 more or less
- ☐ understand place value to hundreds
- ☐ partition numbers into hundreds, tens and ones
- ☐ write and order 3-digit numbers

Number Number structures: Reading, writing, comparing, whole numbers up to 10,000 and representing them using base 10 structure; Counting in 10s, 100s, from any whole number

Addition



1 Fill in the boxes.

2 Start at:

a 46 and go forward 8. ____ b 46 and go back 15. ____ c 46 and go forward 23. ____

3 Start at:

a 57 and go back 6. ____ b 57 and go forward 15. ____ c 57 and go forward 29. ____

4 Start at:

a 28 and go forward 2. ____ b 28 and go back 18. ____ c 28 and go forward 26. ____

5 This time keep hopping. Start at 81 and

a go back 5, ____ b now go forward 1, ____ c now go forward 9. ____

6 Start at 6 and

a go forward 14, ____ b now go back 6, ____ c now go forward 20. ____

Counting in 5s and 10s

TERM 1
Week 2

1 Five more than:

a 20 _____	**b** 40 _____	**c** 75 _____	**d** 25 _____	**e** 10 _____
f 15 _____	**g** 35 _____	**h** 50 _____	**i** 11 _____	**j** 79 _____
k 17 _____	**l** 93 _____	**m** 44 _____	**n** 58 _____	**o** 86 _____

2 Ten less than:

a 60 _____	**b** 85 _____	**c** 30 _____	**d** 45 _____	**e** 95 _____
f 39 _____	**g** 91 _____	**h** 63 _____	**i** 13 _____	**j** 27 _____

3 Fill in the blanks and write a number sentence.

eg I start at 37, go forward 30 and stop at 67. | 37 | + | 30 | = 67 |

a I start at 48, go _____ _____ and stop at 88. | | | | = 88 |

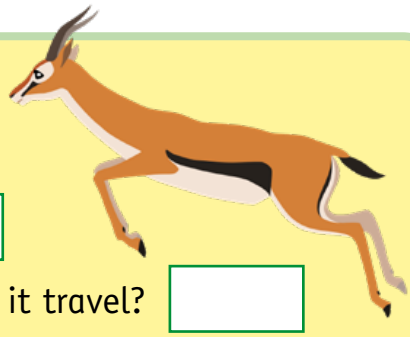
b I start at 64, go _____ _____ and stop at 94. | | | | = 94 |

c I start at 22, go _____ _____ and stop at 72. | | | | = 72 |

4 Fill in the missing numbers.

							Rule
a	14		24	29	39	44	+ 5
b	68		88		118		
c	65		55	50		35	
d	32	37		47		57	
e	129			114		99	

Challenge!



A springbok can leap 5 m.

If it travels 50 m, how many leaps does it make? _____

A cougar can jump 10 m. If it jumps 7 times, how far does it travel? _____

Number Operations: Adding and subtracting up to four-digit numbers; Counting forwards and backwards in 5s; Counting in 10s from any whole number;
Algebra Equations and relationships: Completing open number sentences involving addition and subtraction; Recognising, continuing, and describing growing patterns (including numerical patterns) that change by adding, subtracting, by a constant whole number

Doubles and near doubles

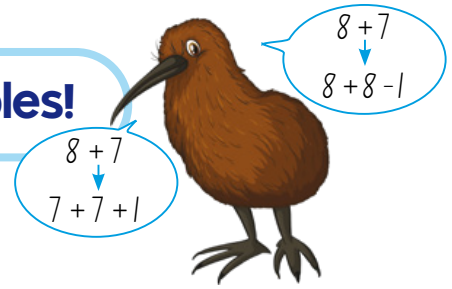
1 a double 2 ☐ + ☐ = ☐ b double 8 ☐ + ☐ = ☐

c double 5 ☐ + ☐ = ☐ d double 10 ☐ + ☐ = ☐

e double 9 ☐ + ☐ = ☐ f double 16 ☐ + ☐ = ☐

2 a $4 + 4 =$ ____ b $7 + 7 =$ ____ c $11 + 11 =$ ____ d $13 + 13 =$ ____ e $0 + 0 =$ ____ f $9 + 9 =$ ____

Sometimes numbers are near doubles!



3 Show the near double you used.

a $4 + 5 =$ 4 + 4 + 1 = ____ b $10 + 9 =$ ____ = ____

c $3 + 2 =$ ____ = ____ d $8 + 9 =$ ____ = ____

e $7 + 6 =$ ____ = ____ f $6 + 5 =$ ____ = ____

g $12 + 13 =$ ____ = ____ h $17 + 16 =$ ____ = ____

i $15 + 14 =$ ____ = ____ j $19 + 18 =$ ____ = ____

4 a A cake costs $9. How much for 2 cakes? ____

b One puppy weighs 5 kg. What is the mass of two puppies? ____

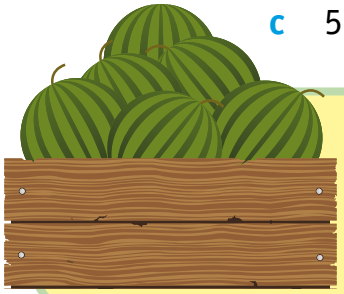
c One bottle of cordial makes 18 drinks.
How many drinks will two bottles make? ____

d I bought two books. One book cost $14 and
the other cost $13. How much did I spend? ____

5 Keep doubling. a 2 4 8 ____ ____ ____

b 3 ____ ____ ____ ____ ____

c 5 ____ ____ ____ ____ ____



Challenge!

If one box holds 6 watermelons, how many watermelons will 8 boxes hold? ☐

Addition facts to 10 and 20

1 Look for the ten then find the total.

a 10

7	5	3	= 15

b

5	5	1	= _____

c

9	6	4	= _____

d

6	8	2	= _____

e

1	3	9	= _____

f

9	1	7	= _____

g

4	6	2	= _____

h

2	4	8	= _____

i

3	8	7	= _____

2

+	★★★	★★★★ ★★★	★★★ ★★★	★	★★ ★ ★★		★★★ ★★★	★★★ ★★ ★★★
●●● ●●●								
●●● ●								

3

a
6 + 7 = _____
16 + 7 = _____
26 + 7 = _____

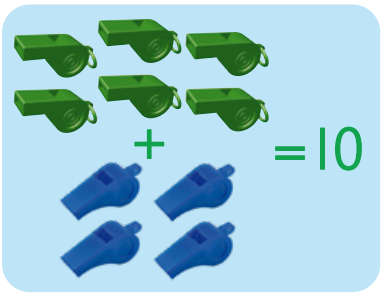
b
5 + 8 = _____
15 + 8 = _____
25 + 8 = _____

c
9 + 4 = _____
9 + 14 = _____
9 + 24 = _____

d
5 + 6 = _____
25 + 6 = _____
65 + 6 = _____

e
8 + 7 = _____
8 + 37 = _____
8 + 57 = _____

f
3 + 8 = _____
43 + 8 = _____
83 + 8 = _____



4 Look for tens.

a 6 + 3 + 7 + 4 = _____

b 8 + 5 + 2 + 5 = _____

c 9 + 7 + 1 + 5 = _____

d 4 + 9 + 6 + 9 = _____

e 3 + 8 + 7 + 6 = _____

f 2 + 9 + 7 + 8 = _____

Challenge! Look for tens to add:

1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 = ☐

91 + 82 + 73 + 64 + 55 + 46 + 37 + 28 + 19 = ☐

Vertical addition

1 a
$$\begin{array}{r} 73 \\ +\ 14 \\ \hline \\ \hline \end{array}$$

b
$$\begin{array}{r} 55 \\ +\ 32 \\ \hline \\ \hline \end{array}$$

c
$$\begin{array}{r} 21 \\ +\ 48 \\ \hline \\ \hline \end{array}$$

d
$$\begin{array}{r} 69 \\ +\ 40 \\ \hline \\ \hline \end{array}$$

e
$$\begin{array}{r} 63 \\ +\ 35 \\ \hline \\ \hline \end{array}$$

f
$$\begin{array}{r} 28 \\ +\ 61 \\ \hline \\ \hline \end{array}$$

g
$$\begin{array}{r} 19 \\ +\ 70 \\ \hline \\ \hline \end{array}$$

h
$$\begin{array}{r} 47 \\ +\ 42 \\ \hline \\ \hline \end{array}$$

2 a
$$\begin{array}{r} 17 \\ 12 \\ +\ 10 \\ \hline \\ \hline \end{array}$$

b
$$\begin{array}{r} 33 \\ 34 \\ +\ 32 \\ \hline \\ \hline \end{array}$$

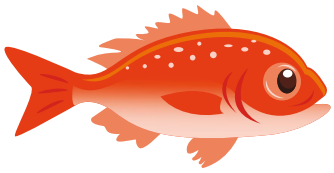
c
$$\begin{array}{r} 21 \\ 22 \\ 21 \\ +\ 22 \\ \hline \\ \hline \end{array}$$

d
$$\begin{array}{r} 41 \\ 42 \\ 43 \\ +\ 40 \\ \hline \\ \hline \end{array}$$

3 Write the vertical addition and calculate the answer.

a 24 + 63 = _____

$$\begin{array}{r} \\ + \\ \hline \\ \hline \end{array}$$



b 13 + 24 + 31 = _____

$$\begin{array}{r} \\ \\ + \\ \hline \\ \hline \end{array}$$

c 57 + 20 + 13 + 9 = _____

$$\begin{array}{r} \\ \\ \\ + \\ \hline \\ \hline \end{array}$$

Mastery Checklist I can:

- ☐ count on to add
- ☐ count in 5s and 10s
- ☐ use doubles and near doubles to add
- ☐ make 10 to add
- ☐ use number patterns to add
- ☐ use a vertical addition method

Subtraction

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.

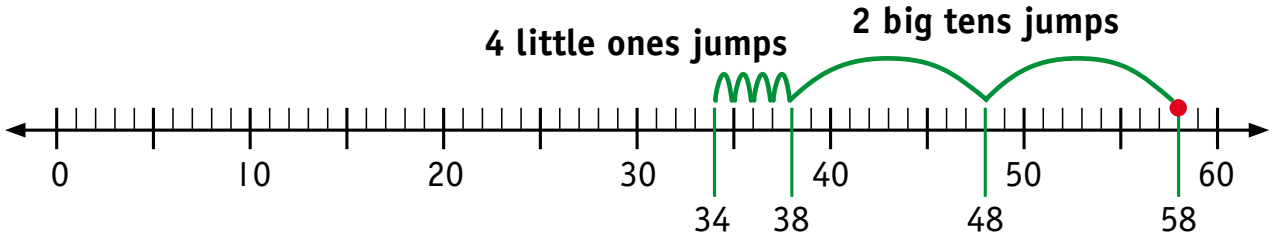
1

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	

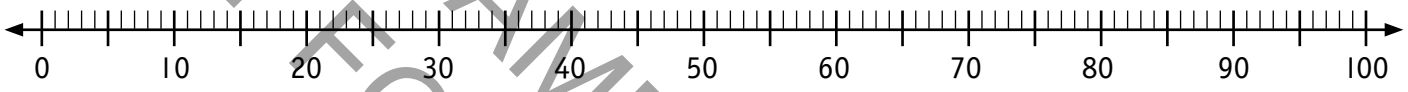
Use a number line

Look at this subtraction on the number line.

$58 - 24 = \square$



1 Use this number line to help you find the difference.



a 12 – 7 = _____ **b** 38 – 11 = _____ **c** 84 – 34 = _____

d 26 – 13 = _____ **e** 47 – 31 = _____ **f** 59 – 37 = _____

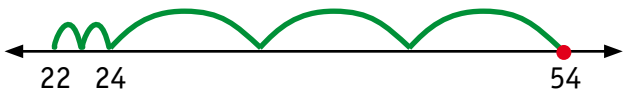
g 93 – 56 = _____ **h** 60 – 42 = _____ **i** 19 – 8 = _____

j 75 – 43 = _____ **k** 38 – 24 = _____ **l** 96 – 81 = _____

m 27 – 14 = _____ **n** 85 – 53 = _____ **o** 51 – 37 = _____

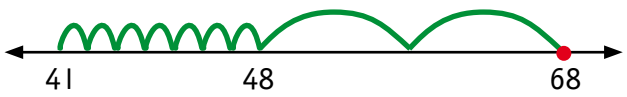
2 Write an equation for each number line.

a



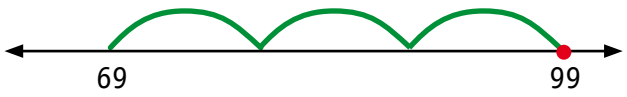
□ – □ = □

b



□ – □ = □

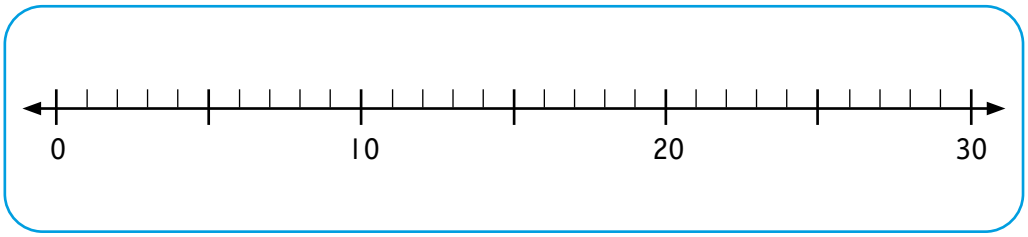
c



□ – □ = □

Subtraction on a number line

TERM 1
Week 3



– is the take away sign. It means take away, subtract, difference between, minus or less.

1 Use the number line to find the difference.

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? ☐ – ☐ = ☐

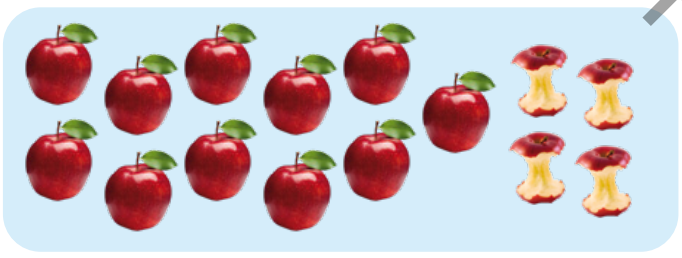
d 22 keys, 0 lost. How many keys? ☐ – ☐ = ☐

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



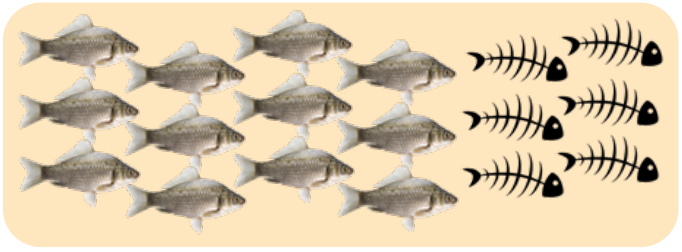
_____

_____

_____

☐ – ☐ = ☐

b



_____

_____

_____

☐ – ☐ = ☐

Challenge! You have 36 lollies.

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

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

Subtraction facts

1 **a**

9 – 4 = 5

90 – 40 = 50

900 – 400 = 500

b

7 – 3 = ____

70 – 30 = ____

700 – 300 = ____

c

5 – 2 = ____

____ – ____ = ____

____ – ____ = ____

d

8 – 6 = ____

____ – ____ = ____

____ – ____ = ____

e

9 – 8 = ____

____ – ____ = ____

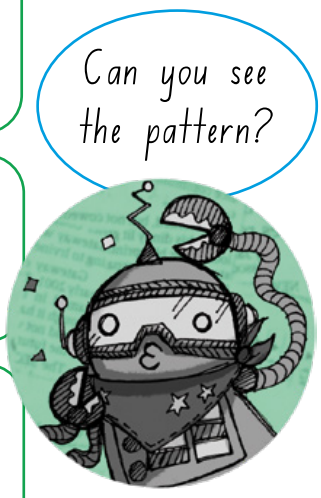
____ – ____ = ____

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 5 + 6 = ____ , ____ + ____ = ____ , ____ – ____ = ____ , ____ – ____ = ____

c 8 + 5 = ____ , ____ + ____ = ____ , ____ – ____ = ____ , ____ – ____ = ____

d 9 + 7 = ____ , ____ + ____ = ____ , ____ – ____ = ____ , ____ – ____ = ____

e 6 + 7 = ____ , ____ + ____ = ____ , ____ – ____ = ____ , ____ – ____ = ____

f 4 + 9 = ____ , ____ + ____ = ____ , ____ – ____ = ____ , ____ – ____ = ____

3 **a** Cross out some dolls. Write a number story and a number sentence.

____ – ____ = ____

b Write the 3 other number facts.

_____ _____ _____

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

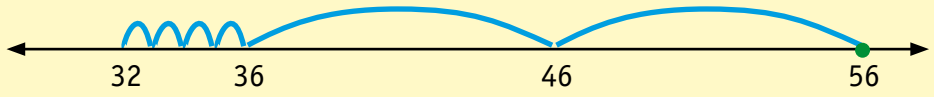
What is wrong with Ari's story? _____

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

Two-digit subtraction

1 Use a number line.

eg 56 – 24 = 32



a 75 – 31 = _____

b 89 – 47 = _____

c 38 – 23 = _____

d 64 – 40 = _____

2 a 48 – 21 = _____

$$\begin{array}{r} 48 \\ -\ 21 \\ \hline \\ \hline \end{array}$$

b 66 – 36 = _____

$$\begin{array}{r} 66 \\ -\ 36 \\ \hline \\ \hline \end{array}$$

c 75 – 32 = _____

$$\begin{array}{r} 75 \\ -\ 32 \\ \hline \\ \hline \end{array}$$

d 99 – 61 = _____

$$\begin{array}{r} 99 \\ -\ 61 \\ \hline \\ \hline \end{array}$$

e 57 – 14 = _____

$$\begin{array}{r} 57 \\ -\ 14 \\ \hline \\ \hline \end{array}$$

f 83 – 70 = _____

$$\begin{array}{r} 83 \\ -\ 70 \\ \hline \\ \hline \end{array}$$

3 Jo had 38 baby mice. She sold 15. How many did she have left? _____

4 Ali picked 49 apples. He gave 23 to his friend. How many did he keep? _____

Trial and error

Look at page 12. If you had $3, what would you buy?

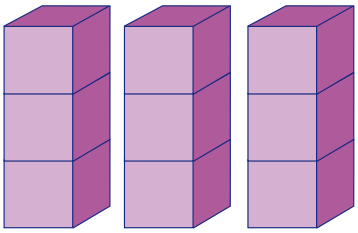
How much change would you get? ☐

Mastery Checklist I can:

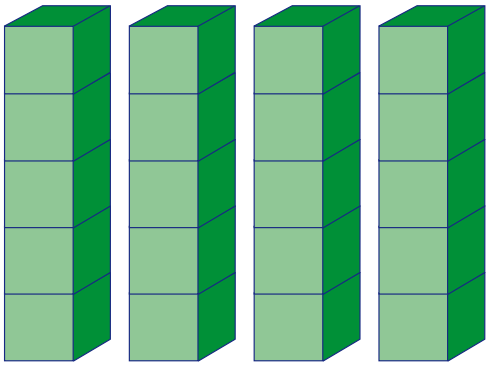
- ☐ subtract money
- ☐ show change
- ☐ use a number line to subtract
- ☐ write subtraction stories
- ☐ write subtraction number sentences
- ☐ make patterns with subtraction
- ☐ use a vertical subtraction method

Repeated addition

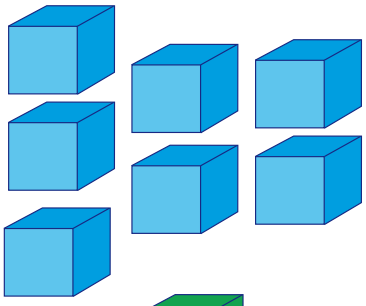
A



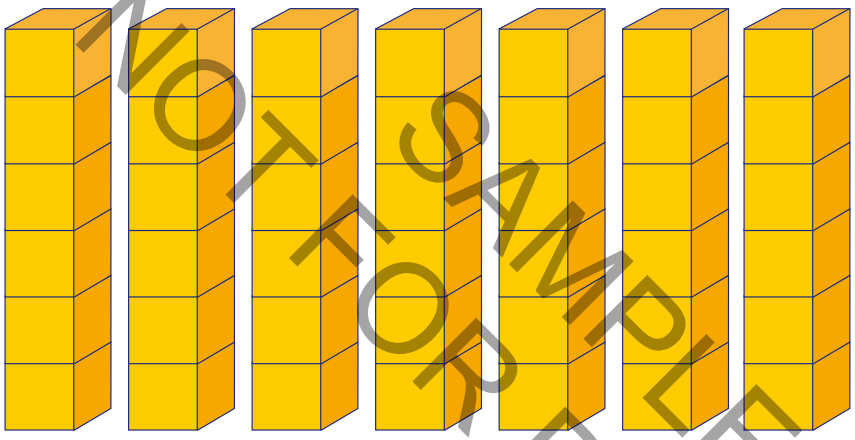
B



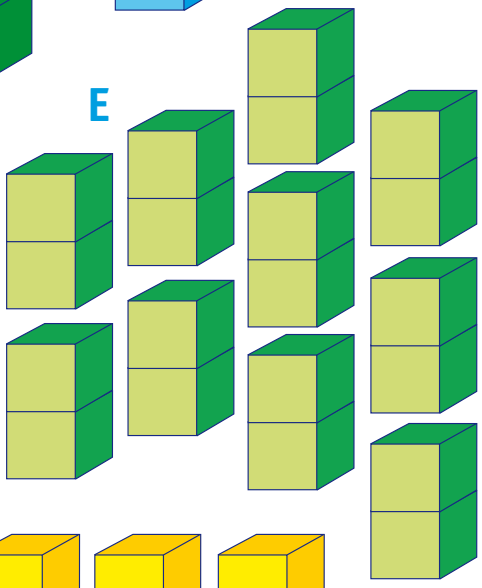
C



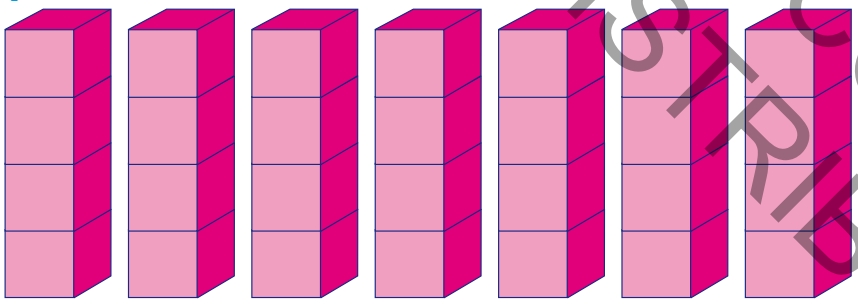
D



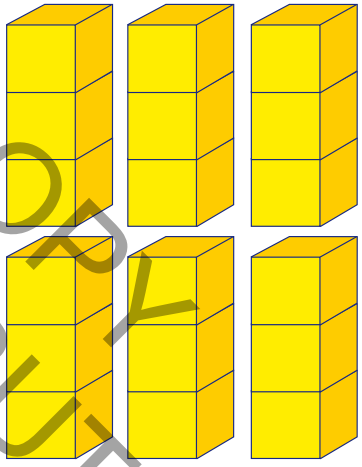
E



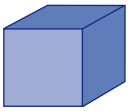
F



G



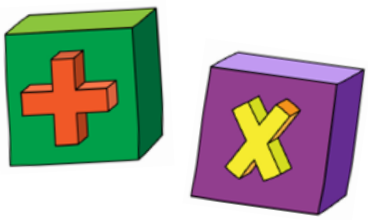
H



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.

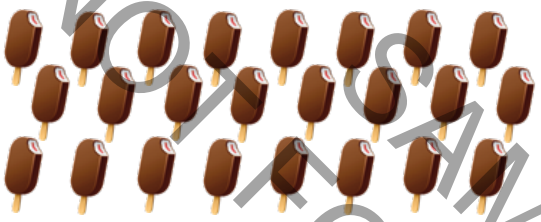


Multiplication

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

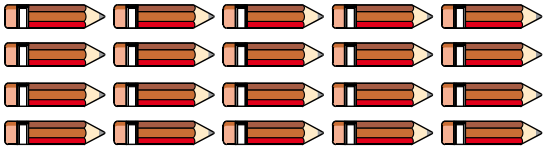
3 × 8 = ☐

b

9 + 9 + 9 + 9 + 9 + 9 + 9 = ☐ hearts

☐ × 9 = ☐

c



5 + 5 + 5 + 5 = ☐ pencils

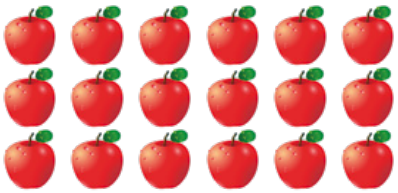
4 × ☐ = ☐

d

7 = ☐ cakes

☐ × ☐ = ☐

e



☐ + ☐ + ☐ = ☐ apples

☐ × ☐ = ☐

f

☐ + ☐ = ☐ balloons

☐ × ☐ = ☐

Number Operations: Multiplication can be represented as repeated addition or arrays; Memorising multiplication facts for 2s to 10s

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? _____

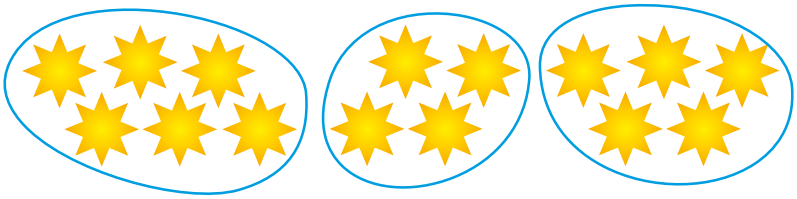
Fair shares

Fair shares means an equal number in each share.

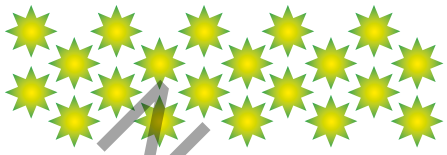
1 a Are these shares fair? _____

b Why? _____

_____

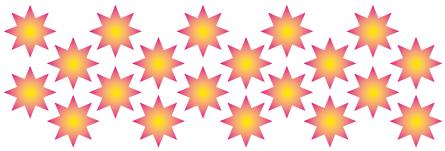


2 a Make 5 fair shares.



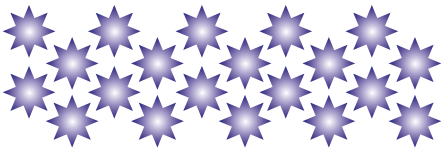
One share _____

b Make 4 fair shares.



One share _____

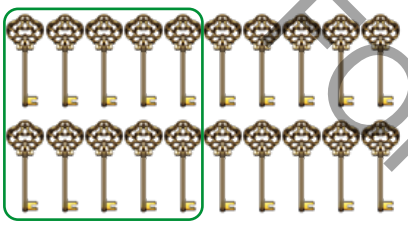
c Make 10 fair shares.



One share _____

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

a



2 shares _____

b

3 shares _____

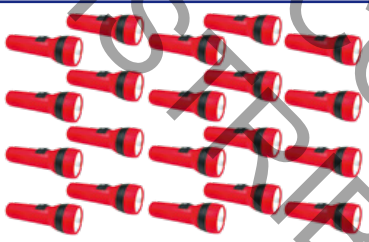
c

4 shares _____

d

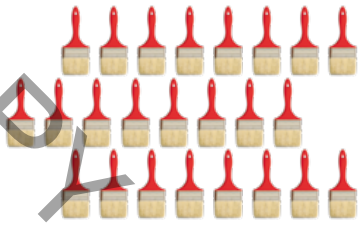
5 shares _____

e



10 shares _____

f

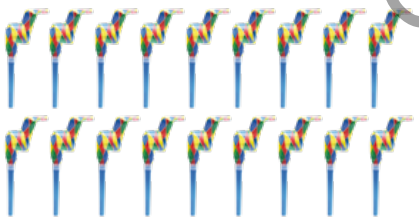


2 shares _____

g

4 shares _____

h



3 shares _____

i

4 shares _____

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

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

c Place 10 children into 2 equal groups. How many children in each group? _____

d Place 50 crayons equally into 10 boxes. How many crayons in each box? _____

e Share 27 coins among 3 girls. How many coins does each girl get? _____

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

Checkpoint 1

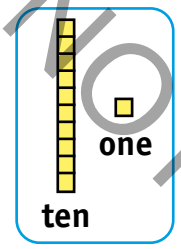
1 Which number completes the pattern?

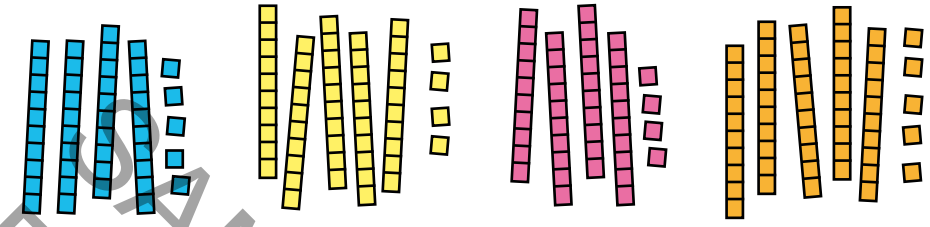
Shade one bubble.

278 268 258 248 ___

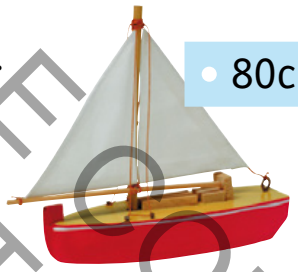
228 282 238 283

2 Which group shows 54?





3 Huey had $1 to spend and bought this toy.



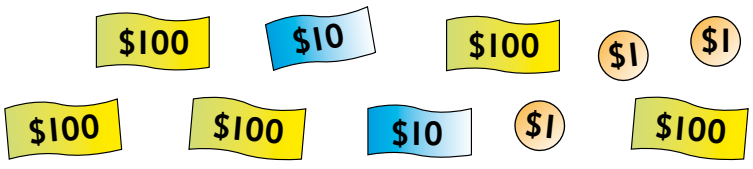
80c

How much change did he get? 50c 20c $1.20 10c

4 A cake costs $13. How much for two cakes?

$15 $23 $26 $25

5 How much altogether?



$523 $532 $343 $432

Checkpoint 1

6 Complete the equations.

Write your answers in the boxes.

+ ☐ = ☐ ☐ × ☐ = ☐

7 **a**

$$\begin{array}{r} 47 \\ +\ 16 \\ \hline \\ \hline \end{array}$$

b

$$\begin{array}{r} 38 \\ +\ 51 \\ \hline \\ \hline \end{array}$$

c

$$\begin{array}{r} 92 \\ +\ 71 \\ \hline \\ \hline \end{array}$$

d

$$\begin{array}{r} 65 \\ +\ 24 \\ \hline \\ \hline \end{array}$$

8 18 bunnies are in a row. If 11 hop away how many are left?

Shade one bubble.

11 9 7 8

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 Write the number sentence to match.

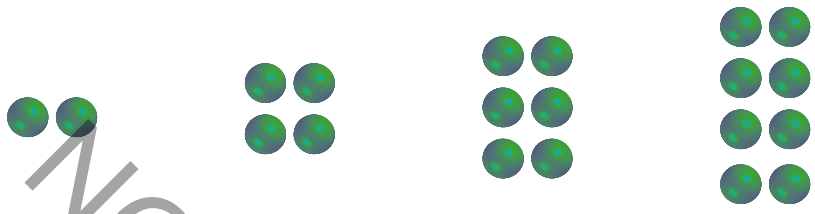
☐

Patterns

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**? _____

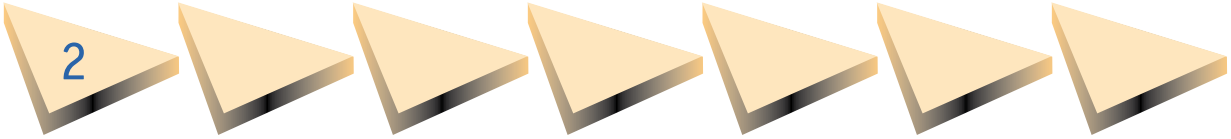
c Will 27 be in **C**? _____ Why? _____

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

b Draw it.

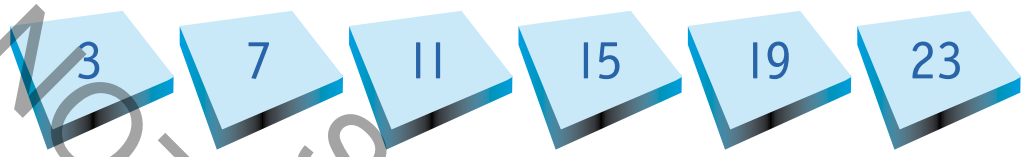
Patterns using shapes and numbers

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.

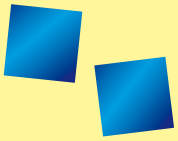
3 a What shape is used for **D**? _____

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**.

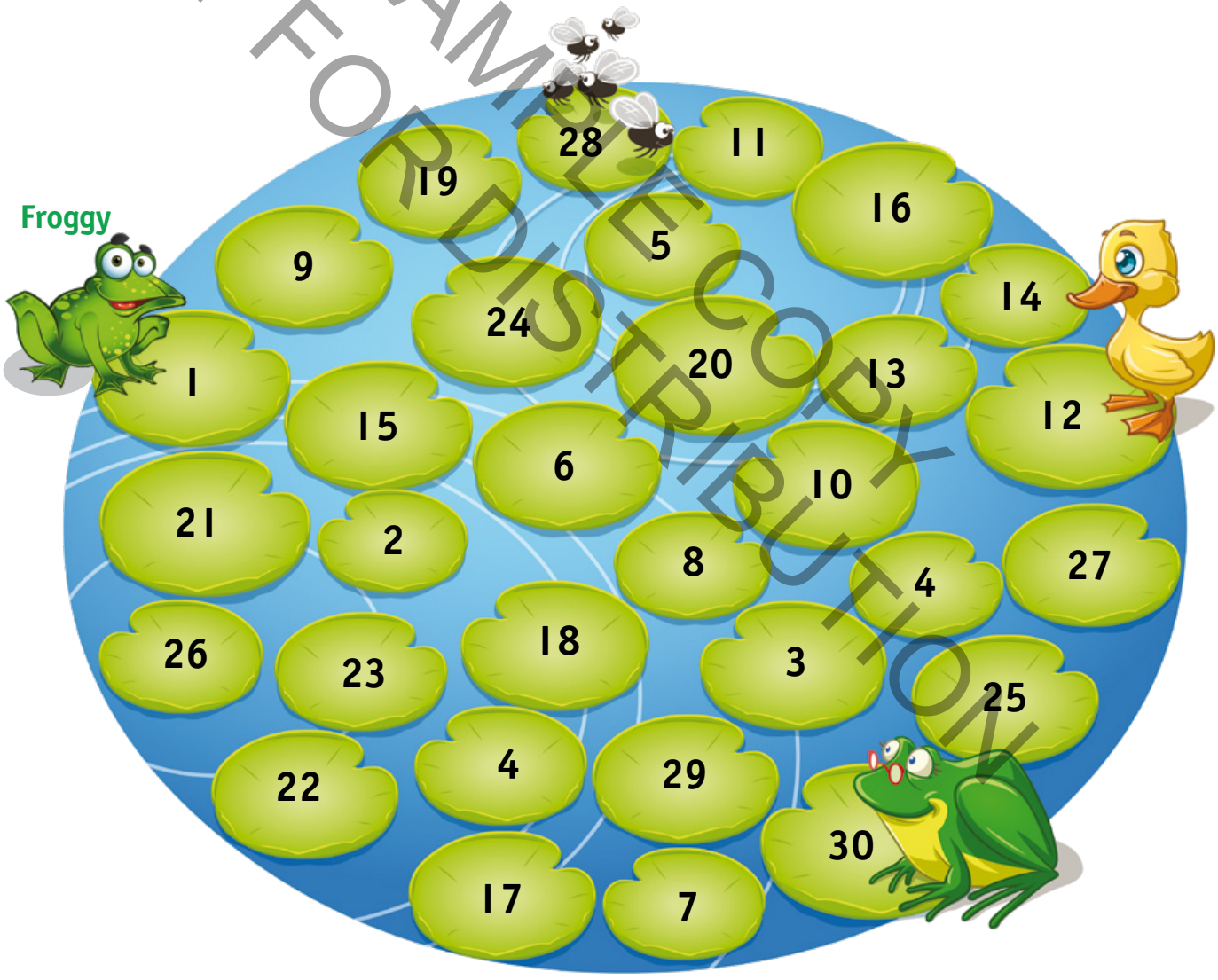
Froggy's jumps: **12** _____ How many jumps? _____

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.

_____

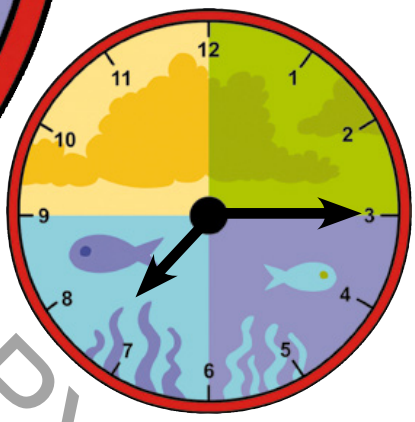


I can solve problems by:

☐ completing patterns by adding ☐ describing the patterns I see

Half hours and quarter hours

Get two craft sticks:
a shorter one for the hour hand and a longer one for the minute hand.



1 With your craft sticks show: **a** 4 o'clock **b** 7 o'clock **c** 10 o'clock

d Where is the minute hand each time? _____

e Where is the hour hand at 4 o'clock? _____

2 With your craft sticks show: **a** $\frac{1}{2}$ past 8 **b** $\frac{1}{2}$ past 11 **c** $\frac{1}{2}$ past 5

d Where is the minute hand each time? _____

e Where is the hour hand at $\frac{1}{2}$ past 8? _____

3 **a** What is the time on the small clock? _____

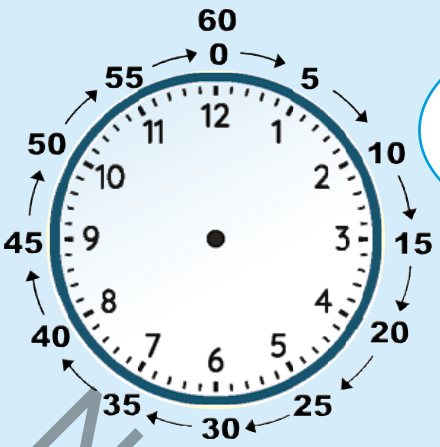
b Why is the minute hand on 3? _____

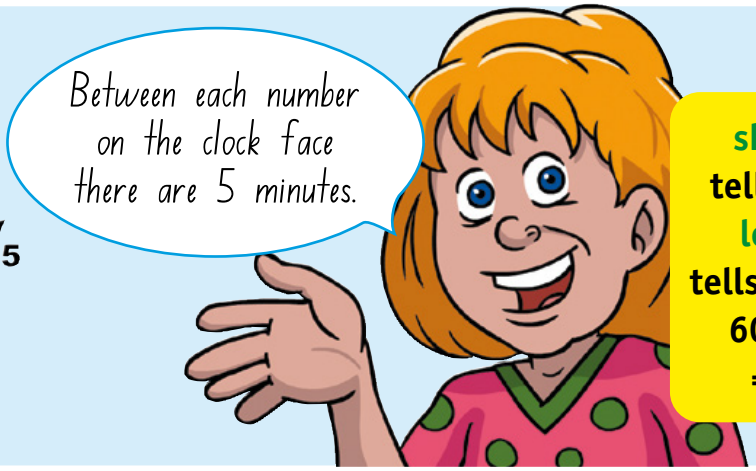
c Where is the hour hand? _____

4 With your craft sticks show: **a** $\frac{1}{4}$ past 9 **b** $\frac{1}{4}$ past 2 **c** $\frac{1}{4}$ past 10

d $\frac{1}{4}$ to 5 **e** $\frac{1}{4}$ to 3 **f** $\frac{1}{4}$ to 12

Five-minute intervals





short hand tells the hour
long hand tells the minute
60 minutes = 1 hour

1 How many minutes pass as the minute hand moves from:

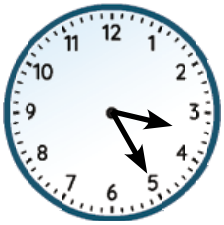
a 12 to 1 _____ b 12 to 3 _____ c 12 to 6 _____

d 12 to 9 _____ e 12 to 7 _____ f 12 to 2 _____

g 12 to 12 _____ h 12 to 11 _____ i 12 to 4 _____

j 12 to 10 _____ k 12 to 5 _____ l 12 to 8 _____

2



a 3:25

b

c

d

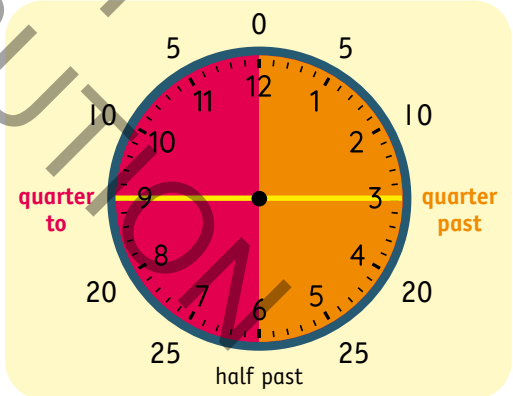
e

3 Use 'past' and 'to' to tell these times, eg $\frac{1}{4}$ to 5.

a

b

c

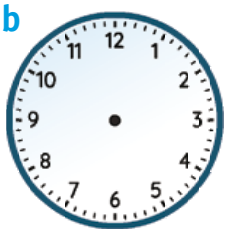


4 Draw these times.

a

25 to 5

b



5 past 10

c

$\frac{1}{4}$ to 5

d

20 past 12

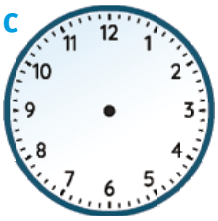
e

10 past 7

Analogue and digital times

1 a  11 : 15

b  :

c  4 : 30

d  :

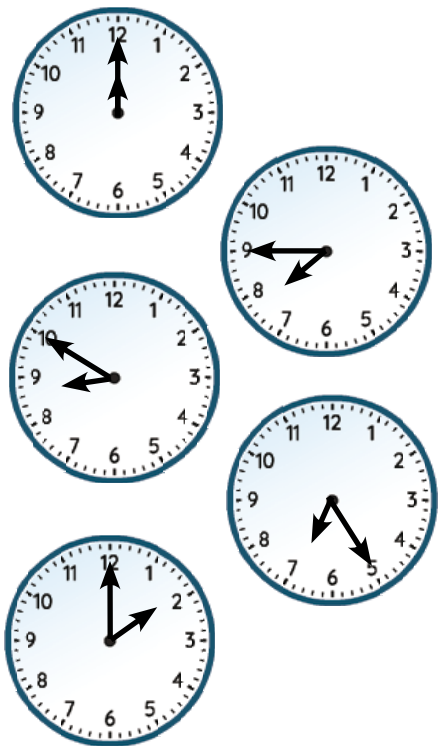
e  5 : 45

f  12 : 15

2 a 7 : 05 b 11 : 15 c 3 : 45 d 9 : 05 e 5 : 30

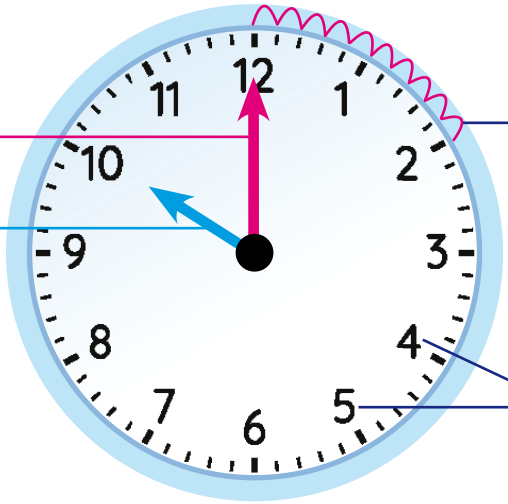
	Read	Means
a	seven-oh-five	5 minutes past 7
b		
c		
d		
e		

3 Match the time to the correct clock.



half-past one	twenty minutes past three	3 : 20
quarter-to eight	twenty-five past six	1 : 30
midnight	two o'clock	7 : 05
seven-oh-five	quarter-past ten	4 : 45
ten to nine	forty-five minutes past four	10 : 15

Time to the minute



minute hand

hour hand

The hour hand is the short hand.

The minute hand is the long hand.

10 minutes

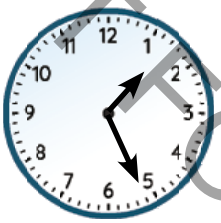
Each line = 1 minute

There are 60 lines around the clock because there are 60 minutes in one hour.

hour numbers

1 Write the minutes past the hour time. Then show the digital time.

a



:

b

:

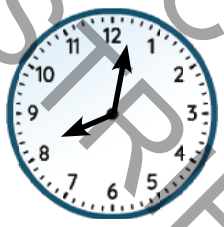
c

:

d

:

e



:

f

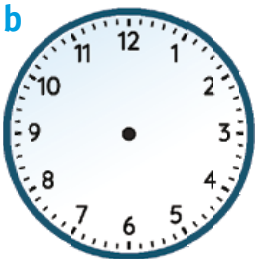
:

2 Draw these times.

a

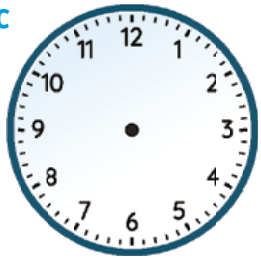
26 to 5

b



6 past 11

c



14 to 4

d

21 past 1

e

9 past 6

Time facts

1 a Draw a circle around the earliest time.

10:31 3:10 1:30 10:30

b Draw a circle around the latest time.

2:45 6:40 11:30 11:50

2 Number these times in order from earliest to latest.

5:10 ☐ 12:00 ☐ 7:45 ☐ 1:10 ☐

3 Write the analogue time 10 minutes before:

a 20 past 2 _____ b a quarter past 6 _____

c 10 past 8 _____ d half past 9 _____

4 Write the analogue time 15 minutes after:

a 25 past 4 _____ b twenty to 11 _____

c half past 7 _____ d ten to 5 _____

5 Write the analogue time 5 minutes before:

a twenty to 3 _____ b ten to 12 _____

6 Yindi has three chores to do on Saturday:

- vaccuming – 1 hour
- wash the car – 45 minutes
- stack the dishwasher – 25 minutes.

Write the chores where they will fit into Yindi's schedule.

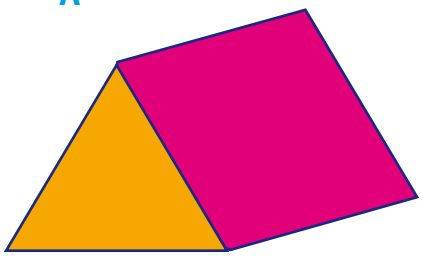
Saturday
8 breakfast
9 soccer
11
12 lunch
1 shopping
2
2:40 dance
4
4:45 Nan visiting

Mastery Checklist I can:

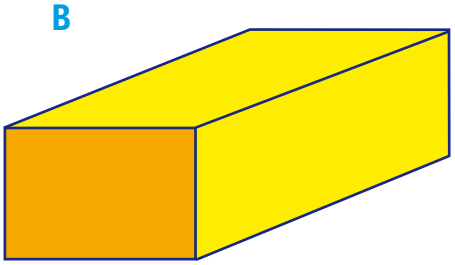
- ☐ show half hours and quarter hours on a clock
- ☐ recognise and show times to the nearest 5 minutes
- ☐ match analogue and digital times
- ☐ recognise and show times to the minute
- ☐ read digital time
- ☐ complete a schedule
- ☐ find the time 5 or 10 minutes before or 15 minutes after

Prisms

A



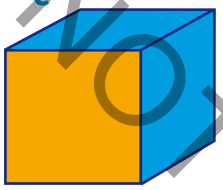
B



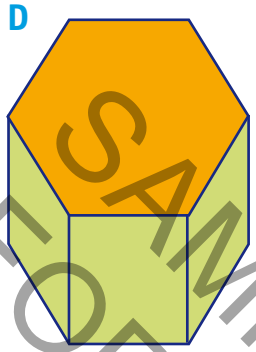
Prisms:

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

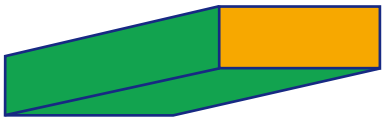
C



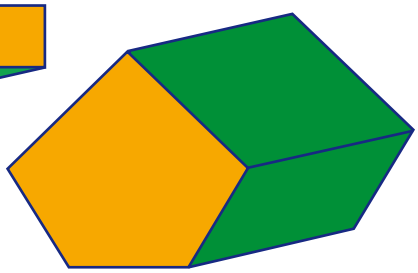
D



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? _____

_____

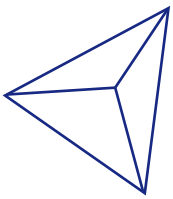
_____

_____

Pyramids

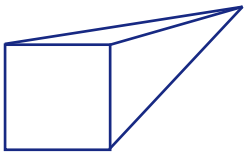
1 Name these pyramids.

a



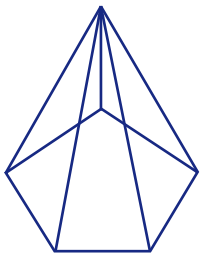
_____ _____

b



_____ _____

c



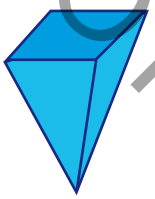
_____ _____

Pyramids:

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

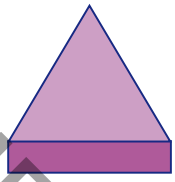
2 Circle the pyramids. Draw a square around the prisms.

A



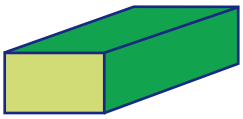
B

C



D

E



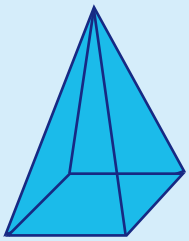
a How many faces has shape **D**? _____

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.



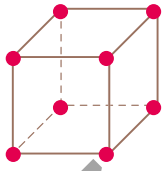
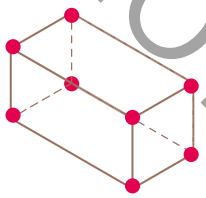
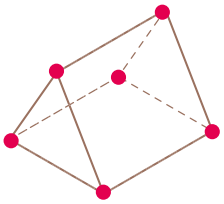
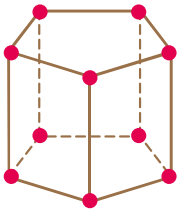
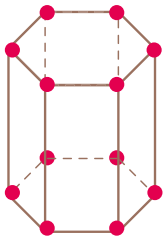
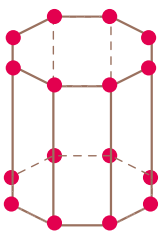
Challenge! How many everyday items can you name that are pyramid-shaped or triangular prisms?

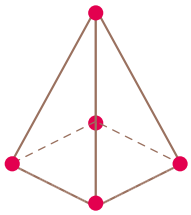
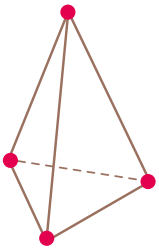
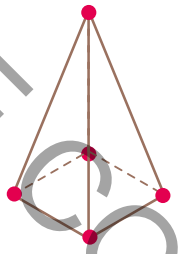
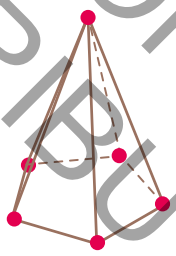
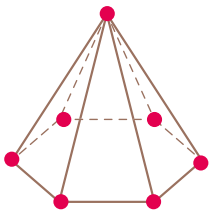
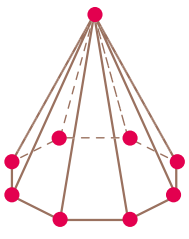
Geometry Spatial reasoning: Visualising 3D shapes and connecting them with 2D diagrams, and the same shapes drawn from different perspectives

Constructing 3D objects

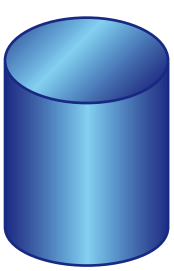
build
3D objects

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

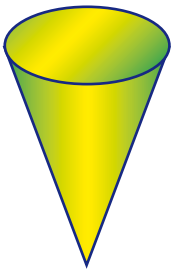
Prism	Faces	Edges	Corners
	6	12	8
			
			
			
			
			

Pyramid	Faces	Edges	Corners
	5	8	5
			
			
			
			
			

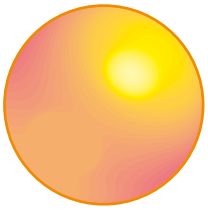
Cones, cylinders and spheres



cylinder



cone



sphere

1 Name three things that are cylinders.

a _____ b _____ c _____

2 Name three things that are cones.

a _____ b _____ c _____

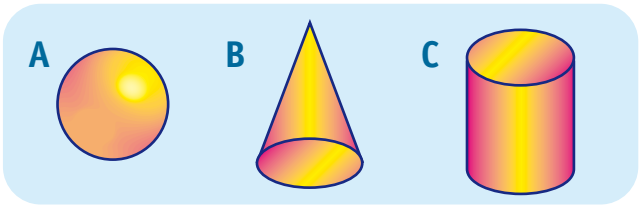
3 Name three things that are spheres.

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'. _____

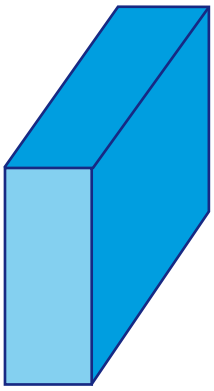
2 Make a prism. Choose from the following ways.
Use pattern blocks.
Use paper.
Use clay or another solid material.

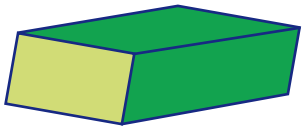
build a prism

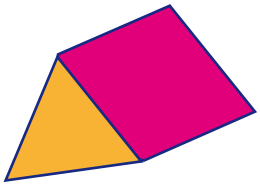
3 Describe what you did and how you did it. Draw it.

_____
_____
_____
_____
_____
_____
_____

4 Draw your prism from a different view.







5 What did you find out about prisms?

_____

_____

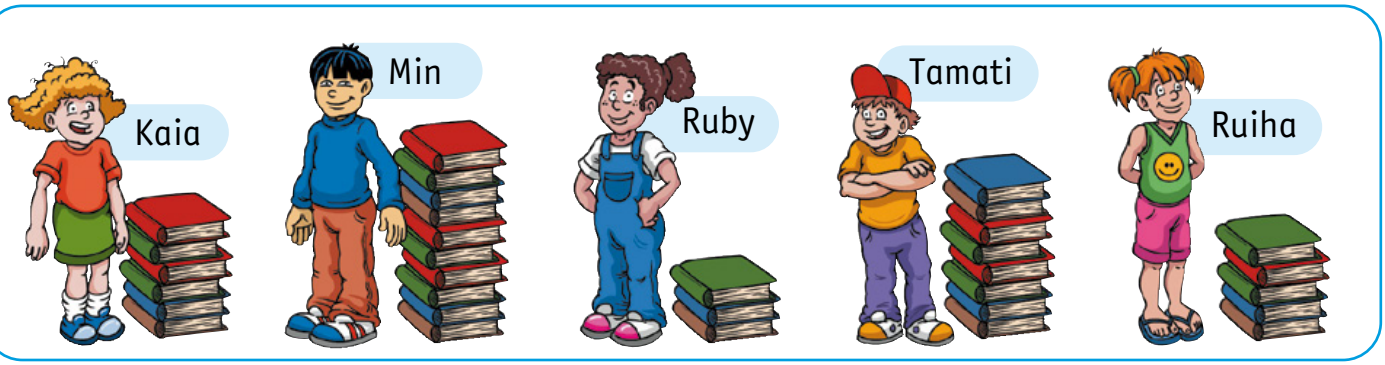
6 Write the time when you finished working on this page. _____

How long were you working on this page? _____

I can solve problems by:

☐ understanding properties of prisms ☐ drawing prisms from different views

Graphs



1 Complete the bar graph. Write the children's names under the columns.

2 What is this graph telling us? _____

3 Who has: a the most books? _____ b the least books? _____

4 Who has two less books than Ruiha? _____

5 Which two children together have 9 books? _____

6 How many books do the children have altogether? _____

7 If Tamati gives half his books to Min, how many will he now have? _____

8 Does the graph tell us who likes reading most? Why or why not?

_____

_____

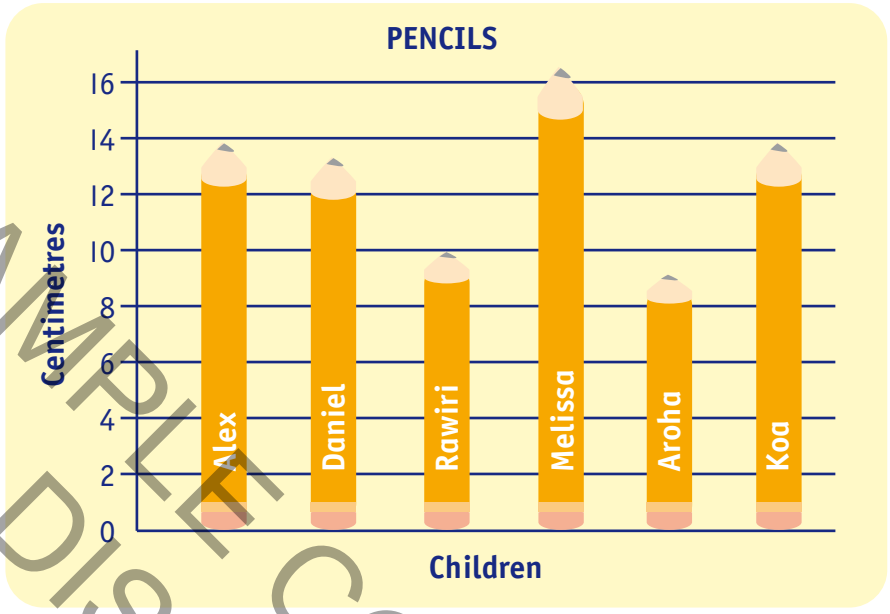
_____

Bar graph

At the beginning of the year Mr Wright gave the students in his class new pencils.

1 How long were the pencils? _____

One month later Mr Wright asked some students how long their pencils were now. He graphed the results.



2 How long is Alex's pencil? _____

3 How long is Daniel's pencil? _____

4 Who has the longest pencil? _____

5 Whose pencil is the shortest? _____

6 a How long is Aroha's pencil? _____

b How much shorter is it now than when she got it? _____

7 How much shorter is Rawiri's pencil now than when Mr Wright gave it to him? _____

8 Give one reason why Aroha's pencil is so short.

_____

_____

9 Why do you think Melissa's pencil is so long?

_____

_____

10 Why did Mr Wright measure pencils? _____

_____

Dot plots

Class birthdays

○ = 1 person

January	○ ○
February	○ ○ ○
March	○ ○ ○ ○ ○
April	○ ○ ○ ○
May	○ ○
June	○ ○
July	○
August	○ ○
September	○ ○ ○
October	○ ○ ○ ○
November	○ ○ ○
December	○ ○

1 How many people were surveyed for this graph? _____

2 How many birthdays were in:

a January? _____ b March? _____ c May? _____

d July? _____ e October? _____ f December? _____

3 Which month a has the most birthdays? _____

b has the least birthdays? _____

4 What is the a highest number of birthdays in one month? _____

b lowest number of birthdays in one month? _____

c most common number of birthdays in a month? _____

5 a Circle the months for each season in the year: Summer in green, Autumn in red, Winter in blue, Spring in pink.

b Which season has the most birthdays? _____

c Which season has the least birthdays? _____

6 a Who would use a graph like this? _____

b Why? _____

7 a Would every class's graph of birthdays look like this? _____

b Why? _____

Draw a dot plot

This shows the numbers of brothers and sisters of children in Class 6A.

0 siblings	1 sibling	2 siblings	3 siblings	4 siblings	over 4 siblings
4	6	5	3	2	4

1 Draw a dot plot to show this information.

a Write the numbers of siblings down the left side.

b Fill in the dots for each number of siblings.

c Give the graph a title.

Use the graph to answer these questions.

2 a What is the most common number of siblings? _____

b How many people have that number of siblings? _____

3 a What is the least common number of siblings? _____

b How many people have that number of siblings? _____

4 What is the difference between the number of people with the least and most common number of siblings? _____

5 Why is a dot plot the best kind of graph for this information?

_____

Mastery Checklist

I can:

- ☐ make column graphs and dot plots
- ☐ read column graphs and dot plots
- ☐ carry out a survey

Class favourites survey

Find out about your class. Survey the class about a topic: Sports, Food or Games.
What question will you ask?

Carry out a survey.

Tally

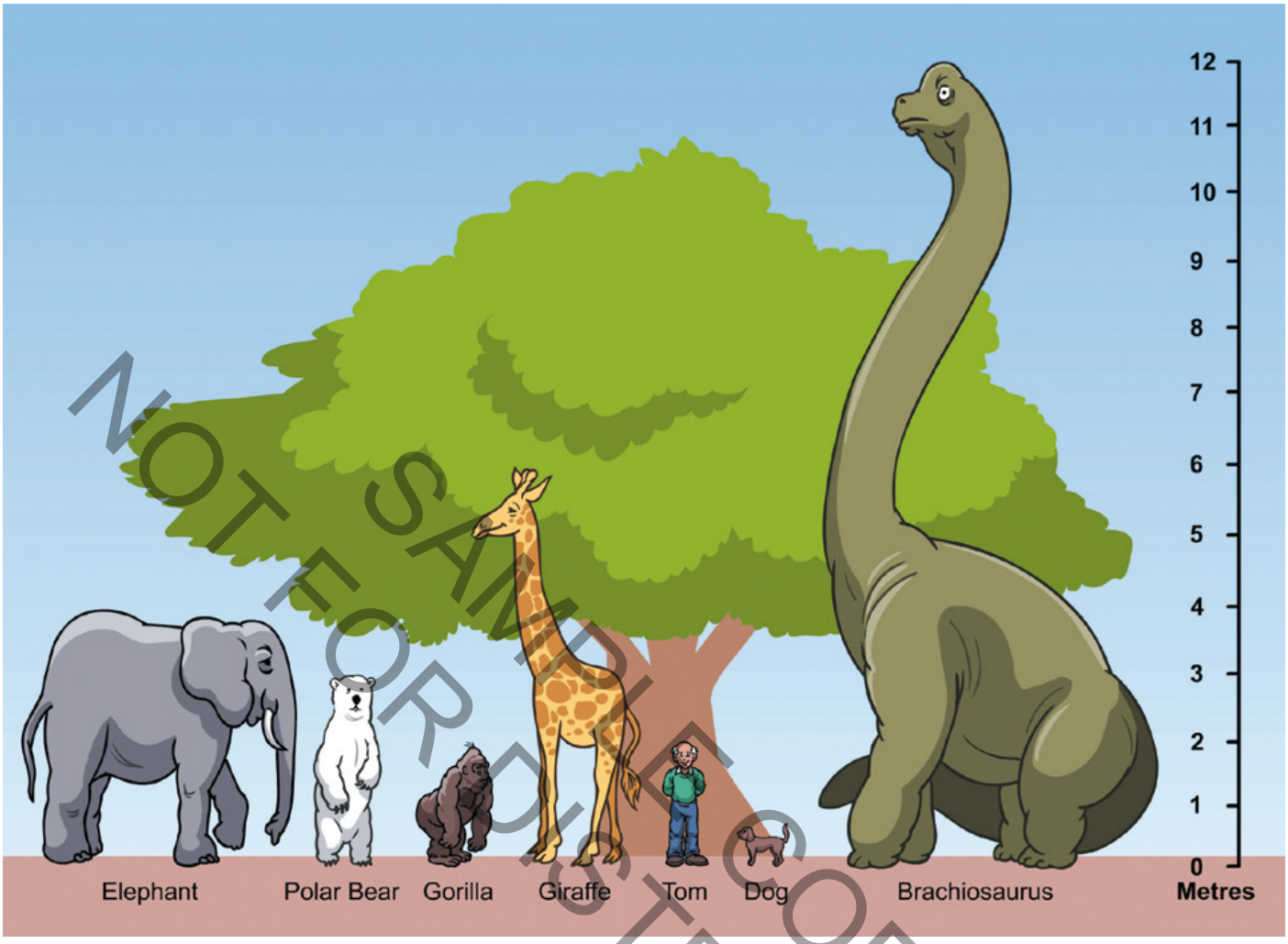
Show your results as a picture graph or bar graph.

What did you find out?

I can solve problems by:

☐ understanding data and data displays ☐ collecting and organising data

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

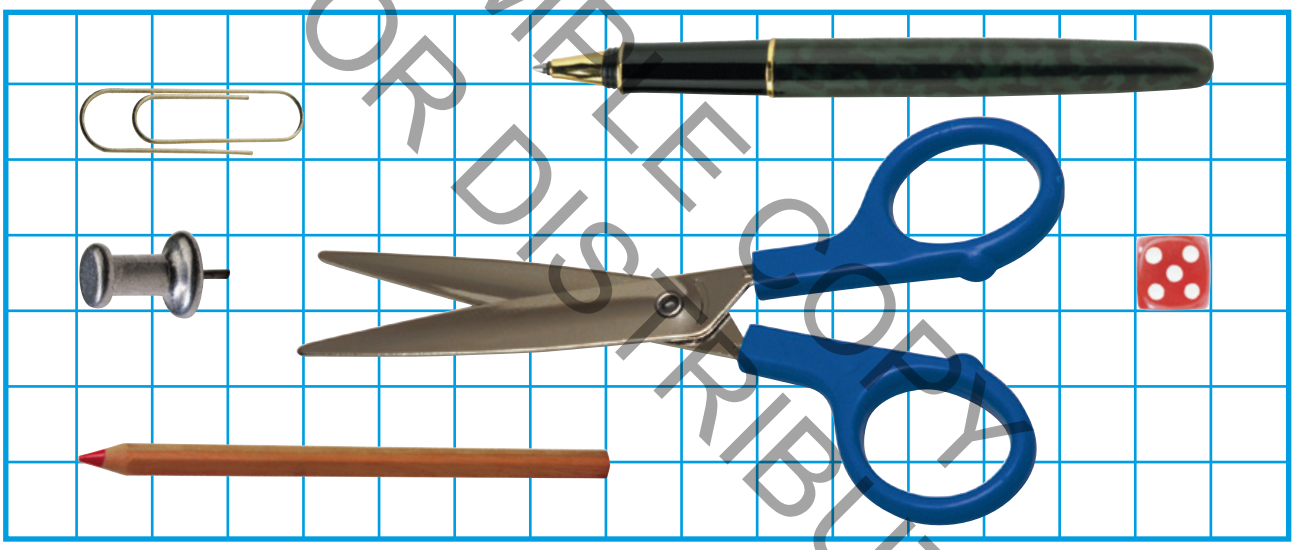
measure
length in
cm and m

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.

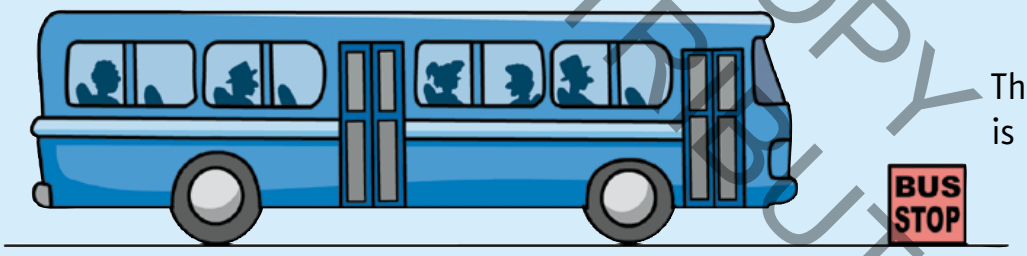
e

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

Inenga roa

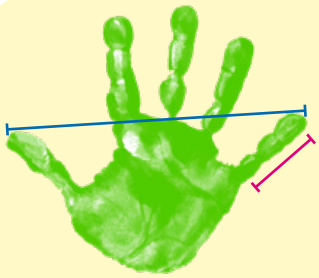
Is it more accurate to estimate using matikara or kōiti?

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 solve problems by:

☐ using inenga roa ☐ measuring with a ruler

Checkpoint 2

1 Write the number: p 2

a 10 more than 115 _____

b 100 less than 810 _____

c 10 less than 370 _____

d 100 more than 370 _____

2 Write in numerals: p 6

a three hundred and seventy-one _____

b five hundred and six _____

c two hundred and forty _____

3 Write in words: p 6

a 98 _____

b 613 _____

_____

c 480 _____

_____

4 Write in the missing numbers. p 8

a 95 90 _____ 80 75 _____

b 59 _____ 39 _____ 19

c 19 17 _____ _____ 11 9

5 Double: a 7 _____ b 19 _____ p 9

6 Use the number lines. p 13

a 32 – 17 = _____

b 53 – 25 = _____

p 14

7 17 cakes, 9 eaten. How many left?

_____ – _____ = _____

8 p 14

Write a story and a number sentence.

_____

_____

_____

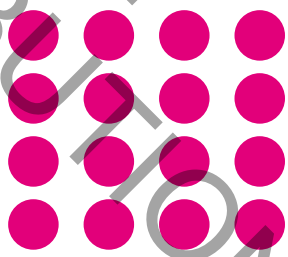
9 Complete. p 17

a 3 + 3 + 3 = _____ × _____ = _____

b Draw an array to match.

10 Share into 4 fair shares. p 19

How many in one share? _____



p 26

11 Write the next two terms and the rule.

a 5 8 11 14 17 _____ _____

Rule _____

b 20 25 30 35 _____ _____

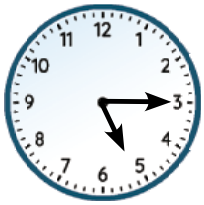
Rule _____

c 63 58 53 48 _____ _____

Rule _____

Checkpoint 2

12 What is the time? p 29

a 

b 

_____ _____

13 Show the time. p 31

a 3:41 

b 8:09 

14 Write the time: p 32

a 5 minutes before quarter to 8

_____ ___:___

b 10 minutes before ten to 3

_____ ___:___

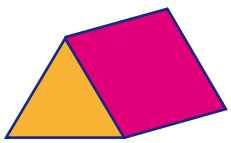
c 5 minutes after six twenty-two

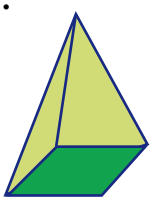
_____ ___:___

d 15 minutes after one thirty-five

_____ ___:___

15 Name these 3D objects. p 33 & 34

a 

b 

_____ _____

_____ _____

16 How many faces has: p 35

a a cube? _____

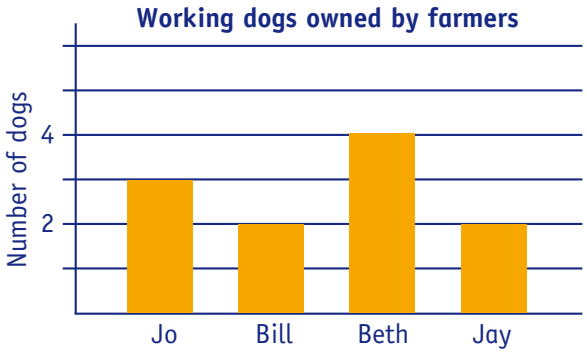
b a triangular pyramid? _____

17 What am I? p 36

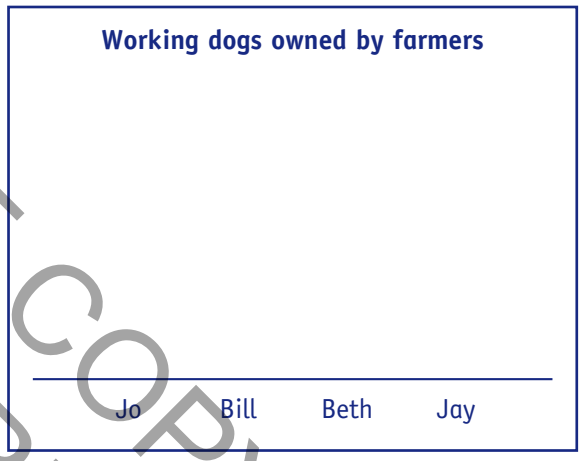
a 1 curved surface _____

b 4 triangular faces _____

18 How many working dogs do they have altogether? p 38



19 Fill in the dot plot using the data from the graph in question 18. p 41



20 Which farmers have the same number of working dogs? p 41

_____

21 Circle the correct answer. p 44

a A door is about 2 cm 2 m high.

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

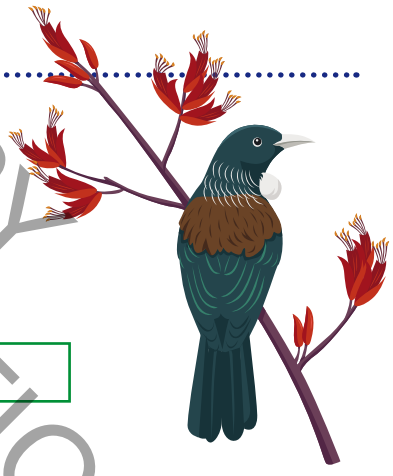
c A bedroom is about 50 m 4 m long.

22 Measure the lines to the nearest cm. p 45

a 

b 

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? _____

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?

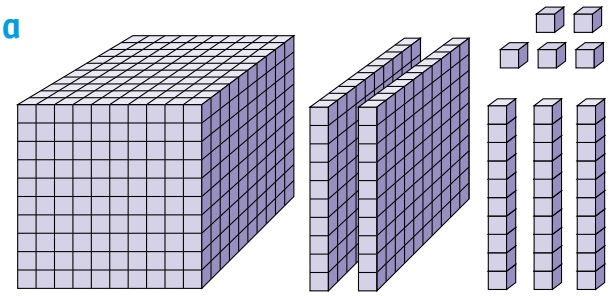
a My ones digit is 4, my hundreds digit is 7, my tens digit is 5 and my thousands digit is 9. ☐

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

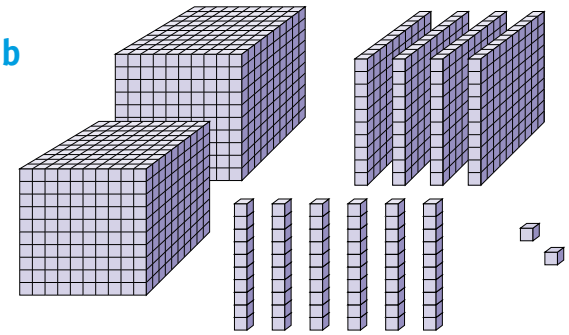
Numbers to 10,000

1 Write the number shown.

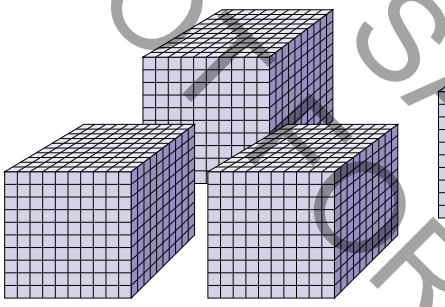
a



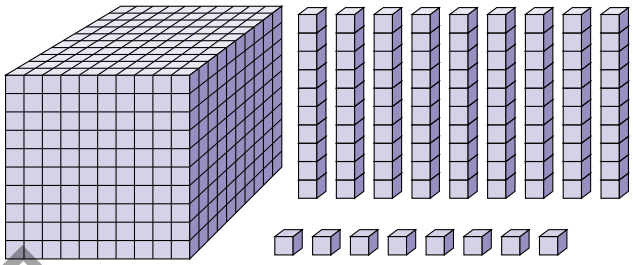
b



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	one thousand and one
1,001	one thousand one hundred and ten
1,100	one thousand and ten
1,110	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 2,6<u>1</u>8 _____ **b** 1,5<u>8</u>4 _____ **c** 6,<u>3</u>72 _____ **d** 9,49<u>3</u> _____

e <u>3</u>,265 _____ **f** 7,<u>7</u>26 _____ **g** 1,<u>5</u>9 _____ **h** 5,0<u>8</u>7 _____

i 4,<u>9</u>03 _____ **j** 2,<u>6</u>00 _____ **k** 7,<u>0</u>08 _____ **l** 30<u>4</u> _____

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.

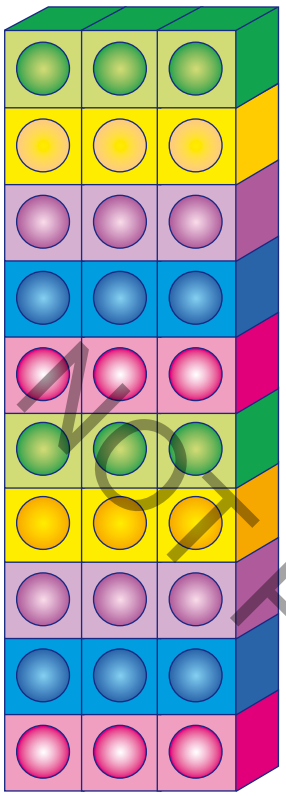
3 How could you do these calculations faster?

I can solve problems by:

☐ counting by 25s ☐ counting by 50s

Number facts 3×

1



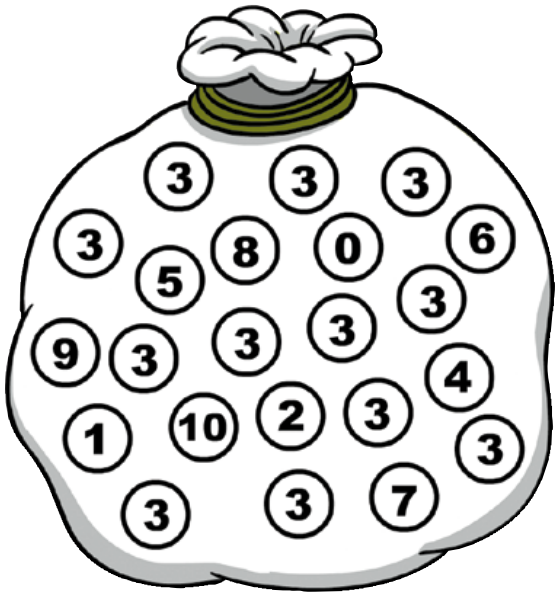
0	a	0 × 3 = 3 × 0 = 0
3	b	1 × 3 = 3 × 1 = 3
6	c	2 × 3 = 3 × 2 = ☐
9	d	3 × 3 = 3 × 3 = ☐
12	e	4 × 3 = 3 × ☐ = ☐
15	f	☐ × 3 = 3 × 5 = ☐
18	g	6 × 3 = 3 × ☐ = ☐
21	h	7 × 3 = 3 × ☐ = ☐
24	i	☐ × 3 = 3 × ☐ = 24
27	j	☐ × 3 = 3 × ☐ = ☐
30	k	10 × 3 = 3 × 10 = ☐

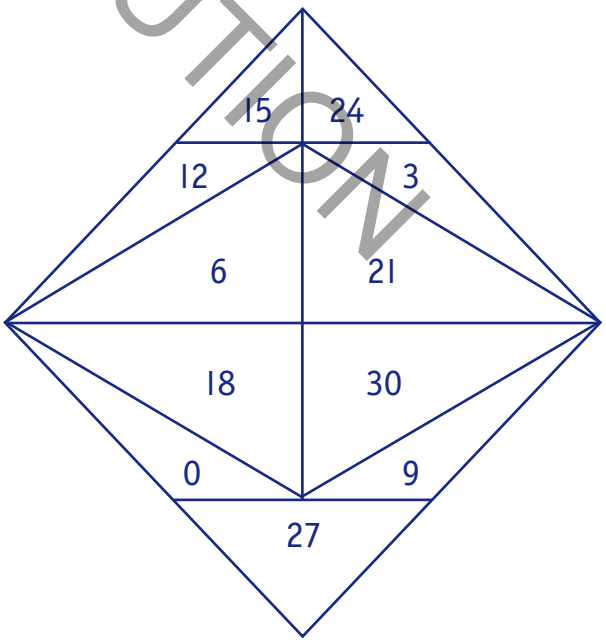
NOTICE!
Memorise the 3× table.

2

30		24			15	12		6		

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.





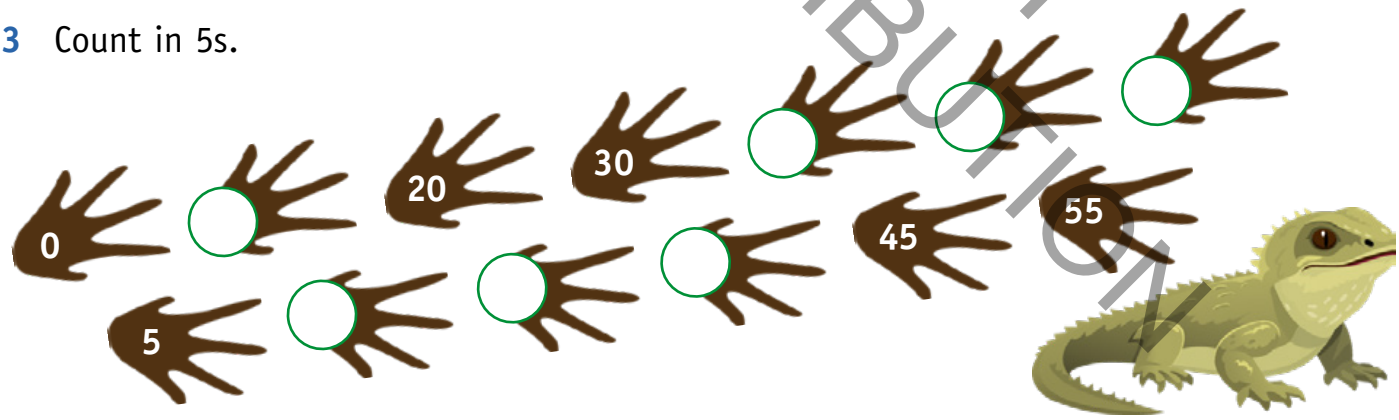
Number facts 5×

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? _____

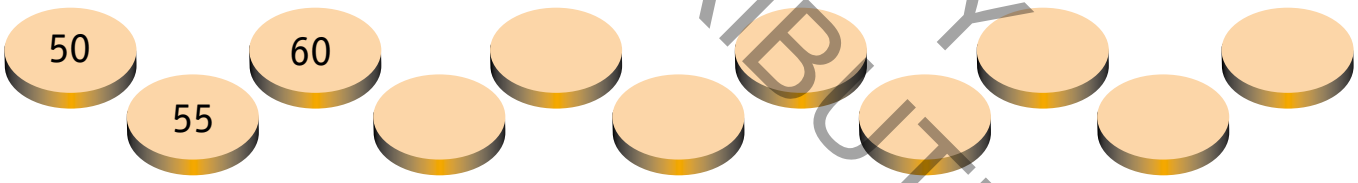
l 11 × 5 = _____ **m** 12 × 5 = _____

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 2

1	2	3	4	5	6	7	8	9	10	11	12	13
												14
27	26	25	24	23	22	21	20	19	18	17	16	15
28												
29	30	31	32	33	34	35	36	37	38	39	40	41
												42
							48	47	46	45	44	43

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 $4 \times 1 =$ _____ b 2 dogs $4 \times 2 =$ _____

c 3 dogs $4 \times 3 =$ _____ d 4 dogs $4 \times 4 =$ _____

e 5 dogs $4 \times 5 =$ _____ f 6 dogs $4 \times 6 =$ _____

g 7 dogs $4 \times 7 =$ _____ h 8 dogs $4 \times 8 =$ _____

i 9 dogs $4 \times 9 =$ _____ j 10 dogs $4 \times 10 =$ _____

k How many paws would no dogs have? $4 \times 0 =$ _____

4 a $4 \times 10 =$ _____ b $10 \times 4 =$ _____ c $4 \times 6 =$ _____ d $1 \times 4 =$ _____ e $4 \times 0 =$ _____

f $0 \times 4 =$ _____ g $9 \times 4 =$ _____ h $4 \times 4 =$ _____ i $7 \times 4 =$ _____ j $8 \times 4 =$ _____

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×

0×
0 × 3 = 0
0 × 5 = 0
0 × 10 = 0

1 Count backwards in:

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

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

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

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?

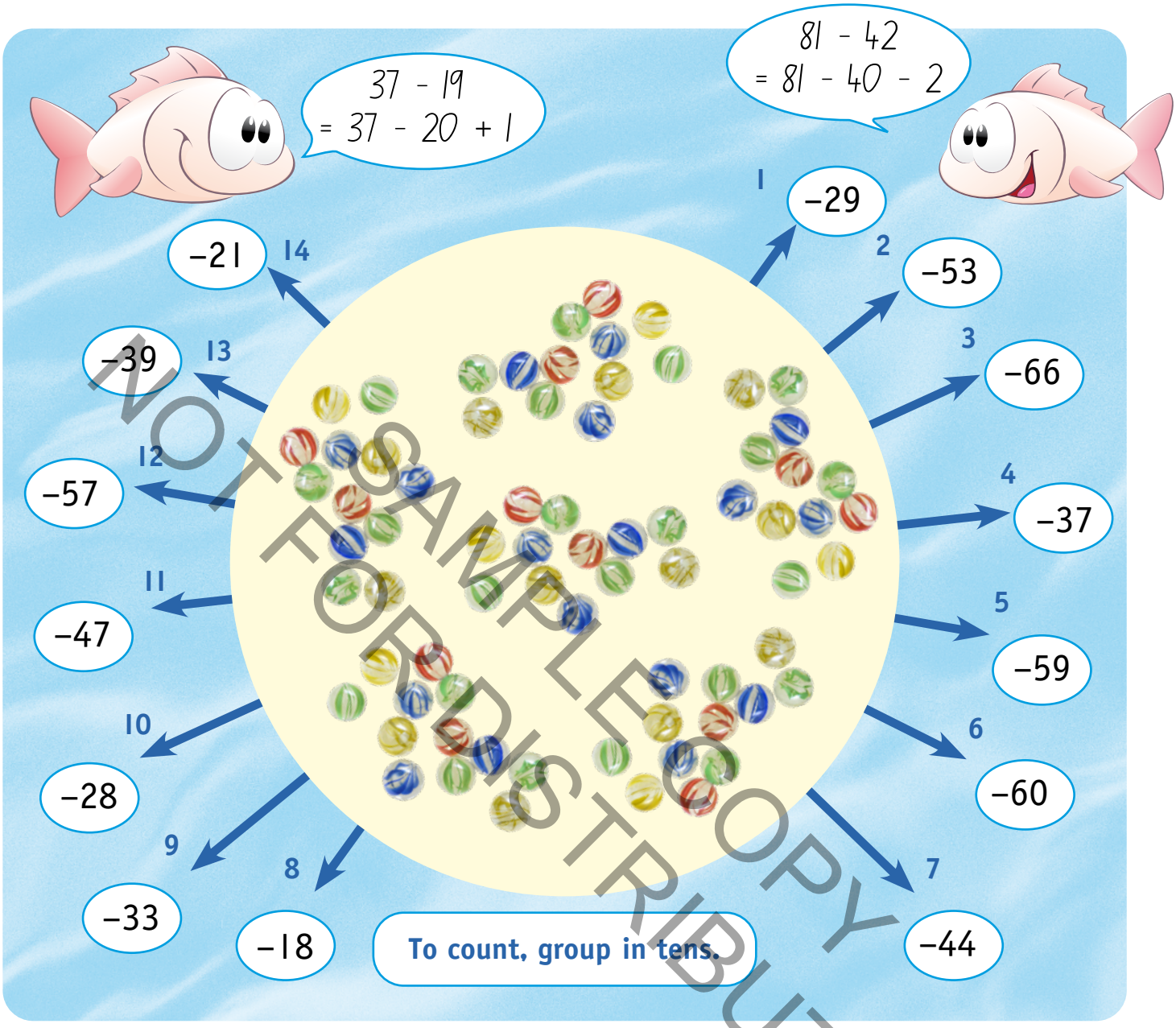
b Ten children get 5 lollies each. How many lollies altogether?

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

Subtraction strategies



1 72 − 30 + 1 = _____ ☐ − ☐ = ☐

2 72 − 50 − 3 = _____ ☐ − ☐ = ☐

3 _____ = _____ ☐ − ☐ = ☐

4 _____ = _____ ☐ − ☐ = ☐

5 _____ = _____ ☐ − ☐ = ☐

6 _____ = _____ ☐ − ☐ = ☐

7 _____ = _____ ☐ − ☐ = ☐

8 _____ = _____ ☐ − ☐ = ☐

9 _____ = _____ ☐ − ☐ = ☐

10 _____ = _____ ☐ − ☐ = ☐

11 _____ = _____ ☐ − ☐ = ☐

12 _____ = _____ ☐ − ☐ = ☐

13 _____ = _____ ☐ − ☐ = ☐

14 _____ = _____ ☐ − ☐ = ☐

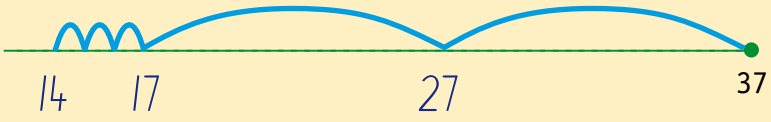
Two-digit subtraction

1 Quick practice.

a	b	c	d	e	f	g
16 − 7 =	20 − 12 =	18 − 13 =	14 − 9 =	13 − 6 =	15 − 8 =	12 − 5 =

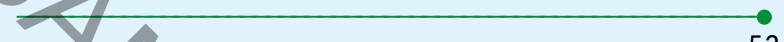
2 Use the number line.

a 37 minus 23



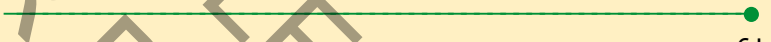
$$\begin{array}{r} 37 \\ -\,23 \\ \hline \\ \hline \end{array}$$

b 52 take away 34



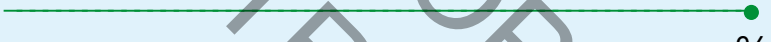
$$\begin{array}{r} 52 \\ -\,23 \\ \hline \\ \hline \end{array}$$

c subtract 15 from 61



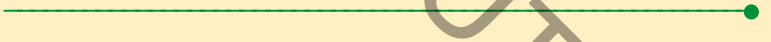
$$\begin{array}{r} 61 \\ -\,23 \\ \hline \\ \hline \end{array}$$

d 94 less 47



$$\begin{array}{r} 37 \\ -\,23 \\ \hline \\ \hline \end{array}$$

e difference between 72 and 23



$$\begin{array}{r} 37 \\ -\,23 \\ \hline \\ \hline \end{array}$$

Draw a diagram

Tāne's ant farm had 96 ants. 47 escaped and 25 died.

How many are left? ☐

Hint: Draw a number line.

Looking for patterns

What is the pattern?

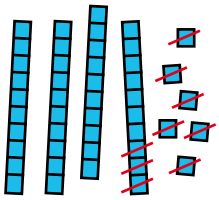
Make up another subtraction pattern.

	11	61	81	31	51	91	21	71
−7								

Two-digit subtraction

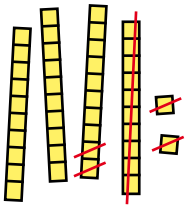
1 Write stories.

a



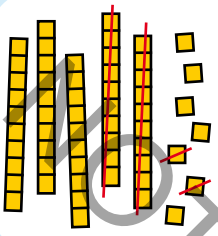
There were 46 birds.
9 flew away.
There were _____ birds left.

b



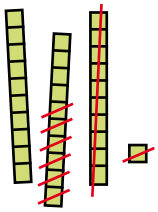
_____
_____
_____
_____

c



_____
_____
_____
_____

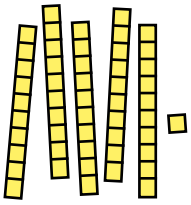
d



_____
_____
_____
_____

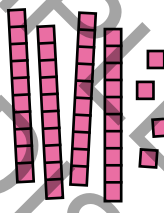
2 Use the blocks to find the answers.

a



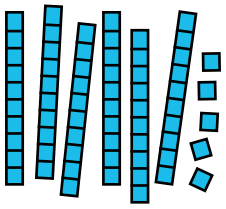
$$\begin{array}{r} 51 \\ -\ 17 \\ \hline \\ \hline \end{array}$$

b



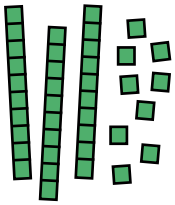
$$\begin{array}{r} 44 \\ -\ 26 \\ \hline \\ \hline \end{array}$$

c



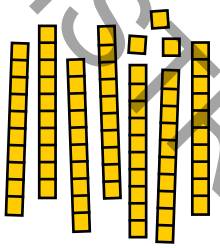
$$\begin{array}{r} 65 \\ -\ 38 \\ \hline \\ \hline \end{array}$$

d



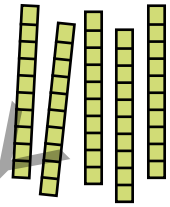
$$\begin{array}{r} 39 \\ -\ 26 \\ \hline \\ \hline \end{array}$$

e



$$\begin{array}{r} 73 \\ -\ 45 \\ \hline \\ \hline \end{array}$$

f



$$\begin{array}{r} 50 \\ -\ 32 \\ \hline \\ \hline \end{array}$$

3 Use place value blocks if you need help.

a $\begin{array}{r} 78 \\ -\ 35 \\ \hline \\ \hline \end{array}$

b $\begin{array}{r} 64 \\ -\ 21 \\ \hline \\ \hline \end{array}$

c $\begin{array}{r} 96 \\ -\ 34 \\ \hline \\ \hline \end{array}$

d $\begin{array}{r} 39 \\ -\ 15 \\ \hline \\ \hline \end{array}$

e $\begin{array}{r} 47 \\ -\ 23 \\ \hline \\ \hline \end{array}$

f $\begin{array}{r} 28 \\ -\ 17 \\ \hline \\ \hline \end{array}$

g $\begin{array}{r} 85 \\ -\ 35 \\ \hline \\ \hline \end{array}$

h $\begin{array}{r} 55 \\ -\ 13 \\ \hline \\ \hline \end{array}$

i $\begin{array}{r} 49 \\ -\ 36 \\ \hline \\ \hline \end{array}$

j $\begin{array}{r} 88 \\ -\ 54 \\ \hline \\ \hline \end{array}$

k $\begin{array}{r} 97 \\ -\ 75 \\ \hline \\ \hline \end{array}$

l $\begin{array}{r} 57 \\ -\ 22 \\ \hline \\ \hline \end{array}$

m $\begin{array}{r} 68 \\ -\ 38 \\ \hline \\ \hline \end{array}$

n $\begin{array}{r} 35 \\ -\ 20 \\ \hline \\ \hline \end{array}$

Challenge! Find 4 pairs of numbers with a difference of 27.

Subtraction stories

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
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

1 **a** Find pairs of numbers the same colour.

b Work out the difference for each pair.

c Write one subtraction sentence and one addition sentence for each pair.

74 − 3 =
\+ =

− =
\+ =

− =
\+ =

− =
\+ =

− =
\+ =

− =
\+ =

− =
\+ =

− =
\+ =

− =
\+ =

2 **a** 

Tui threw the basketball 25 m and kicked the soccerball 67 m. Write the difference in metres.

b 

The red balloon drifted 39 m and the blue balloon drifted 24 m. Write the difference in metres.

c 

Sal jumped 44 cm and Sue jumped 66 cm. Write the difference in centimetres.

Mastery Checklist

I can:
- ☐ regroup numbers to subtract
- ☐ use number lines to subtract
- ☐ use blocks to subtract
- ☐ use a vertical method to subtract
- ☐ connect addition and subtraction
- ☐ solve subtraction stories

Work backwards

1 Three children ran a race. Ko ran the race 3 seconds faster than Dave. Dave ran 2 seconds slower than Jerry. Jerry took 14 seconds. What was Ko's time?

Working:

Jerry 14 secs Dave 14 + 2 = 16 Ko 16 – 3 = 13

Dave 16 secs Ko's time was _____

2 Four children joined the 'Read-a-thon' to improve their reading rate. Kauri read 4 books more than Koa. Koa read 5 books less than Maitu, who read 16. How many books did Kauri read?

Working:

Maitu _____ Koa _____ Kauri _____

Maitu read _____ Koa read _____ Kauri read _____

Write your own *work backwards* problems and show the solution.

3 The answer is 50 stickers. What might the problem be?

_____

_____

_____

_____

Working: _____

_____

4 Write your own.

_____

_____

_____

_____

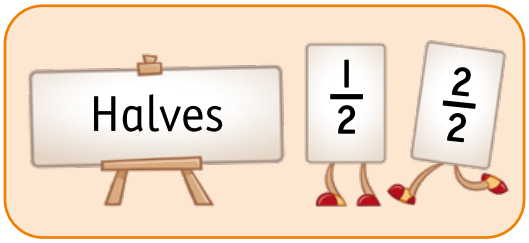
Working: _____

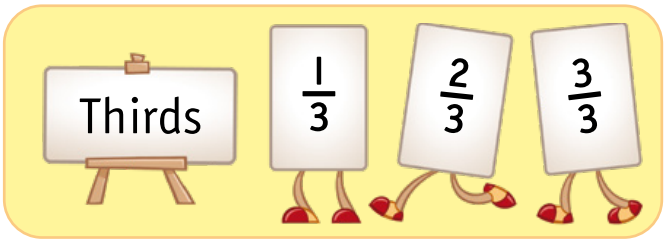
_____

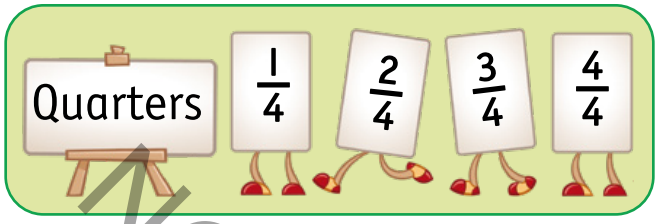
I can solve problems by:

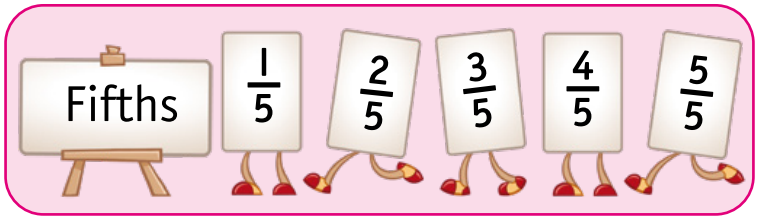
☐ using addition facts and related subtractions ☐ working backwards

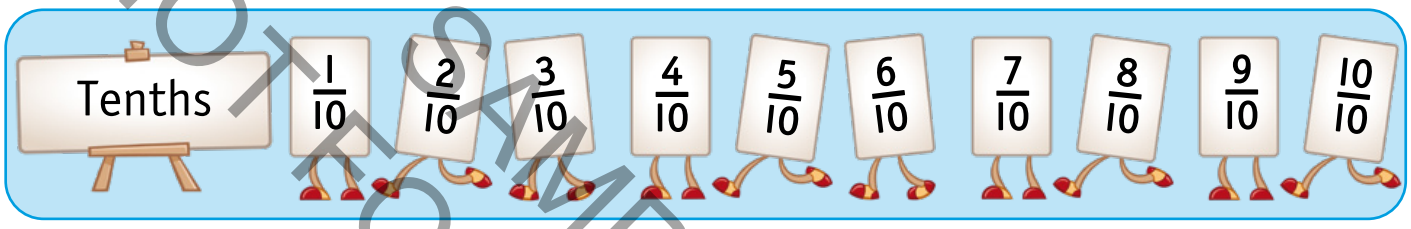
Fractions in a line











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 $\frac{3}{4}$

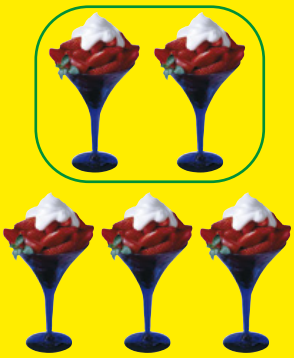
d $\frac{2}{3}$

Fraction names

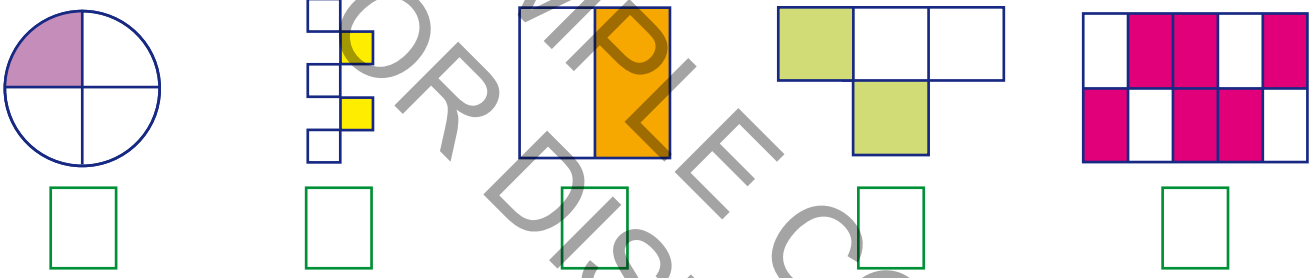
1 Match.

$\frac{2}{10}$	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

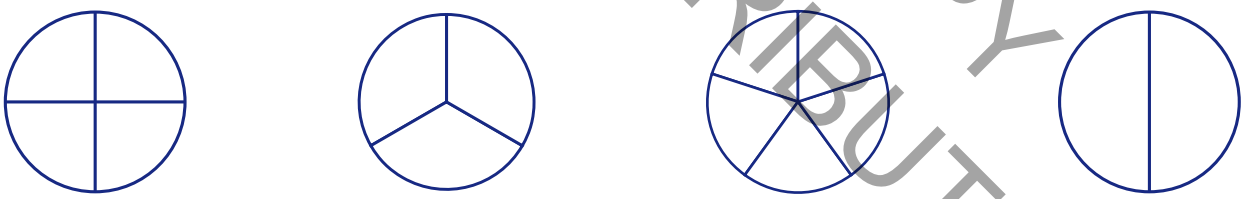
$\frac{2}{5}$ = numerator
$\frac{2}{5}$ = denominator
This means 2 equal parts out of 5.



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

1 Colour and complete.

a Colour one half.

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

b Colour one third.

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

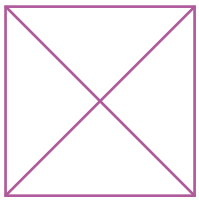
c Colour one quarter.

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

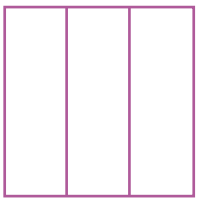
d Colour one fifth.

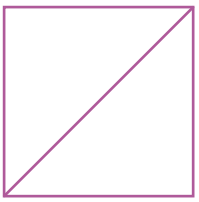
_____ out of 5 = $\frac{1}{5}$

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

a $\frac{1}{4}$ 

b $\frac{1}{5}$ 

c $\frac{1}{3}$ 

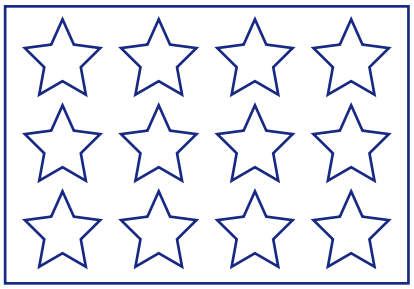
d $\frac{1}{2}$ 

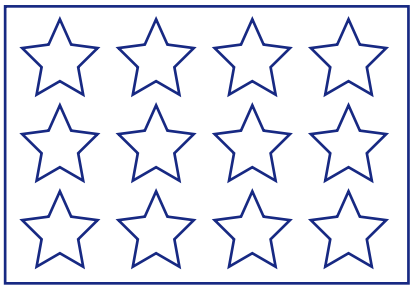
smallest _____ _____ _____ largest

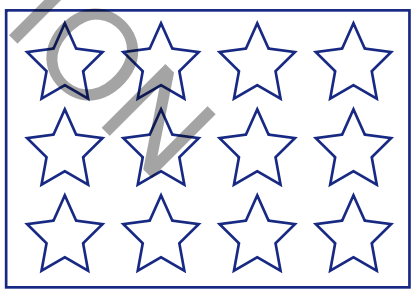
3 Circle the larger fraction in each pair.

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. _____ _____ _____

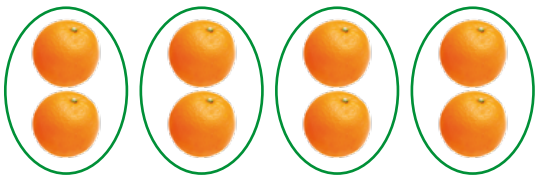
5 a The denominator of the fraction tells how many _____.

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

Fractions of a group

TERM 2
Week 4

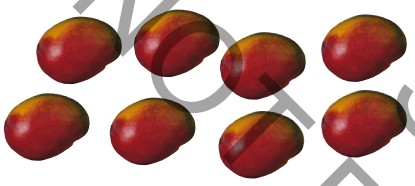
We can make a fractional part of a group by dividing it into smaller equal groups.
$\frac{1}{4}$ means one of four equal parts. Eg $\frac{1}{4}$ of 8 is the same as 8 divided by 4.



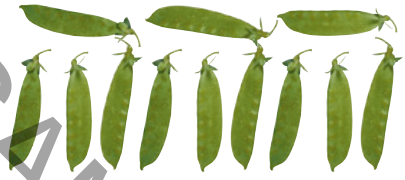
$\frac{1}{4}$ of 8 is 2

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

Number Rational numbers: Finding a unit fraction of a whole number, where the answer is a whole number; Finding the whole set or amount when given a unit fraction, using multiplication facts

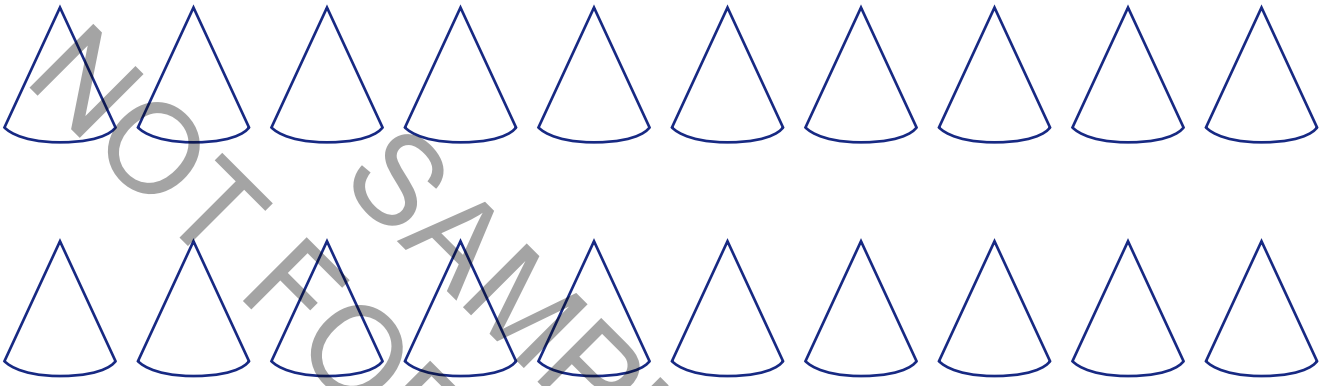
Fractions at the party

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

Checkpoint 3

Write your answers in the boxes.

1 Write the addition and subtraction facts.

□ + □ = □ □ + □ = □

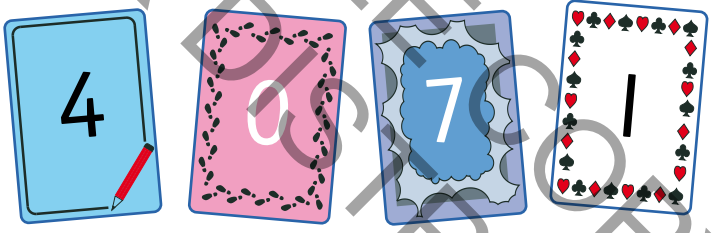
□ − □ = □ □ − □ = □

2

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

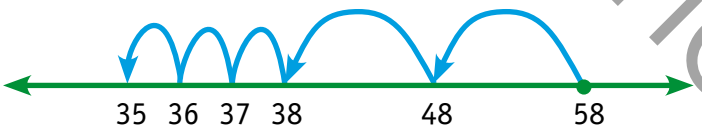
3 Using only three cards, what is the largest number you can make?

Shade one bubble.



714 471 741 704

4 Which operation does this number line show?



58 + 23 35 − 23 58 − 23 38 − 3

5 **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 box.

Checkpoint 3

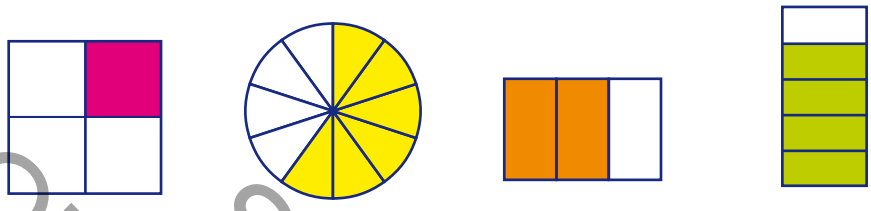
6 Which number is closest to 500?

Shade one bubble.

475 ○ 520 ○ 560 ○ 490 ○

7 What fraction has been shaded?

Write your answer in the box.



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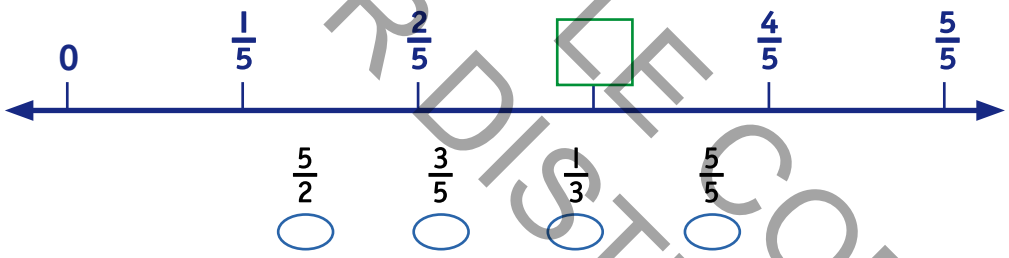
8 Which label is missing?

Shade one bubble.



○ ○ ○ ○

9

Write your answer in the box.

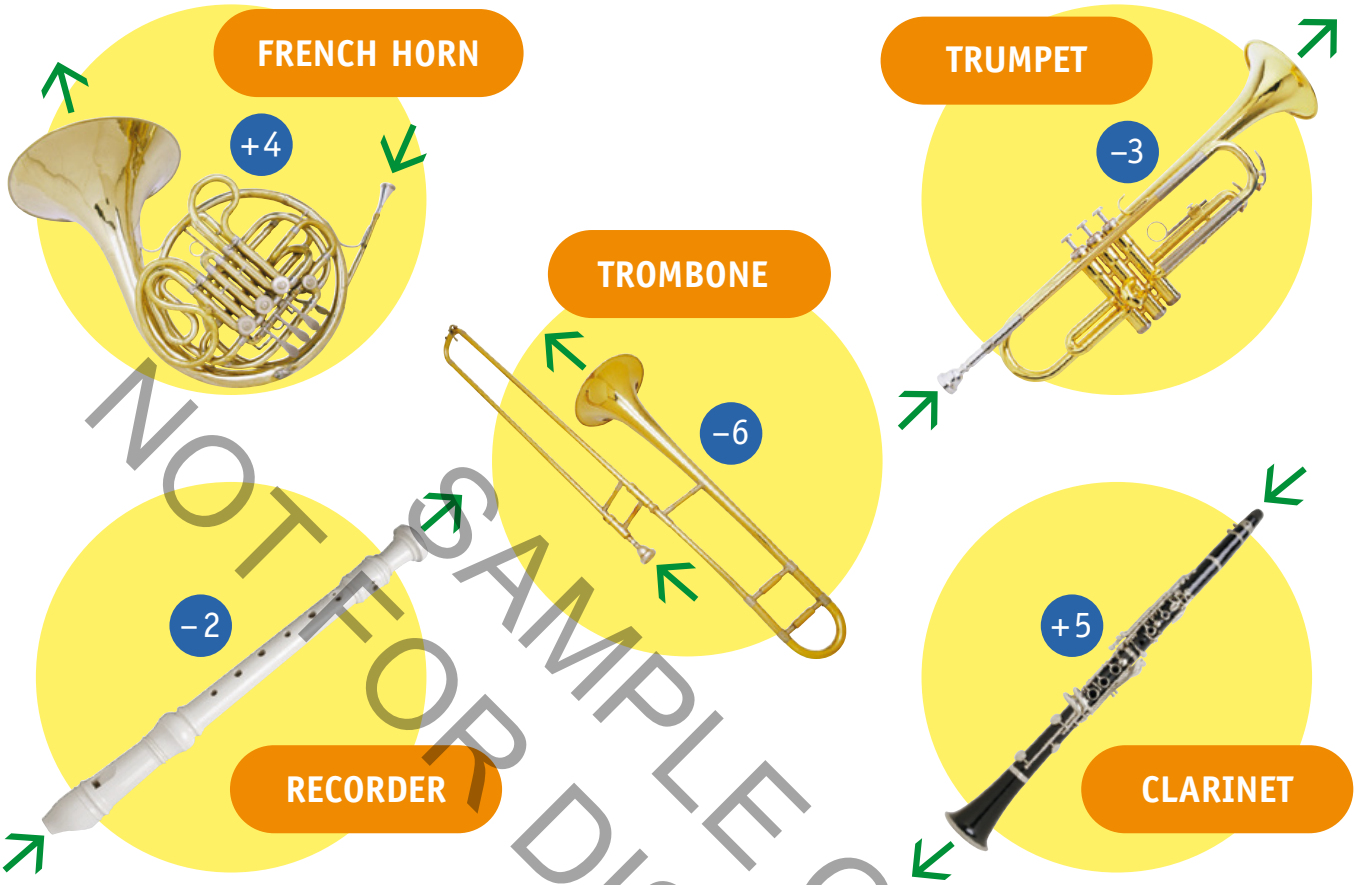
43	77	95	89
− 21	− 45	− 63	− 59
____	____	____	____

10 Complete from memory.

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

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

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.

+1 +2 +3 +4 +5 +6 +7

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

+3 +5 +7 +9 +11 +13 +15

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

Describing patterns

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

Eating in Japan

TERM 2
Week 6

1 Which items cost less than ¥500?

2 Which items cost betwen ¥500 and ¥1,000?

3 What three items could I buy for a total less than ¥1,000?

4 If I bought the yakitori, the stir fry and a green tea, what change would I get from ¥5,000?

5 If you had ¥2,000, what would you buy? What is the total price of your choice?

6 a If ¥1 is equal to 1c in New Zealand money, what is the cost of the sushi in New Zealand dollars? Show your thinking.

b The same sushi in New Zealand costs NZ$7. Which country has cheaper sushi?

Notes and coins

1 Match.

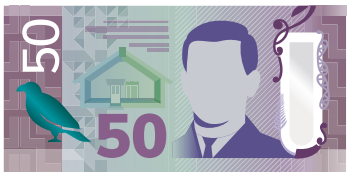
$5

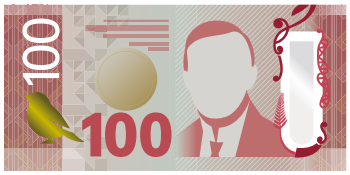
$10

$20

$50

$100





2 Circle the coins to make the amount.

a **$1.10**	
b **$3.40**	
c **$5.80**	
d **$0.90**	

Money

TERM 2
Week 6

Study this menu.

1 What coins would you use to pay for:

a the veggie burger? _____

b the milkshake? _____

c the snacks? _____

d the juice? _____

2 a My brother wants one of everything on the menu.
Will a $20 note cover the cost? _____

b What is the total cost? _____

3 What is the cost of:

Working

a a veggie burger and a juice?

_____

b snacks and juice?

_____

4 What change will I receive from $10 if I buy:

a a veggie burger?

_____

b both drinks?

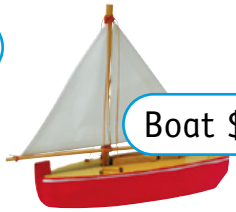
_____

Number Financial mathematics: Calculating the total cost of several items with different prices, including giving change; Representing amounts of currency using different combinations of denominations

Shopping


Tennis ball $1.50


Car $5.50


Boat $7.50


Monkey $7.50


Teddy $9


Donkey $4.50


Yo-yo $2


Mask $6.50


Softball $3.30

1 a Which two toys are the same price? _____ _____

b Which toy costs the most? _____

c Which toy is the cheapest? _____

d What is the difference between them? _____

2 a What would 3 teddies cost? _____

b What would 7 yo-yos cost? _____

c What would 4 tennis balls cost? _____

3 a Which two toys together cost $8.50? _____ _____

b How much would it cost to buy the car and the yo-yo? _____

c Can I buy the donkey and the softball with $7.50? _____

4 You only have these coins. How do you pay for each item?

$1.50	
$4.50	
$7.50	
$3.30	

Addition and subtraction of money

TERM 2
Week 6

1 a 10c + 10c + 10c + 20c = _____
b 50c + 10c + 20c + 20c = _____
c 50c + 50c + 50c = _____
d 20c + 10c + 20c + 50c = _____
e 20c + 20c + 20c + 50c = _____
f 10c + 50c + 20c + 10c + 10c = _____

2 a $10 – $7 = _____
b $20 – $12 = _____
c $10 – $4 = _____
d $20 – $13 = _____
e $50 – $30 = _____
f $100 – $50 = _____
g $5 – $4.50 = _____
h $5 – $1.50 = _____
i $10 – $5.50 = _____

3 Complete.

a

+	$5	$36	$19	$1.50	$2.80
$7					

b

+	50c	20c	$2	$18	$1.40
35c					

4 Write two different ways to make each amount with coins.

Amount	Coin combination 1	Coin combination 2
a $1.80		
b $2.40		
c $5.90		
d $10.50		

5 Nikau had $5 pocket money. He spent $2 on sweets and $1 on a drink. How much did he have left? ☐

6 For her birthday Anahera was given $5. She already had $7.60. How much does she now have? ☐

7 Bozo's owner paid $35 at the vet and $17 for a new lead. How much did he spend? ☐

8 I bought an ice-cream for $2 and a sandwich for $4.40. How much change did I get from $10? ☐

Mastery Checklist I can:
- ☐ add costs and work out change
- ☐ recognise New Zealand notes and coins
- ☐ choose coins to equal an amount
- ☐ find different combinations of coins to equal an amount
- ☐ solve money word problems

Number Financial mathematics: Calculating the total cost of several items costing whole-dollar amounts and with different prices, including giving change; Representing amounts of currency using different combinations of denominations; Operations: Adding and subtracting up to four-digit numbers

Capacity

1 Which container holds the most? _____

2 Which container holds the least? _____

3 Name two containers that hold about the same amount? _____

4 Name two containers which hold more than any of these. _____

_____

5 Name two containers which hold less than any of these. _____

_____

6 About how many cups (**E**) would be needed to fill:

a **B**? _____ b **D**? _____ c **A**? _____ d **F**? _____

7 Write the containers in order from holds least to holds most.

_____

8 Get an empty plastic soft drink bottle and a plastic cup.

a How many cups does the bottle hold? _____

b Does everyone in the class get the same answer? _____

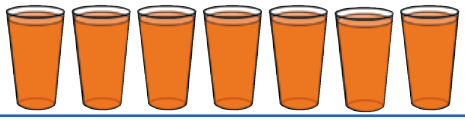
c Why or why not? _____

_____

_____

Cups and litres

1 Ali used a plastic cup to fill coloured containers with water.

Container	Number of cups needed
Blue	
Green	
Yellow	
Red	
Orange	
Pink	

a How many cups does the green container hold? _____

b Which container holds the most? _____

c Which container holds the least? _____

d How many cups does the orange one hold? _____

e Which two hold about the same?

_____

f What is the difference between the capacity of the biggest and the smallest container?

_____

2 Lucy used a different cup. She needed 8 cups to fill the green container.

a Is her cup bigger or smaller than Ali's cup? _____

b About how many of her cups will fill the yellow container? _____

c Is a plastic cup a good measure? _____

Give a reason. _____

3 a How much milk is in the jug? ____

b How much does the carton hold? ____

4 Fill an empty 1 litre container with water. Pour it into some empty cups. How many cups does it fill? ____

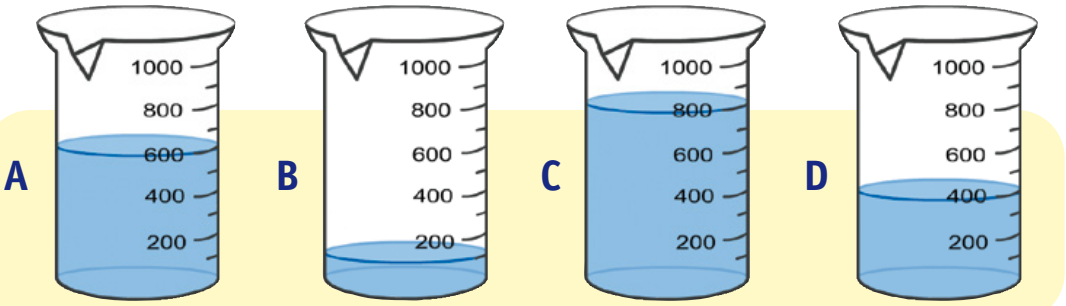
5 Use water and your 1 litre container to find things that hold:

less than 1 litre	about 1 litre	more than 1 litre

Measurement Measuring: Using familiar objects to create estimation benchmarks; Using the appropriate tool for measuring capacity; Different measurement tools use different-sized units

Millilitres and litres

These containers measure millilitres.



L = litre
mL = millilitre
1,000 mL = 1 L
500 mL = $\frac{1}{2}$ L

1 How much water is in:

a A? _____ b B? _____ c C? _____ d D? _____

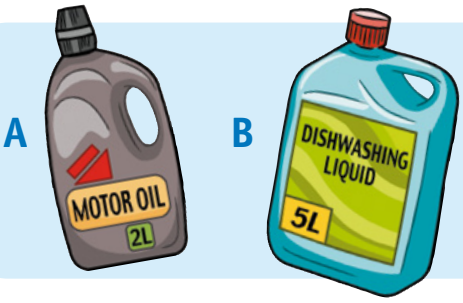
2 How much more is in: a A than B? _____ b C than D? _____

3 How much must be added to:

a B to make 1 L? _____ b C to make 1 L? _____

4 Which container is closest to: a 1 L? ____ b $\frac{1}{2}$ L? ____

5 Name 4 things which could be measured in millilitres.



6 a What is the capacity of A? ____

b What is the capacity of B? ____

c Which container holds more? ____

d How much more does it hold? ____

7 True (T) or false (F)?

a A dose of medicine is 5 L. ____ b A car can hold 40 L of petrol. ____

c A glass holds about 250 mL. ____ d The capacity of a cup is 200 L. ____

e My dog drank 1 mL of water today. ____ f The tall vase can hold 1 L of water. ____

Challenge!

On a large plastic bottle place an elastic band to show where you think $\frac{1}{2}$ L is. Check. Try with different containers.

Capacity benchmarks

1 Match.

a 1 litre	**A** 10 mL
b 500 millilitres	**B** 100 mL
c 100 millilitres	**C** 1 L
d 10 millilitres	**D** 500 mL

2 Match.

a 1 litre ____

b 500 millilitres ____

c 100 millilitres ____

d 10 millilitres ____

A

B

C

D

3 Match.

a 1 L	**A** 1000 mL
b $\frac{1}{2}$ L	**B** 500 mL
c $\frac{1}{4}$ L	**C** 250 mL
d $\frac{3}{4}$ L	**D** 750 mL

4 Match.

a 1 L ____

b $\frac{1}{2}$ L ____

c $\frac{1}{4}$ L ____

d $\frac{3}{4}$ L ____

A

B

C

D

A

B

C

D

5 Estimate the amount these containers hold.

a **A**? _____ **b** **B**? _____ **c** **C**? _____ **d** **D**? _____

6 Write a container to hold these amounts.

a 5 L _____ **b** 10 L _____

c 5 mL _____ **d** 50 mL _____

Mastery Checklist I can:

- ☐ compare the capacities of different containers
- ☐ use a cup to measure capacity
- ☐ compare capacities to 1 litre
- ☐ relate millilitres to litres
- ☐ choose between millilitres and litres
- ☐ use benchmarks for estimation

Drinks for all

There will be 40 people at a party and you need to buy drinks for them all.

A 2 litre bottle holds 8 cups and a 3 litre bottle holds 12 cups.

How many bottles do you need to buy so that everyone can have two cups?

Find 3 different ways to buy enough bottles of drink.

A	B	C

If 2 litre bottles are $2 and 3 litre bottles are $3, what is the cheapest option?

How many mL in each drink? _____

I can solve problems by:

☐ understanding capacity ☐ writing algorithms

Collecting data

Tally marks are in groups of 5

𝍸 || = 7

survey the class

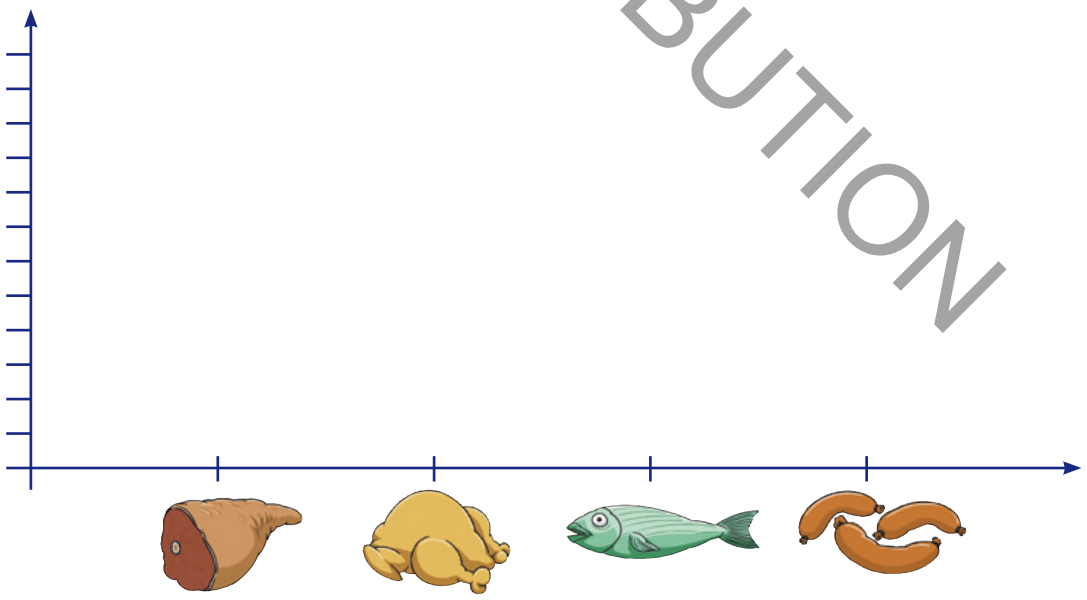
1 Ask each child in your class to choose one.

a Use this tick sheet.

b Now use tally marks.

If the numbers don't match up, check your data.

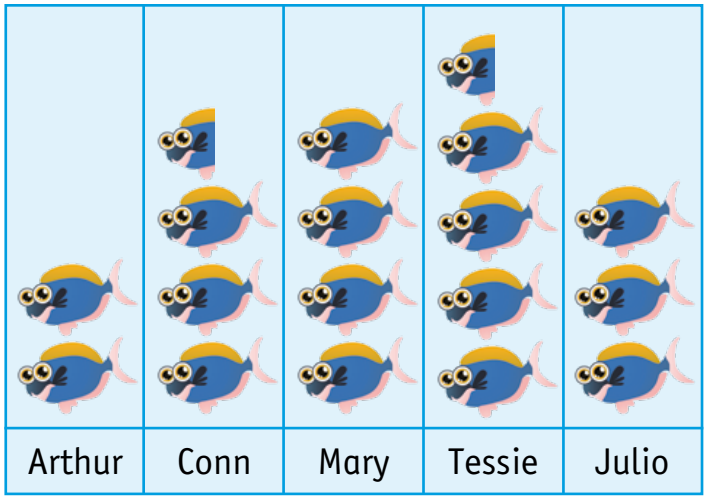
2 Make a bar graph to show these choices. Remember all the labels.



3 Which do they like most? _____

Presenting data

1 Some friends drew a picture graph of the fish they caught.



a How many people went fishing? _____

b How many fish did Julio catch? _____

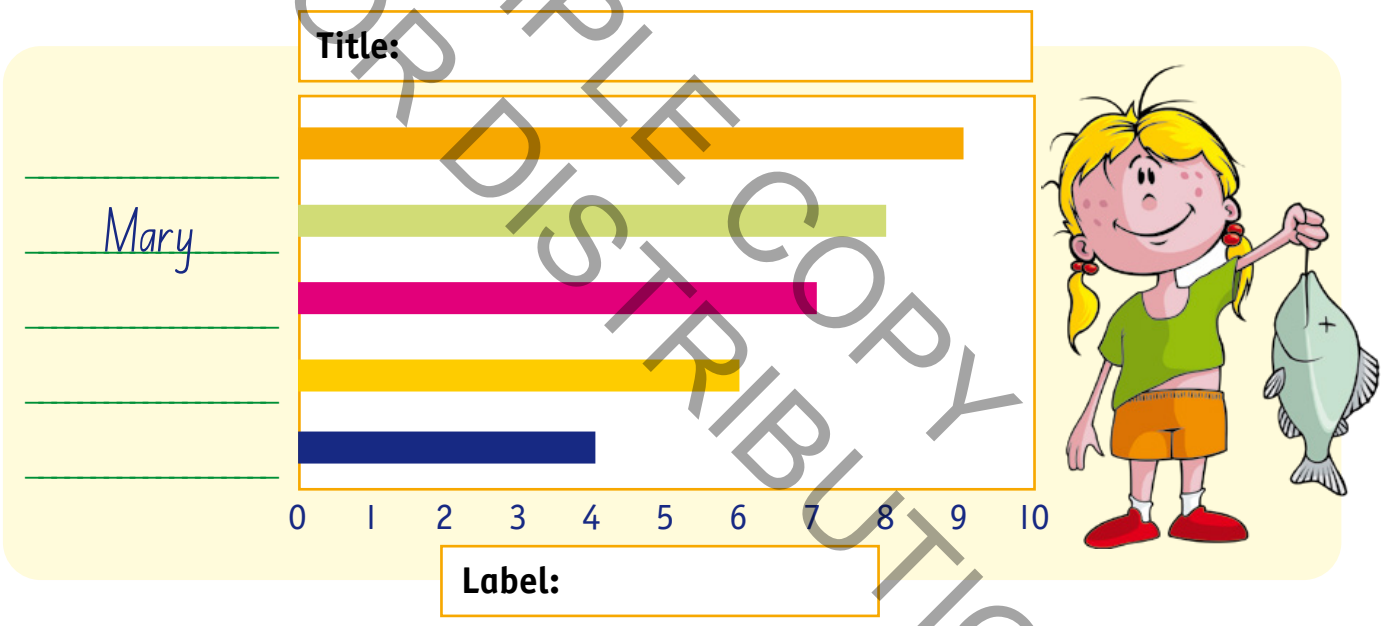
c Who caught the most fish? _____

d Who caught twice as many fish as Arthur? _____

e How many fish were caught altogether? _____

f Who said this? "I caught more fish than Julio, but fewer than Mary." _____

2 Mary decided to show the information as a bar graph. She drew this.



a Complete the bar graph by writing the name of each person.

b Write a title on the graph.

c Write the missing label.

3 Conn said he would write a table for the information.

a Complete the table for Conn.

b In which order did he write the names of the people who went fishing? _____

_____

_____

Name	Number of fish caught
Arthur	
Julio	
Conn	7
Mary	
Tessie	

Reading a table

SSL Table — Central Districts

	Games	Won	Lost	Drawn	Points
Giants	8	6	1	1	26
Bradies	8	6	2	0	24
Dragons	8	5	3	0	20
Furies	8	4	3	1	18
Brongoes	7	4	3	0	16
Tigers	8	4	4	0	16
Meteors	7	2	5	0	8
Wallabies	8	2	6	0	8

Here is the Schools Soccer League results table for this year.

1 What are the points for the:

a Wallabies? _____ b Giants? _____

c Dragons? _____ d Meteors? _____

2 a How many points do the teams score for a win? _____

b How many points do they get for a draw? _____

3 How many rounds have been played by most teams? _____

4 Who has yet to play their eighth game? _____

5 Which two teams had a draw? _____

6 If the Brongoes win their 8th round match, what will the top 4 teams be?

_____

7 Could the Furies become the league leaders after playing two more games? _____

How? _____

8 If the Tigers win the next 4 games, will they be leaders? _____

Why? _____

Challenge! Update the table using these results:

Round 8 Brongoes 4 Meteors 2

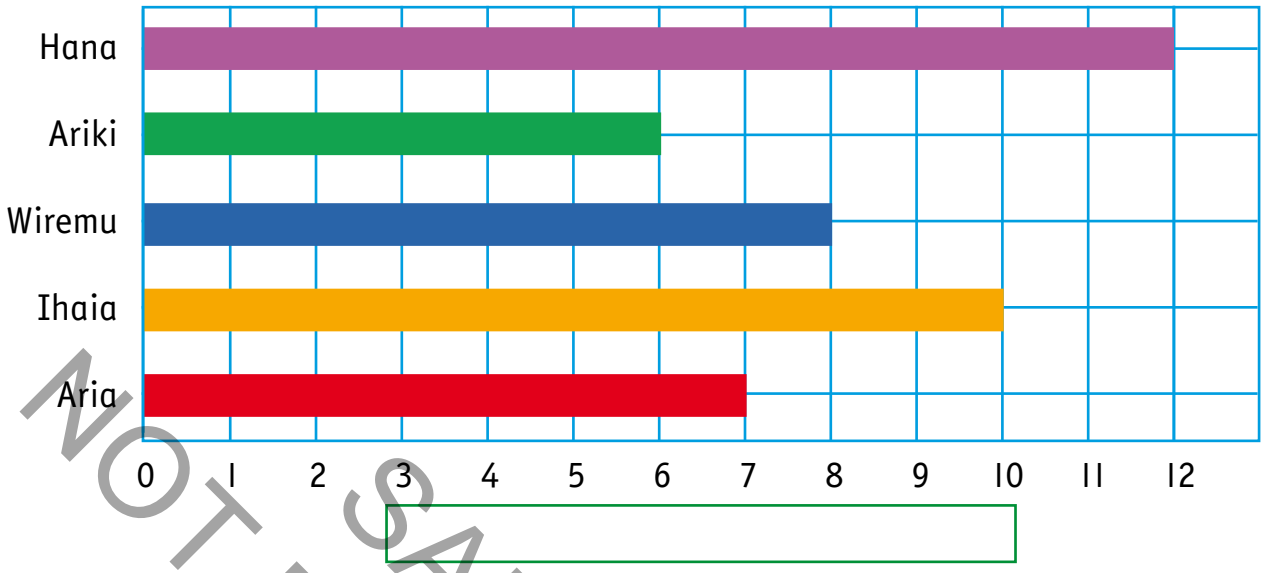
Round 9 Giants 3 Wallabies 1 Bradies 2 Dragons 1

Meteors 4 Furies 3 Brongoes 2 Tigers 2

Who is top of the table now? _____

Graphs

Hours of Homework for the Week



1 a How many students compared homework? _____

b Write the label for the bottom numbers.

c Who did the most homework? _____

d Who did the least homework? _____

e Who did 8 hours of homework? _____

f Name three students who did more homework than Aria.

_____ _____ _____

2 Draw a picture graph to show the same information. Use one clock to show one hour. Label your graph clearly.

Drawing a bar graph

1 Eight children have heavy schoolbags.
Their teacher weighs each bag using books.

Amanda's bag (A)	= 8 books
Bruce's bag (B)	= 12 books
Roger's bag (R)	= 10 books
Jan's bag (J)	= 14 books
Peter's bag (P)	= 7 books
George's bag (G)	= 9 books
Michelle's bag (M)	= 8 books
Timothy's bag (T)	= 15 books

a How heavy is Roger's bag? _____ books

b Who has the heaviest bag? _____

c Who has the lightest bag? _____

d Which two bags have the same mass?

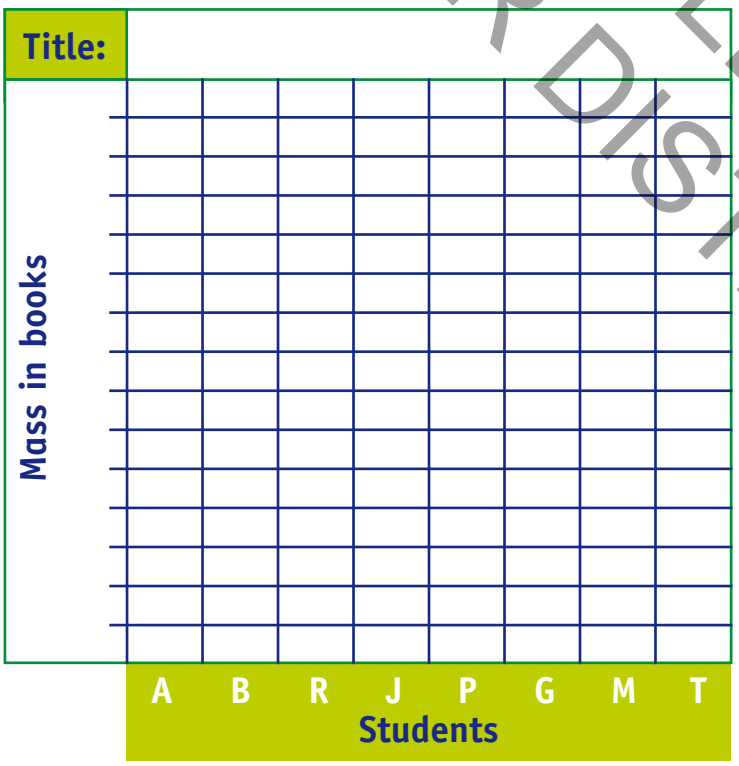
_____ and _____

e Write the three students with the heaviest bags from lightest to heaviest.

_____ , _____ , _____

f Whose bag is heavier than George's, but lighter than Bruce's? _____

g What is the mass, in books, of Peter's bag and Roger's bag together? _____



2 a Make a bar graph by colouring the spaces.

b Write in the vertical scale.

c Write a title for your graph.

3 True or False?

a Jan's bag is twice as heavy as Peter's bag. _____

b Roger's bag is lighter than George's bag. _____

c Timothy's bag has the same mass as Michelle's bag and Peter's bag together. _____

d Three students have bags lighter than Roger's bag. _____

Mastery Checklist

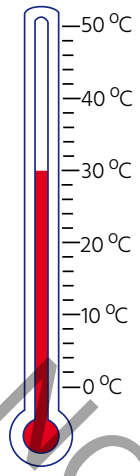
I can:
- ☐ complete a survey and graph results.
- ☐ answer questions about a picture graph, bar graphs and tables
- ☐ complete a bar graph and a table
- ☐ make a picture graph and a bar graph

Temperature

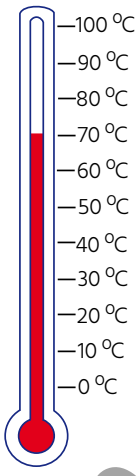
TERM 2
Week 9

1 Record the temperatures shown on each thermometer. Look carefully at the scale.

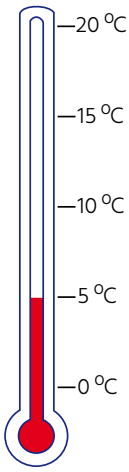
a



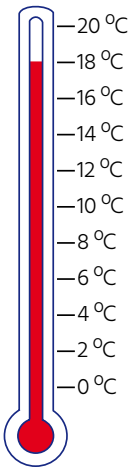
b



c



d



Temperature is how hot or cold something is. You read 20 °C as 20 degrees Celsius.

2 Write things you know that match each temperature.

freezing cold cool warm hot boiling

3 Place these temperatures in order from coldest to hottest.

a 34 °C, 18 °C, 24 °C, 12 °C _____

b 16 °C, 4 °C, 0 °C, 11 °C _____

4 For each day, what temperature could it be?

Challenge!

Research the normal body temperature for:

a human _____ a dog _____ a chicken _____ a kiwi _____

Volume

1 Circle the largest volume. Tick the smallest volume.

a

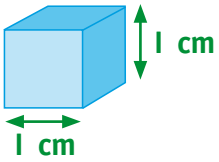
b

Volume
The amount of space an object takes up

Volume is measured in cubic units.

This cube has 1 cm sides.

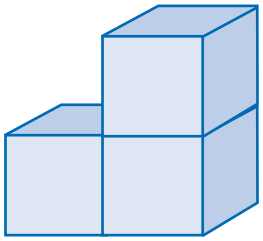
This cube is one cubic centimetre.



The short form of **one cubic centimetre = 1 cm^3**.

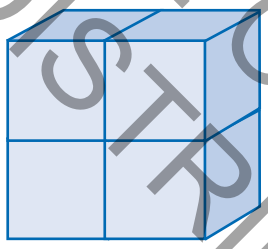
2 How many cubic centimetres in each model?

a



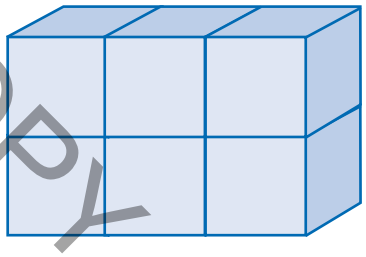
Volume = ☐ cm^3

b



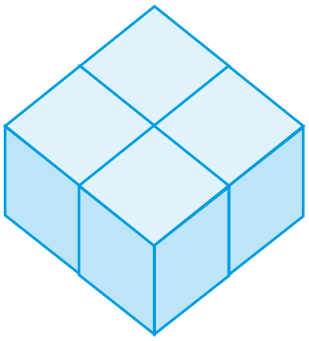
Volume = ☐ cm^3

c



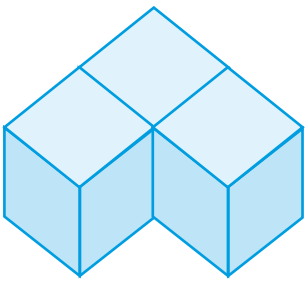
Volume = ☐ cm^3

d



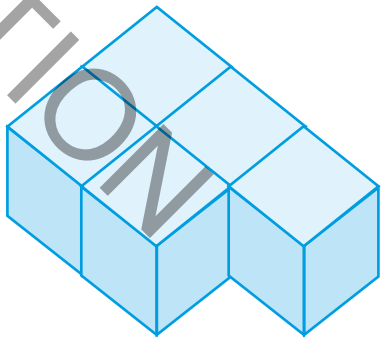
Volume = ☐ cm^3

e



Volume = ☐ cm^3

f

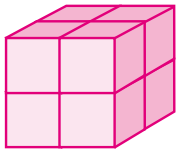


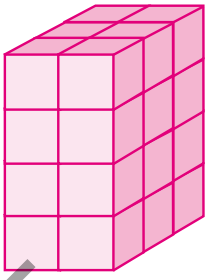
Volume = ☐ cm^3

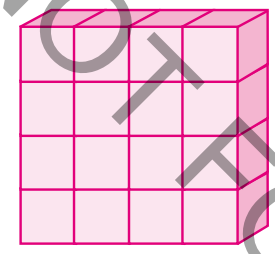
g Which model has the largest volume? _____

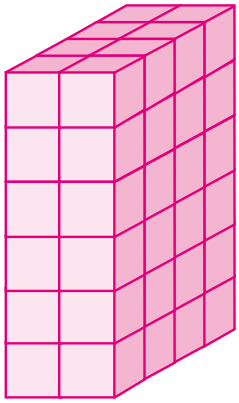
h Which models have the same volume? _____

Measuring volume

1 a  ☐ layers of ☐ blocks = a volume of ☐ blocks

b  ☐ layers of ☐ blocks = a volume of ☐ blocks

c  ☐ layers of ☐ blocks = a volume of ☐ blocks

d  ☐ layers of ☐ blocks = a volume of ☐ blocks

measure in blocks

2 Gather four boxes. How many  fit inside? Guess first, then count.

a 
☐ my guess
☐ my count

b 

☐ my guess
☐ my count

c 

☐ my guess
☐ my count

d 
☐ my guess
☐ my count

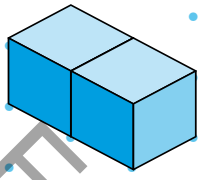
Making volumes

volume in blocks

1 Use 8 blocks to make a rectangular prism.

How many blocks wide? _____ How many blocks long? _____

Draw your rectangular prism:



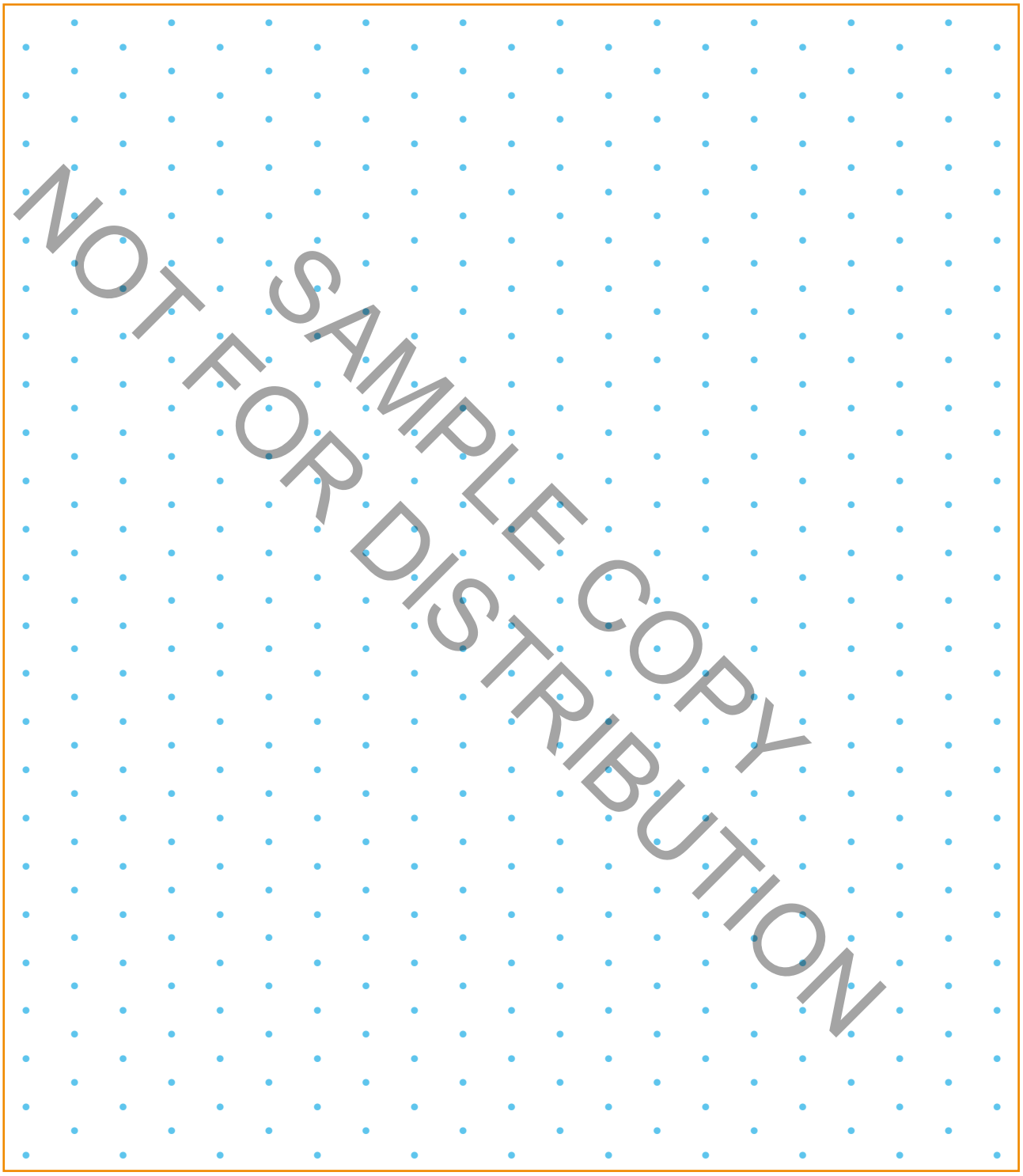
2 Use another 8 blocks to make a cube.

How many blocks in the bottom layer? _____

How many blocks in the top layer? _____ Draw your cube:

Same volume, different dimensions

How many different cubes and rectangular prisms can you make using 16 blocks?
Make models using 16 linking cubes. Draw them below.



I can:

- ☐ measure temperature in degrees Celsius
- ☐ measure volume in cubic centimetres
- ☐ make different shapes with the same volume

Checkpoint 4

1 Order from smallest to largest. p 50

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

_____ _____ _____ _____ _____ _____

2 What is the value of the underlined number? p 53

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

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

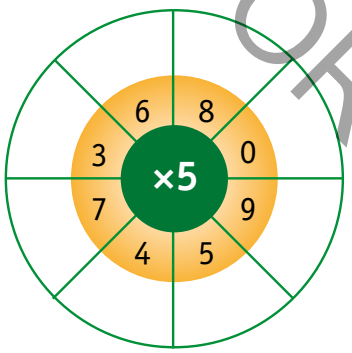
3 Use the numerals 6, 7, 8, 9 to write a number with: p 53

a 6 in the hundreds place. _____

b 9 in the ones place. _____

c 7 in the thousands place. _____

4 p 56



5 How many p 59

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? ____

6 Complete: p 61

	49	53	50	56	54
−47					
−39					

7 Use the number lines. p 61

a
$$\begin{array}{r} 42 \\ -\ 27 \\ \hline \\ \hline \end{array}$$

b
$$\begin{array}{r} 81 \\ -\ 56 \\ \hline \\ \hline \end{array}$$

8 p 62

a $\begin{array}{r} 67 \\ -\ 14 \\ \hline \\ \hline \end{array}$ **b** $\begin{array}{r} 88 \\ -\ 35 \\ \hline \\ \hline \end{array}$ **c** $\begin{array}{r} 95 \\ -\ 20 \\ \hline \\ \hline \end{array}$

9 Write three more facts. p 63

20 − 13 = 7 ____ − ____ = ____

____ + ____ = ____

____ + ____ = ____

10 My frog jumped 58 cm. p 63

Thea's frog jumped 37 cm.

What was the difference? _____

11 Write the fraction. p 66

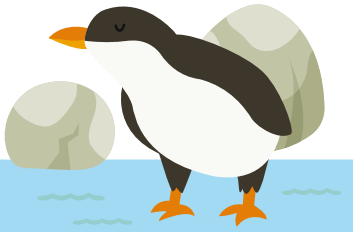
a three-fifths $\frac{\square}{\square}$

b seven-tenths $\frac{\square}{\square}$

12 Order these fractions from smallest to largest. p 67

$\frac{1}{3}$, $\frac{1}{5}$, $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{6}$

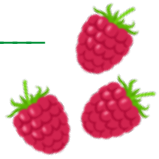
_____ _____ _____ _____ _____



Checkpoint 4

13 a 16 apples in a box. p 68

What is $\frac{1}{4}$ of the box? _____



b $\frac{1}{5}$ of a box of berries = 3.

1 whole box of berries = _____

14 Write the next two rows. p 74

48 – 13 = 35

58 – 13 = 45

68 – 13 = 55

_____

_____

15 Write the coins to make the amounts. p 77

a 80c _____

b $2.40 _____

c $7.10 _____

16 Complete. p 80

a

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

b

–	$1	$3.70	$1.90	80c	$5	$7
70c						

17 Write something that holds: p 82

a about 1 litre. _____

b more than 1 litre. _____

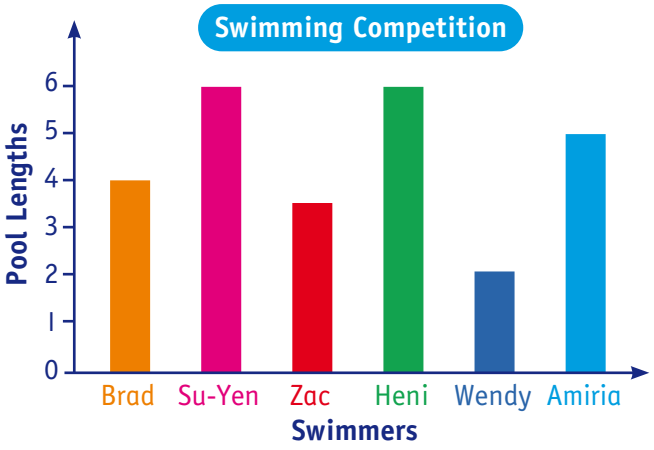
c less than 1 litre. _____

18 L or mL? p 83

a water in a cup _____

b petrol in a car _____

19 p 89



a Who swam the shortest distance?

_____

b Which two swimmers swam the same distance?

_____

c How many lengths did Zac swim? _____

d How many lengths were swum altogether? _____

e How many people swam in the competition? _____

f What is this graph for?

_____

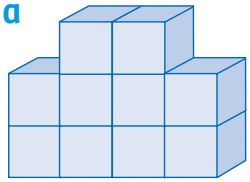
_____

_____

_____

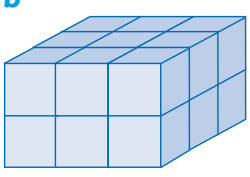
20 What is the volume? p 92

a



Volume = ☐ cm^3

b



Volume = ☐ cm^3

Addition of money

John spent $5

Ali spent $3.50

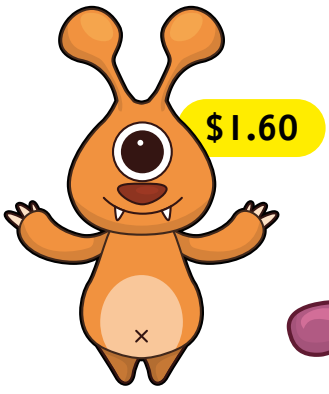
Ng spent $4.50

Mary spent $8.10

Cario

Flame

Tum Tum



Toot

Blobby

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?

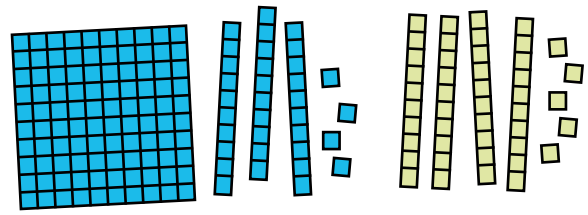
_____

Addition of 2- and 3-digit numbers

TERM 3
Week 1

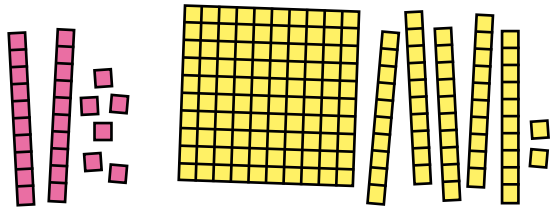
1 How many in each group? Find the total.

a



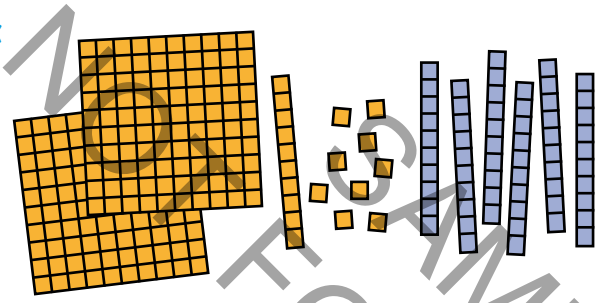
_____ + _____ = _____

b



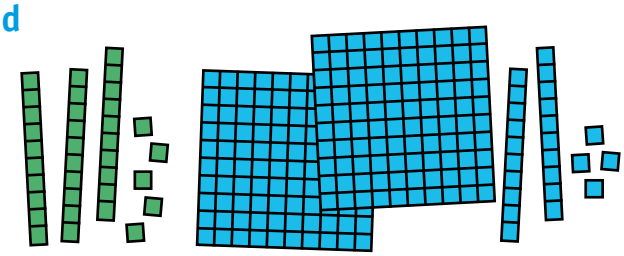
_____ + _____ = _____

c



_____ + _____ = _____

d



_____ + _____ = _____

2 **a** 173 + 16 = _____

b 231 + 45 = _____

c 127 + 150 = _____

d 284 + 115 = _____

e 353 + 125 = _____

f 126 + 472 = _____

3 **a** 30 + 2□ = □9

b 2□ + 63 = □7

c □□ + 24 = 99

d 12 + □2 = 8□

e □5 + 2□ = 68

4 Match each to its answer.

a 172 + 27

b 283 + 13

c 35 + 243

d 333 + 46

e 41 + 146

f 49 + 240

278 199 289 296 379 187

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

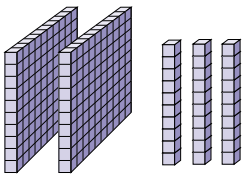
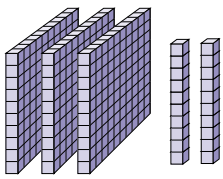
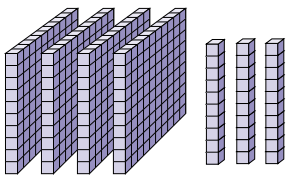
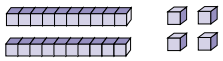
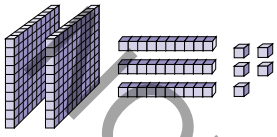
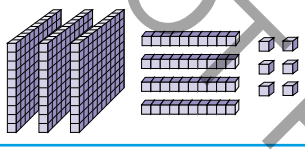
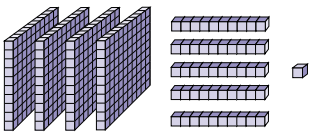
Bar model for addition

TERM 3
Week 1

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 | ? 139 ? = 64	75 + 64 = 139
2 Kylie saw 34 lizards on her hike, before lunch. Then after lunch she saw 27 more. How many lizards did she see altogether?	34 | 27 ? ? = _____	_____ + _____ = _____
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 ? ? = _____	_____ + _____ + _____ = _____
4 Kai picked 39 berries on Saturday. He picked more berries on Sunday but forgot to count them. He had 129 berries altogether. How many berries did he pick on Sunday?	 ? = _____	_____ + _____ = _____
5 Amahau carved 14 waka in summer and 28 more in winter. How many waka did he 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 3
Week 1

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

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

c 43 + 39 = _____ = _____

d 59 + 38 = _____ = _____

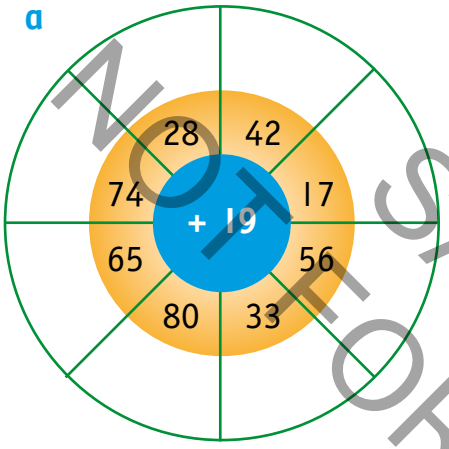
e 38 + 61 = _____ = _____

f 47 + 22 = _____ = _____

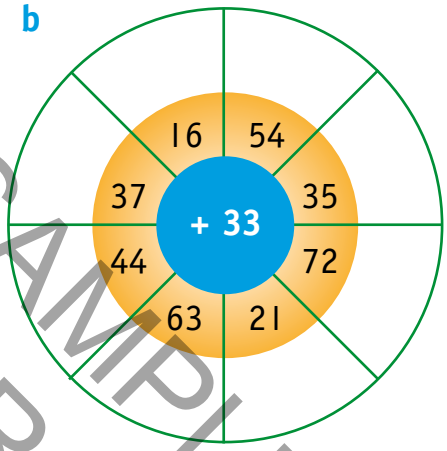
g 77 + 13 = _____ = _____

h 23 + 49 = _____ = _____

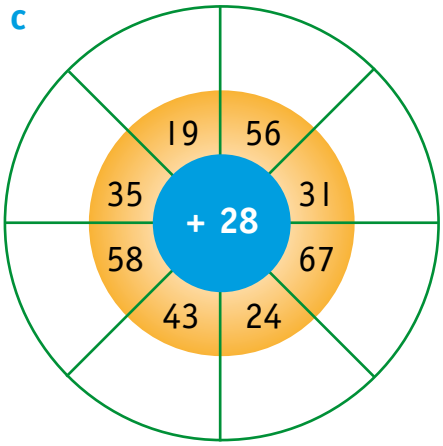
2 a



b



c



3 Estimate first.

	Estimate	Answer
a 17 + 15		
b 39 + 24		
c 35 + 63		

	Estimate	Answer
d 28 + 13		
e 51 + 37		
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

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.

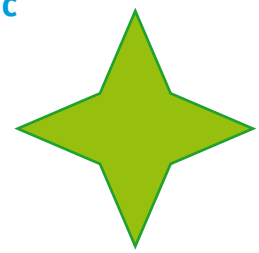
How many points on 9 stars? ☐

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? ☐

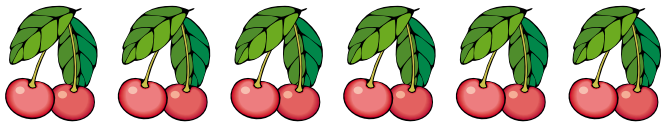
Vertical multiplication

TERM 3
Week 2

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? □

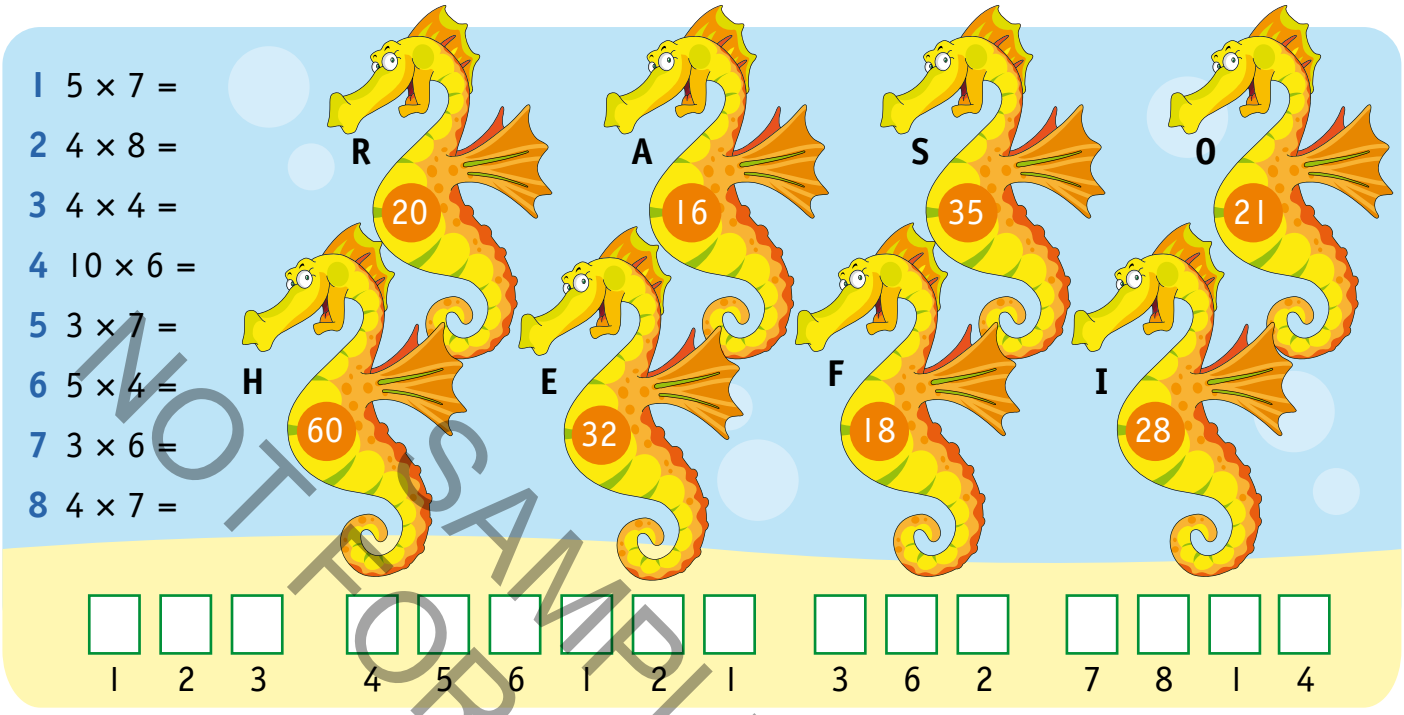
How many cookies on 5 trays? □

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

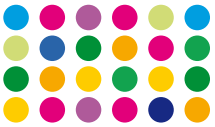
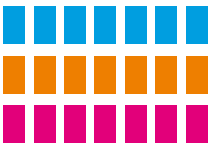
d _____ × _____ = 24 e _____ × _____ = 40 f _____ × _____ = 60

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

Missing facts

TERM 3
Week 2

1 Fill in the missing facts.

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

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

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

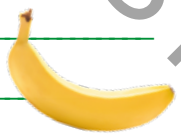
4 Tui gathers 4 eggs every day. How many eggs in 1 week?

☐ × ☐ = ☐

Answer ☐ eggs

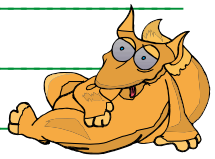
You write the questions.

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.

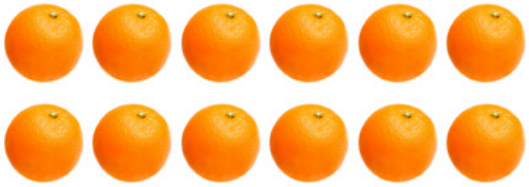
Division

1 Circle equal groups. Write the number sentence.

a Share between 3

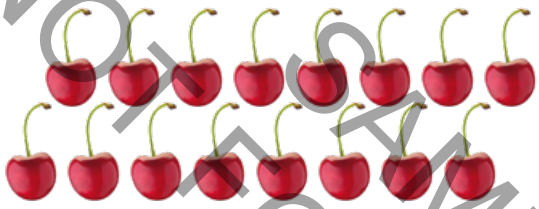
_____ ÷ 3 = _____

b Share between 3



_____ ÷ 3 = _____

c Share between 4

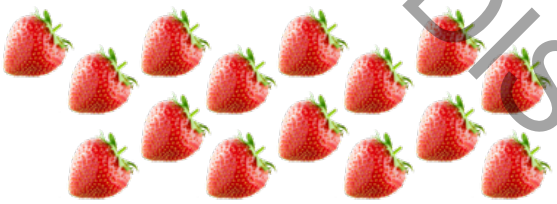


_____ ÷ 4 = _____

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

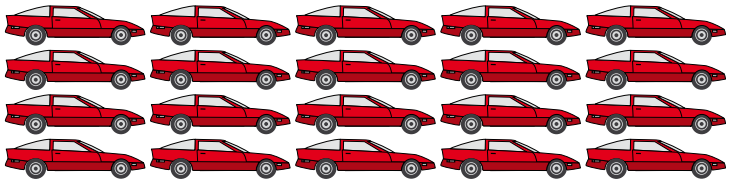
÷ means to divide.

TERM 3
Week 3

1 Divide 20 cars into 4 equal groups.

20 ÷ 4 = _____

There are _____ cars in each group.



2 Divide 12 leaves into 3 equal groups.

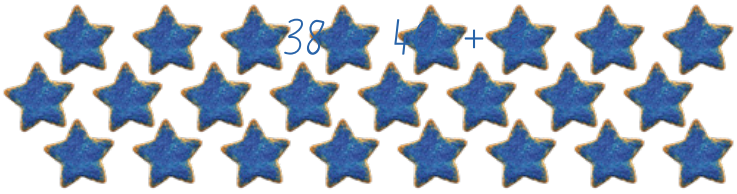
12 ÷ 3 = _____

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.

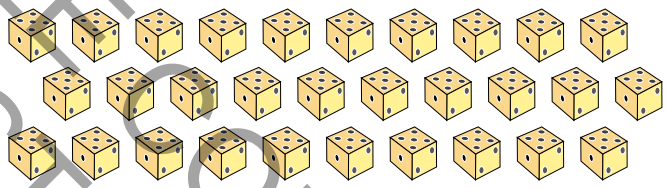
18 ÷ 3 = _____

There are _____ cats in each group.

5 Divide 30 dice into 10 groups.

30 ÷ 10 = _____

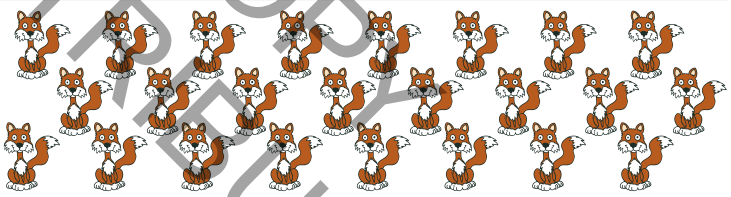
There are _____ dice in each group.



6 Divide 24 foxes into groups of 4.

24 ÷ 4 = _____

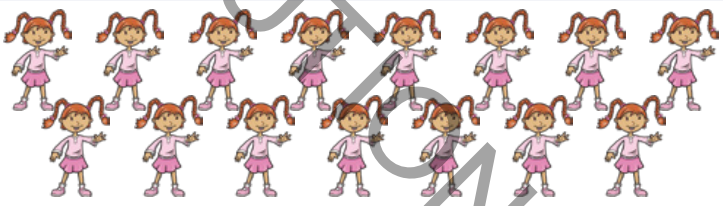
There are _____ groups of foxes.



7 Divide 15 girls into groups of 3.

15 ÷ 3 = _____

There are _____ groups of girls.



8 Divide 20 bugs into groups of 5.

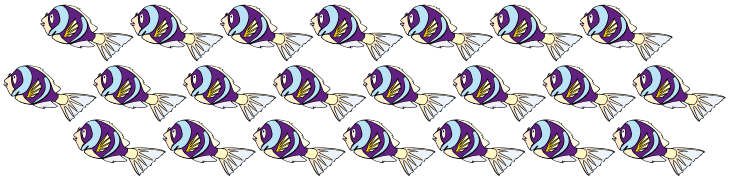
20 ÷ 5 = _____

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.

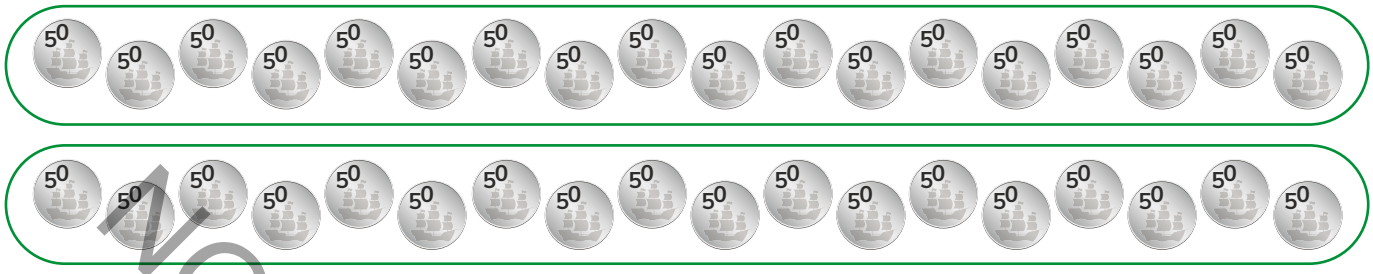
a $\frac{1}{8}$ of _____ is 7 _____
b $\frac{1}{4}$ of _____ is 7 _____
c $\frac{1}{10}$ of _____ is 7 _____
d $\frac{1}{3}$ of _____ is 7 _____

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:



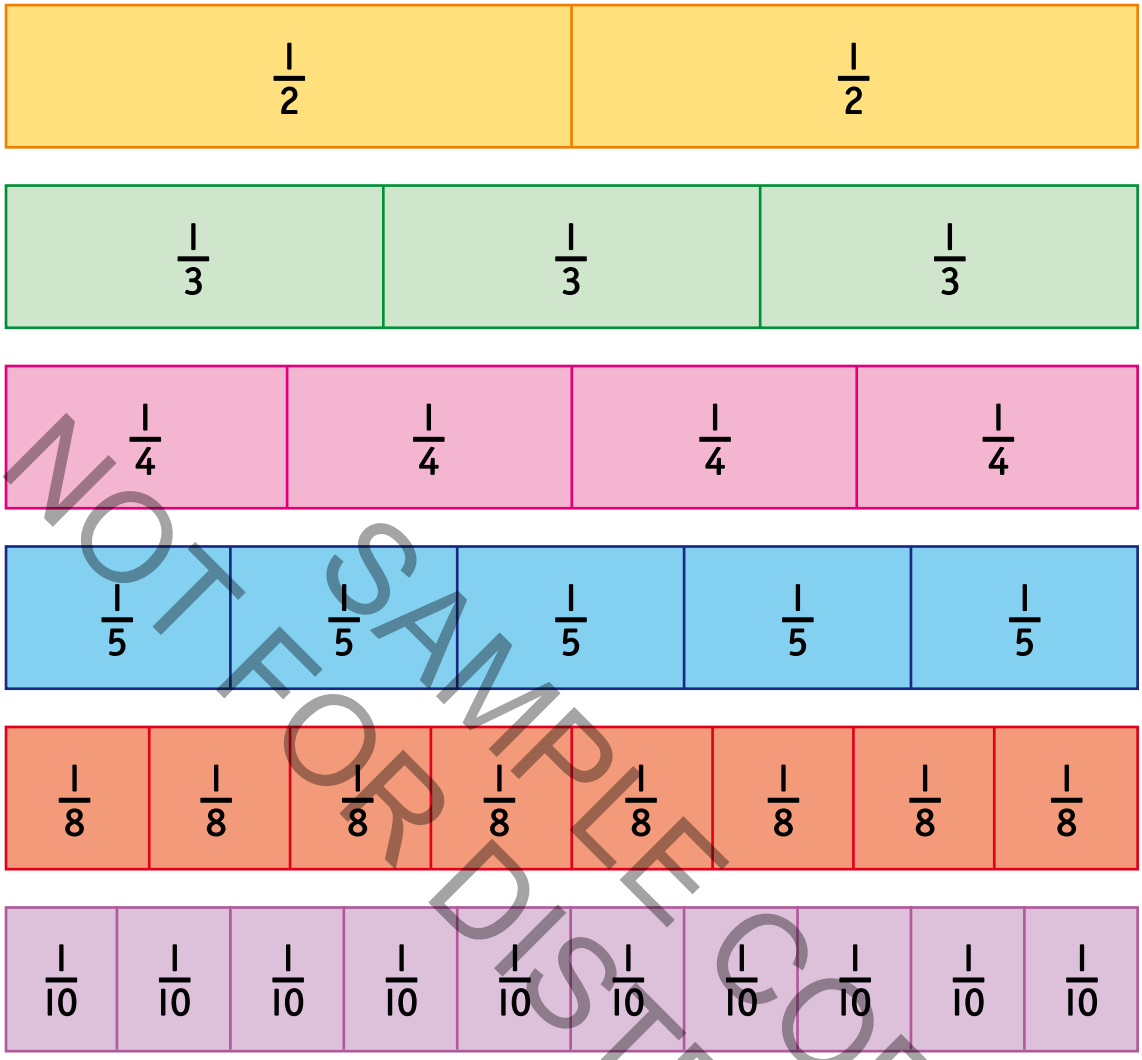
Yes, he can share between 2 grandchildren. **36 ÷ 2 = 18 2 × 18 = 36**

I can solve problems by:

☐ using multiplication and division facts ☐ writing equations

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.

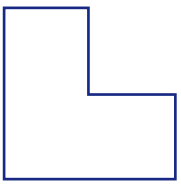
a $\frac{2}{4}$ is _____ of four parts.

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.



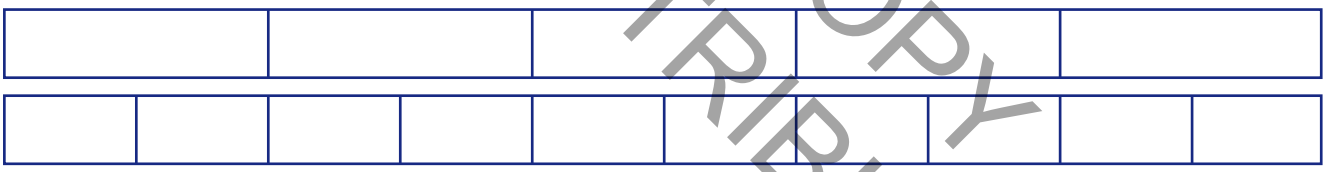
b $\frac{1}{3}$ means one of _____ parts.

c Write all the thirds in order. _____

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

b Write all the fifths in order. _____

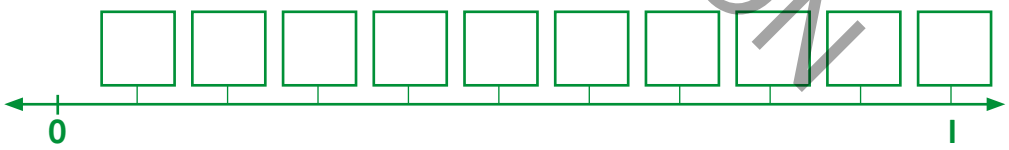
4 a Colour one fifth. b Colour an equivalent number of tenths.



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

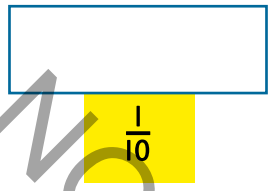
1 What fraction is the coloured part?

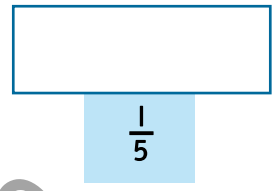
a  _____

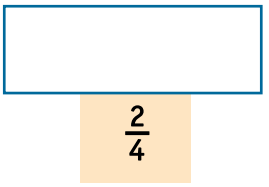
b  _____

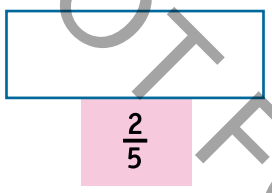
c  _____

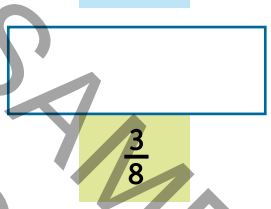
2 Draw diagrams to show the fraction.

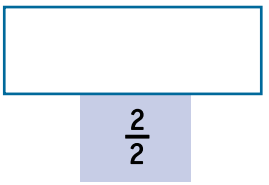
a 

b 

c 

d 

e 

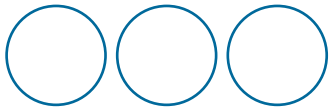
f 

2 ← numerator
3 ← denominator

The **denominator** tells us how many parts altogether.

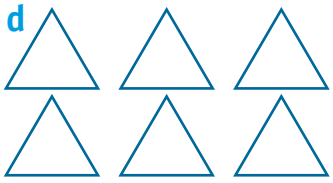
The **numerator** tells us how many parts we have.

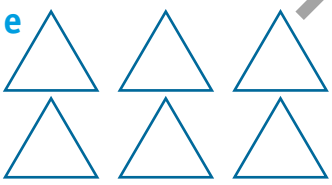
3 Draw lines and colour to show the fraction.

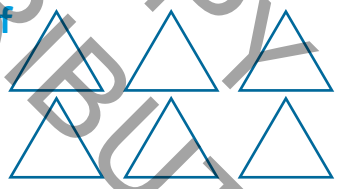
a 
$1\frac{1}{4}$

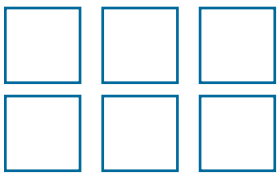
b 
$2\frac{1}{4}$

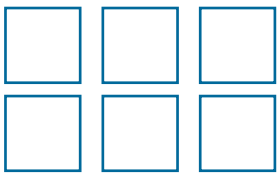
c 
$1\frac{3}{4}$

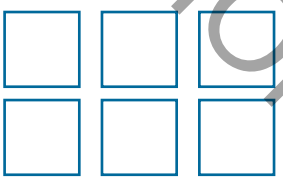
d 
$3\frac{1}{2}$

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

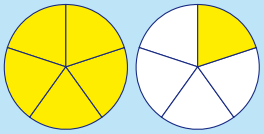
f 
$4\frac{1}{2}$

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?

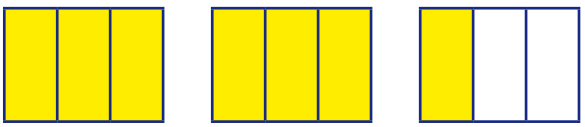
Improper fractions

1 How many parts coloured altogether?

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

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

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

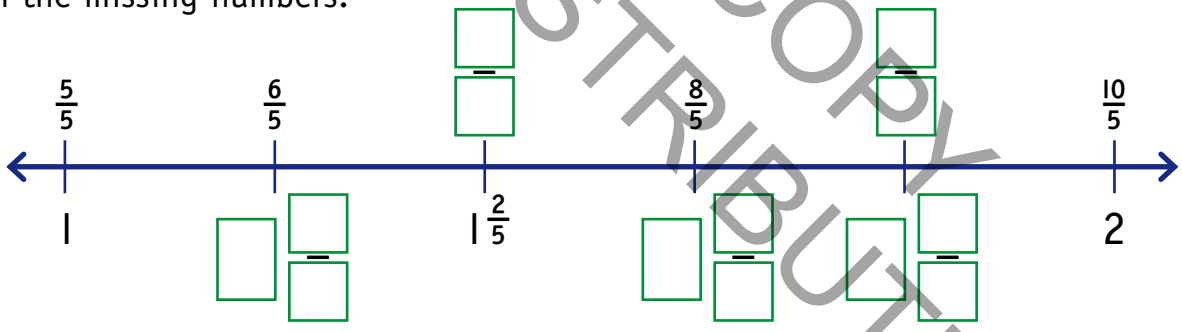


d _____ thirds = $\frac{\square}{3}$

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** $\frac{8}{6} = \frac{\square}{6}$

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

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

Checkpoint 5

1 Write your answer in the box.

• $5.90

kiwi

• $4.10

windmill

• $2.40

paints

• $1.40

wand

• $6.80

top

Su-Yin bought two toys and spent $7.30. Which two toys did she buy?

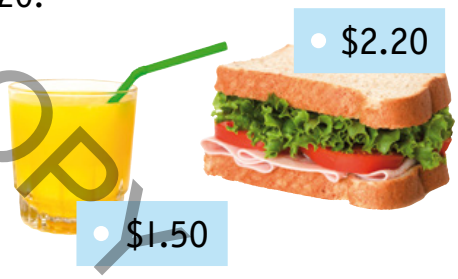
_____ and _____

2 Which is the largest fraction?

Shade one bubble.

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

3 Josef bought a drink for $1.50 and a sandwich for $2.20.
How much change did he get from $5?

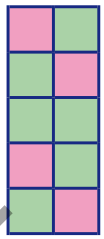


• $2.20

• $1.50

$1.30 $3.70 $2.30 $0.70

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



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

5 Write your answer in the box.

Complete.

a

37	63
?	

? = _____

b

64	?
102	

? = _____

Checkpoint 5

6 Add to make a whole.

Write your answer in the box.

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

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

7 Kahukura had to make 5 fair shares from these cupcakes.

Shade one bubble.

How many in each share?

3 ○ 4 ○ 5 ○ 6 ○

8 Double this recipe.

_____ = 2 eggs =

_____ = $1\frac{1}{2}$ cups milk =

_____ = 2 cups flour =

_____ = $\frac{1}{4}$ cup sugar =

_____ = 1 tsp maple syrup =

9 Halve this recipe.

_____

_____

_____

_____

_____

10 Write the equation. Draw a picture to find the answer.

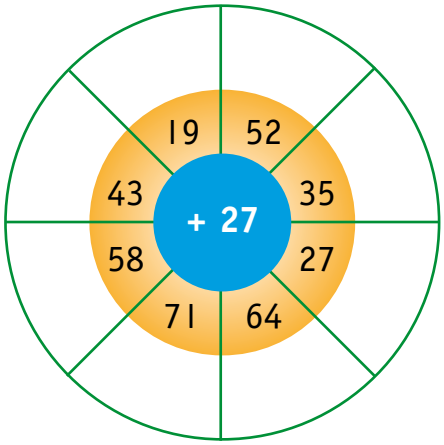
Write your answer in the box.

Lin, Jo and Mei shared 18 stickers.

How many did they each get?

$\square \div \square = \square$

11

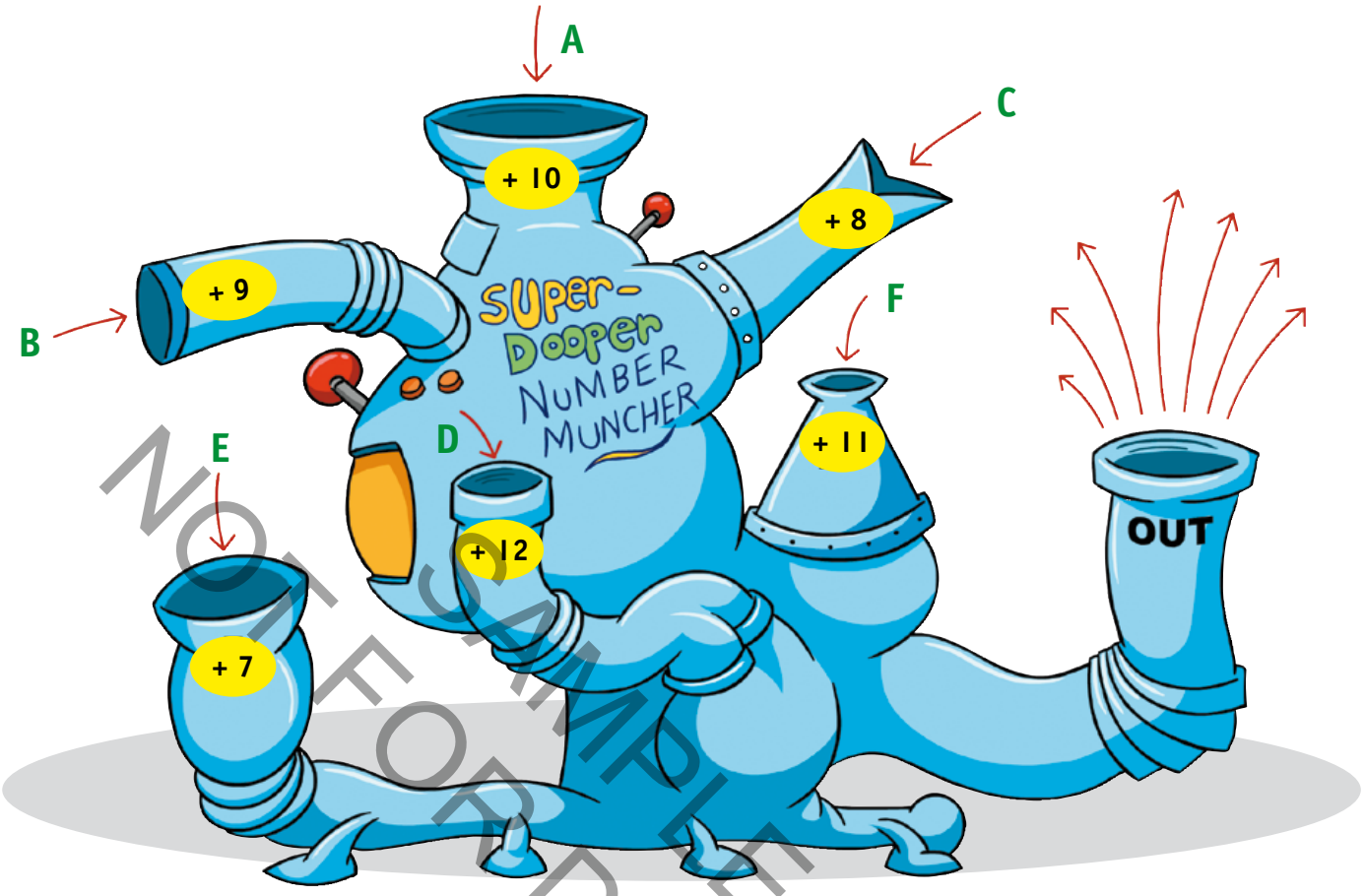


12

4 × 6 =	7 × 5 =	9 × 3 =
5 × 5 =	6 × 3 =	3 × 7 =

Changing numbers

TERM 3
Week 5



In this amazing machine, numbers are changed into a pattern of four more numbers.

1 What comes out if these numbers are put into A?

a 10 _____ _____ _____ _____ b 35 _____ _____ _____ _____

c 24 _____ _____ _____ _____ d 9 _____ _____ _____ _____

2 What comes out if these numbers are put into F?

a 3 _____ _____ _____ _____ b 25 _____ _____ _____ _____

c 12 _____ _____ _____ _____ d 38 _____ _____ _____ _____

3 What comes out if these numbers are put into D?

a 7 _____ _____ _____ _____ b 9 _____ _____ _____ _____

c 4 _____ _____ _____ _____ d 11 _____ _____ _____ _____

4 What comes out if these numbers are put into B?

a 24 _____ _____ _____ _____ b 19 _____ _____ _____ _____

c 16 _____ _____ _____ _____ d 27 _____ _____ _____ _____

5 What comes out if these numbers are put into E?

a 3 _____ _____ _____ _____ b 15 _____ _____ _____ _____

c 30 _____ _____ _____ _____ d 41 _____ _____ _____ _____

Number patterns

1 Complete these patterns.

a 2, 4, 6, _____, _____, _____, 14, 16, _____, _____, _____

b 15, 18, _____, _____, _____, 30, 33, _____, _____, _____

c 10, 20, _____, _____, _____, _____, 70, _____, _____, 100

d 62, 57, _____, _____, 42, _____, _____, _____, 22, _____

e 15, 20, _____, _____, _____, _____, 45, _____, _____, 60

2 Use the rule in each square to fill in the missing numbers.

a	+5	6	→		→		→		→		→	
b	+10	8	→		→		→		→		→	
c	−4	40	→		→		→		→		→	
d	−3	56	→		→		→		→		→	

3 a Colour the 3s pattern red. Continue to 100.

b Colour the 4s pattern green. Continue to 100.

c Colour the 5s pattern yellow. Continue to 100.

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
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

d Which numbers are coloured on all three grids? _____

Challenge!

Complete these patterns.

215, 224, 233 ☐ ☐ ☐ ☐ ☐

528, 519, 510 ☐ ☐ ☐ ☐ ☐

Table patterns

1 Write the pattern for adding 6 in this table.

Order of term	1	2	3								
Term	6	12									

2 Write the pattern for adding 7 in this table.

Order of term	1	2	3								
Term	7	14									

3 a Write your own pattern using addition or subtraction.

_____ _____ _____ _____ _____ _____

b Write the rule. _____

c Make a table for adding 9.

Order of term	1	2	3								
Term	9	18									

4 Maaka is building a fence. He starts with 1 post, then puts in a second post. He strings wire between the 2 posts and that's 1 section. He puts in a third post, strings wire between it and the last post, and now he has 2 sections. He is planning to make 8 sections. How many posts will he use in total?

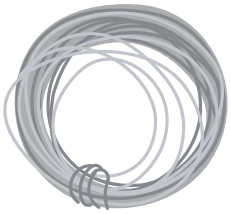
a Fill in the table.

Sections	1	2						
Posts	2	3						

b What is the rule? _____

c How many posts did Maaka use in total? _____

5 Maaka uses 5 m of wire for each section. How much wire will he use altogether?



a Fill in the table.

Sections	1	2						
Wire	5	10						

b What is the rule? _____

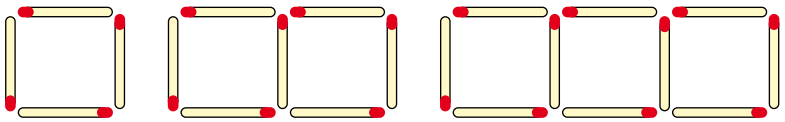
c How much wire did Maaka use altogether? _____

Number Number structures: Counting forwards in 6s, 9s, from multiples of the counting unit; **Algebra** Equations and relationships: Recognising, continuing, creating, and describing growing patterns (including numerical patterns) that change by adding, subtracting by a constant whole number

Making patterns

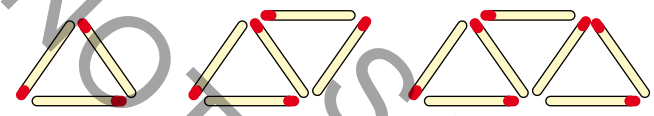
TERM 3
Week 5

Arona used matches to make some shapes. Draw the next shape in the box, then complete the table. Look for patterns.

1 a 

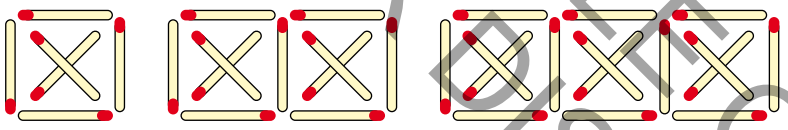
b

Number of shapes	1	2	3	4	5	6	7	8
Number of matches	4	7	10					

2 a 

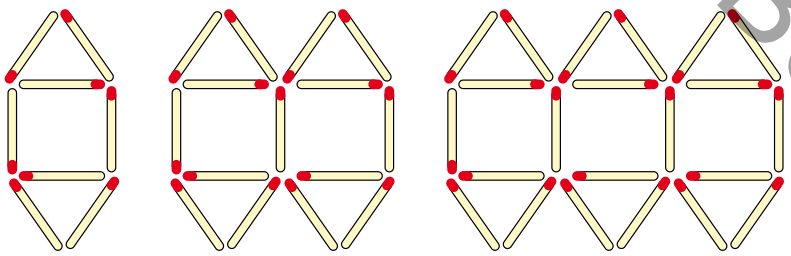
b

Number of shapes	1	2	3	4	5	6	7	8
Number of matches								

3 a 

b

Number of shapes	1	2	3	4	5	6	7	8
Number of matches								

4 a 

b

Number of shapes	1	2	3	4	5	6	7	8
Number of matches								

Mastery Checklist I can:

- ☐ find patterns in numbers
- ☐ write the missing term in a pattern
- ☐ use a calculator to make number patterns
- ☐ follow a rule to make a number pattern
- ☐ complete addition and subtraction patterns

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? _____

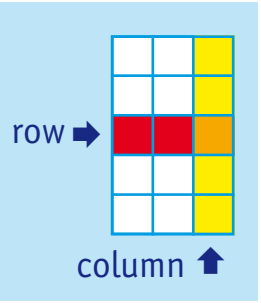
c fifth column, second row? _____

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.

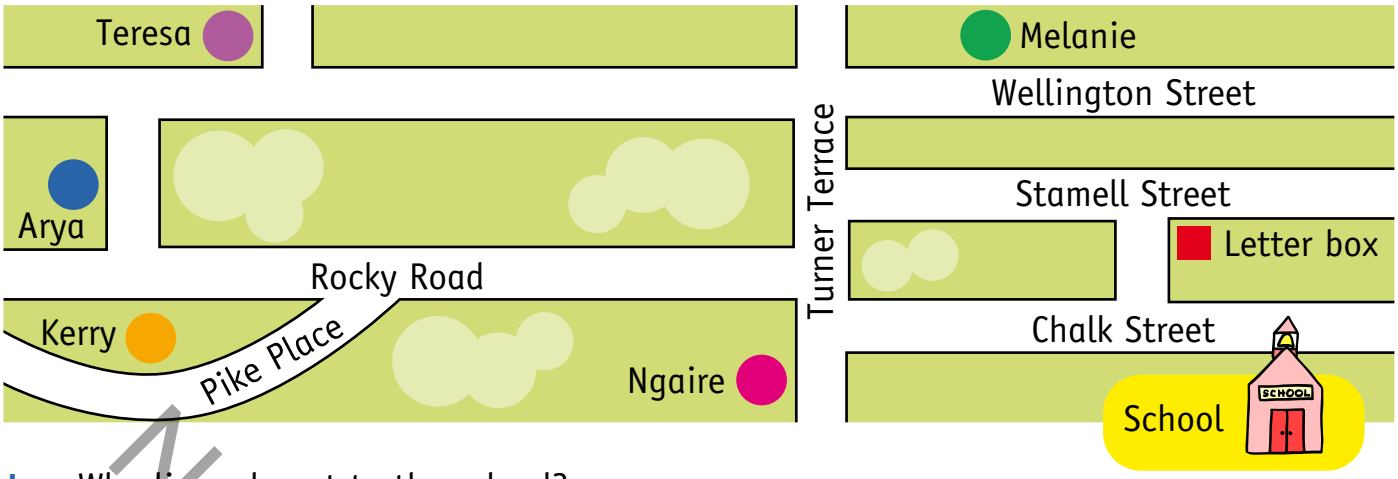
h Draw in red how Joe would get to his new seat.

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



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	

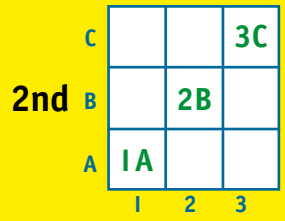
a Column 1, row 2
b Column 4, row 6
c Column 5, row 3
d Column 2, row 6
e Column 3, row 3
f Column 2, row 1
g Column 6, row 1
h Column 6, row 7
i Column 3, row 8
j Column 4, row 4
k Column 1, row 5

	1	2	3	4	5	6
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

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.

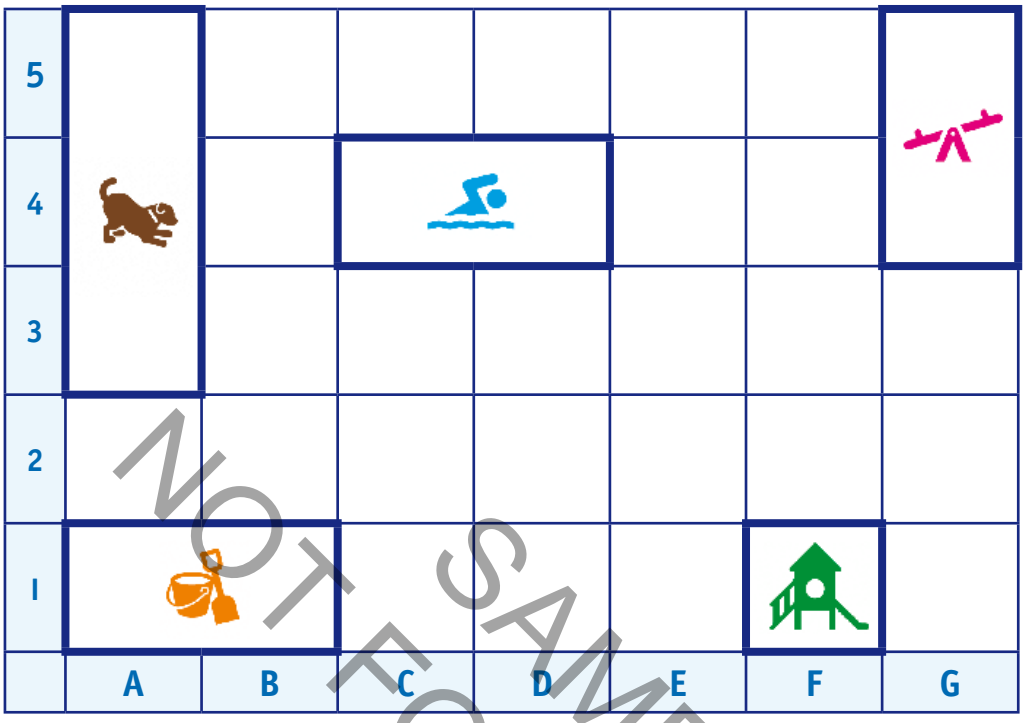
3 Name all the blank spaces.

_____

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



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

Mass

Find three small boxes. Label them **A**, **B** and **C**. Fill each box with sand.

1 a Feel the weight of each box.

b Write the boxes in order from lightest to heaviest.

lightest _____ _____ _____ heaviest

2 Use balance scales to order the boxes.

lightest _____ _____ _____ heaviest

3 a Empty the boxes and fill them with something different, e.g. marbles or blocks.

b Order the boxes from lightest to heaviest.

lightest _____ _____ _____ heaviest

4 Is the order the same each time? _____

5 How could you weigh this book using sand or marbles?

_____

6 Do you know a better method to weigh this book?

_____

Balance scales

TERM 3
Week 7

1 Use a balance scale to compare a text book, a reading book and an exercise book.

a The text book is _____ than the reading book.

b The text book is _____ than the exercise book.

c The exercise book is _____ than the reading book.

heavier
lighter

2 Put the three books in order from heaviest to lightest.

Heaviest _____ _____ _____ **Lightest**

3 Compare these books to a $\frac{1}{2}$ kg weight. Are they heavier or lighter than half a kilo?

a a text book is _____ than half a kilo

b a reading book is _____ than half a kilo

c an exercise book is _____ than half a kilo

4 Estimate. Find items that you think will weigh:

a about 1 kg. _____

b about 2 kg. _____

c about $\frac{1}{2}$ kg. _____

5 Check your items on a balance scale with $\frac{1}{2}$ kg and 1 kg weights.

Tick the items you estimated correctly.

6 Use balance scales with $\frac{1}{2}$ kg and 1 kg weights to find two items that weigh:

a about 1 kg together. _____ _____

b about 2 kg together. _____ _____

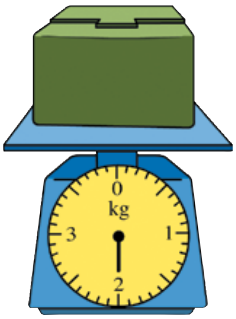
c about $\frac{1}{2}$ kg together. _____ _____

d exactly the same weight. _____ _____

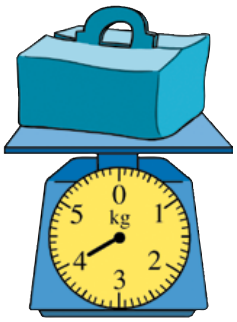
e How heavy are they? _____

Weighing in kilograms

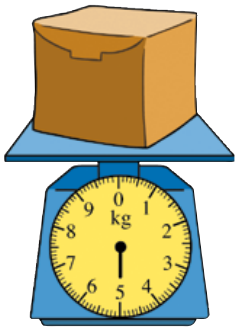
1 What is the mass for each box?



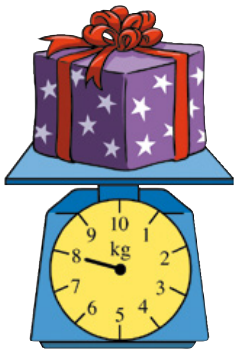
a _____ kg



b _____ kg



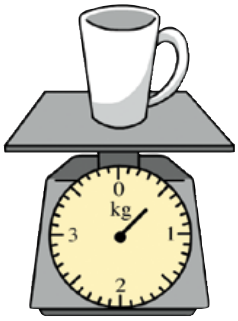
c _____ kg



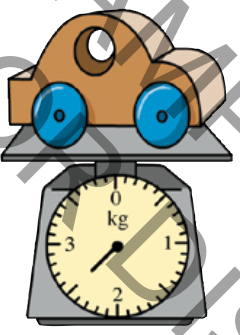
d _____ kg

e What is the total mass of the four boxes? _____

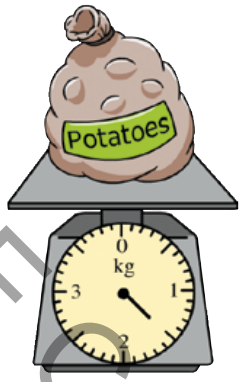
2 What is the mass for each object?



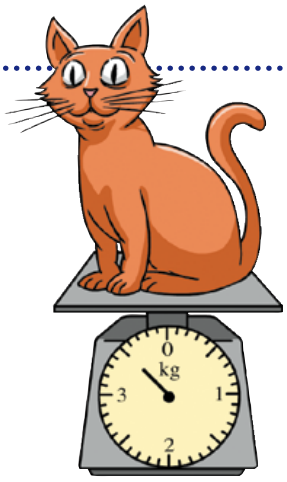
a _____ kg



b _____ kg



c _____ kg

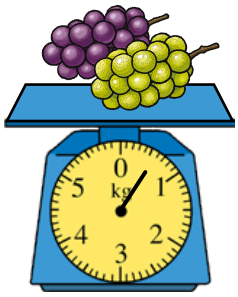


d _____ kg

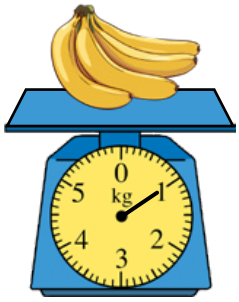
e Order the objects from lightest to heaviest.

_____ _____ _____ _____

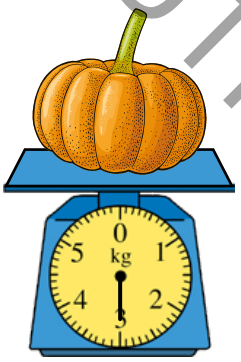
3 How much does each fruit weigh?



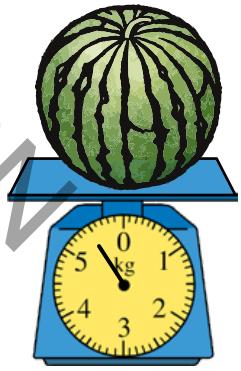
a _____ kg



b _____ kg



c _____ kg



d _____ kg

Challenge! Look up records for the heaviest example of each fruit above and write them in order. (Yes, a pumpkin is a fruit!)

Mass benchmarks

TERM 3
Week 7

1 Match.

a 1 kilogram	**A** 10 g
b 500 grams	**B** 100 g
c 100 grams	**C** 1 kg
d 10 grams	**D** 500 g

2 Match.

a kilogram ____
b 500 grams ____
c 100 grams ____
d 10 grams ____

A

B

C

D

3 Match.

a 1 kg	**A** 750 g
b $\frac{1}{2}$ kg	**B** 500 g
c $\frac{1}{4}$ kg	**C** 250 g
d $\frac{3}{4}$ kg	**D** 1000 g

4 Match.

a 1 kg ____
b $\frac{1}{2}$ kg ____
c $\frac{1}{4}$ kg ____
d $\frac{3}{4}$ kg ____

A

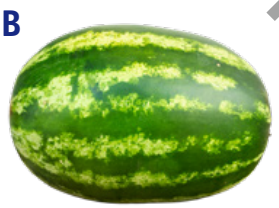
B

D

C

A

B



C

D

5 Estimate the mass of these items.

a **A**? _____ **b** **B**? _____ **c** **C**? _____ **d** **D**? _____

6 Write an item that weighs around each mass.

a 5 kg _____ **b** 10 kg _____

c 5 g _____ **d** 50 g _____

Mastery Checklist I can:

- ☐ compare the masses of real-life objects
- ☐ compare masses to $\frac{1}{2}$ and 1 kilogram
- ☐ use balance scales
- ☐ read scales in kilograms
- ☐ use benchmarks for estimation

Mass Investigation

The school is trying to become more environmentally friendly.
We need to know how much rubbish each class has in a week.
Can you come up with a plan for this investigation?

1 Question: _____

2 Expected answer: _____

3 Data collection process: (You may want to write this as a series of steps.)

_____

_____

_____

_____

Now carry out your investigation in your classroom.

4 Collect data:

5 Conclusion: _____

6 How did this compare to your expected answer? _____

_____

_____

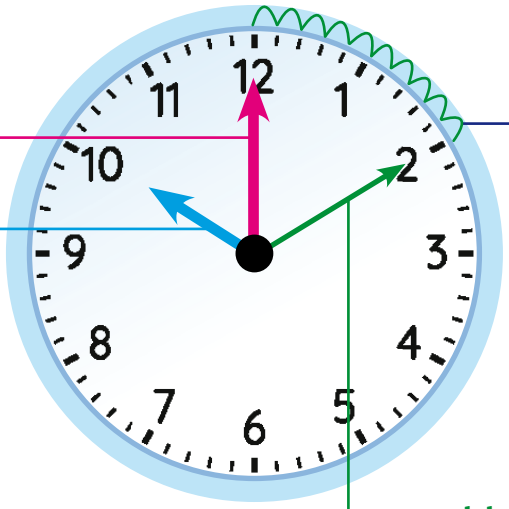
Challenge!

Draw a data display for your week's worth of mass measurements.

I can solve problems by:

☐ conducting an investigation ☐ measuring mass

Time units



10 seconds or 10 minutes

Each line = 1 second for the second hand and 1 minute for the minute hand.

There are 60 seconds in one minute and 60 minutes in one hour.

1 How much time has passed when:

a the hour hand has done a full turn around the clock face? _____

b the minute hand has done a full turn around the clock face? _____

c the second hand has done a full turn around the clock face? _____

2 How many hours in:

a $\frac{1}{2}$ a day? _____ hours b 1 day? _____ hours c 2 days? _____ hours

3 How many minutes in:

a 1 hour? _____ mins b $1\frac{1}{2}$ hours? _____ mins c 2 hours? _____ mins

d 10 hours? _____ mins e 12 hours? _____ mins f 1 day? _____ mins

4 How many seconds in:

a 1 minute? _____ secs b $2\frac{1}{2}$ minutes? _____ secs c 5 minutes? _____ secs

d 10 minutes? _____ secs e 20 minutes? _____ secs f 1 hour? _____ secs

5 How many minutes in:

a 90 seconds? _____ mins b 210 seconds? _____ mins c $1\frac{1}{4}$ hours? _____ mins

d 2 hours and 22 minutes? _____ mins e 1 hour and 120 seconds? _____ mins

Challenge!

How many hours in a week? _____

How many minutes in a week? _____

How many seconds in a day? _____

Reading a timetable

This is Tim's school day.

A		B	
7:15	Wake up	12:30	Lunch break
7:20	Shower and clean teeth	1:10	Back to class
7:30	Get dressed	3:10	School finishes
7:45	Have breakfast		Arrive home and have a snack
8:00	Feed dog, cat and rabbit	4:00	Begin homework
8:20	Walk to school	5:00	Finish homework
8:45	Arrive at school	5:05	Play
9:00	Start school	6:15	Dinner
10:55	Morning recess	7:00	Watch TV
11:10	Back to class	8:30	Bed

1 a Which column is the morning? _____

b How do you know? _____

c What times of day is the other column? _____

2 When does Tim begin his shower? _____

3 How long does it take for him to get dressed? _____ minutes

4 Does Tim have any pets? _____ How do you know? _____

5 a How long does it take for Tim to walk to school? _____ minutes

b It takes him the same time to walk home from school.
Complete the timetable by writing the time Tim arrives home.

6 How long is school lunchtime? _____ minutes

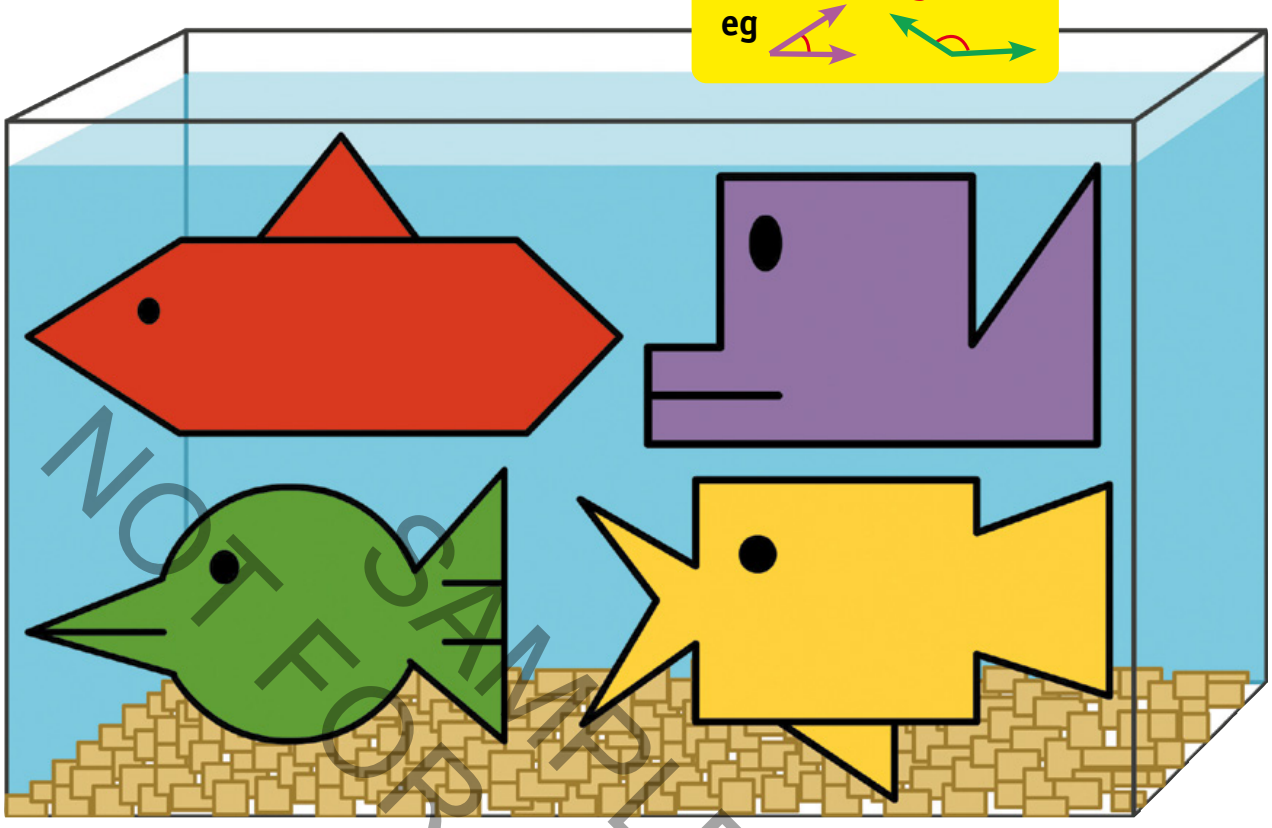
7 How many minutes does Tim spend on his homework? _____ minutes

8 How long in hours and minutes does Tim spend watching TV? _____ hours _____ minutes

9 Tim watches the same amount of TV each night from Monday to Friday.
How much TV is this for the 5 days? _____ hours _____ minutes

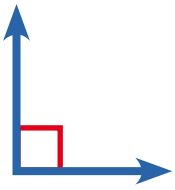
Angle search

When two straight lines meet, they make an **angle**.
eg 



1 a What shape is the aquarium? _____

b What type of angles are at the corners? _____



right angle

2 How many angles can you see inside:

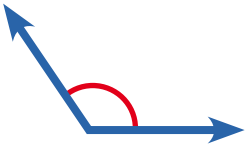
a the red fish? _____ b the purple fish? _____

c the green fish? _____ d the yellow fish? _____

3 How many right angles can you see inside:

a the red fish? _____ b the purple fish? _____

c the green fish? _____ d the yellow fish? _____



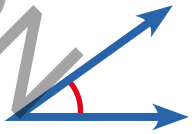
angles larger than a right angle

4 How many angles larger than a right angle can you see inside:

a the red fish? _____ b the yellow fish? _____

5 How many angles smaller than a right angle can you see inside:

a the green fish? _____ b the purple fish? _____



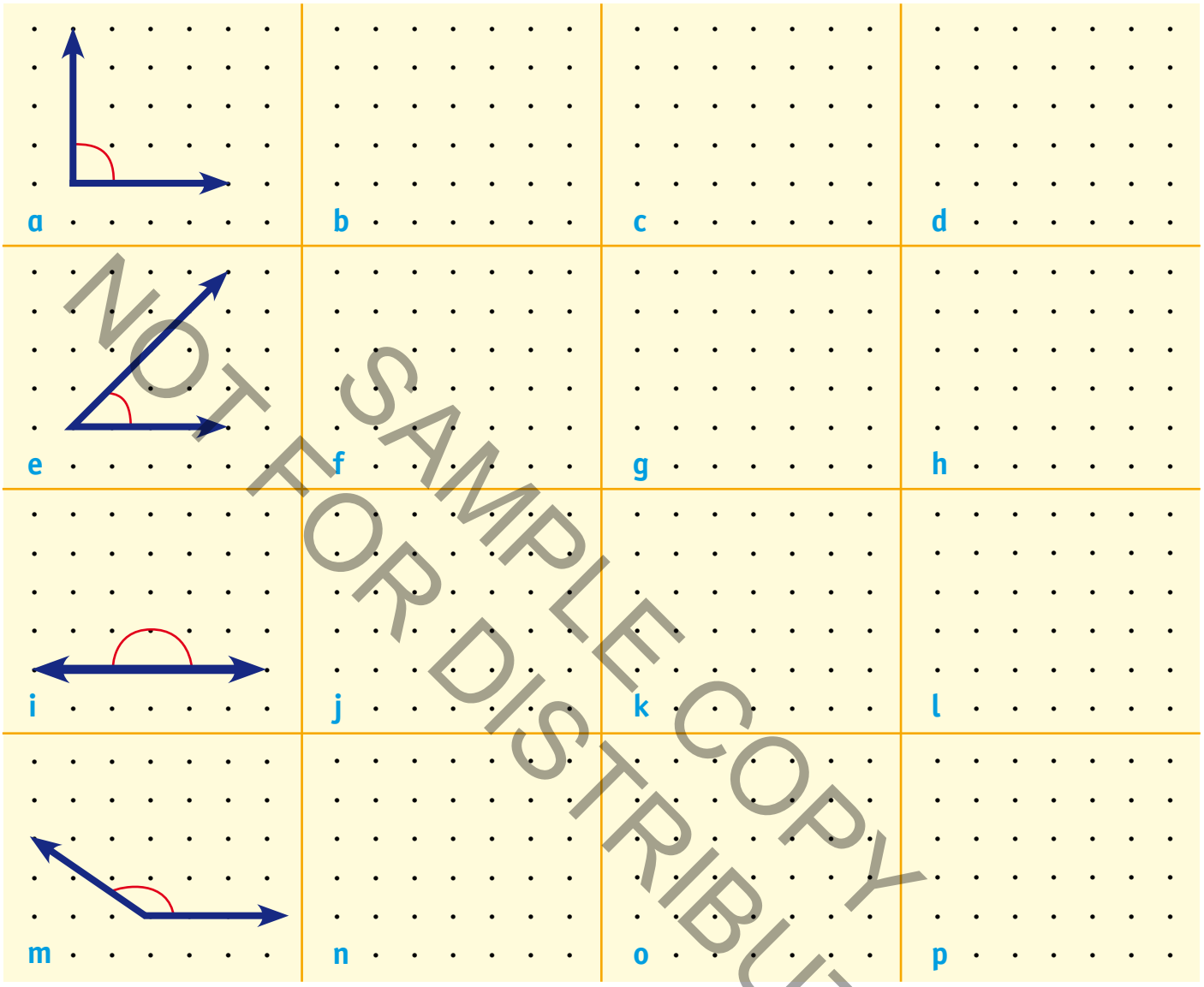
angles smaller than a right angle

6 Draw another angle fish.

Angle size

TERM 3
Week 8

1 **A** Here are 4 angles. **B** Copy the angle. **C** Draw a larger angle. **D** Draw a smaller angle.



2 Which angle is the largest in:

a column **A**? _____ **b** column **B**? _____ **c** column **C**? _____ **d** column **D**? _____

3 Which angle is the smallest in:

a column **A**? _____ **b** column **B**? _____ **c** column **C**? _____ **d** column **D**? _____

4 Look around the classroom and write 3 places where you can see right angles.

_____ _____ _____

Draw a diagram

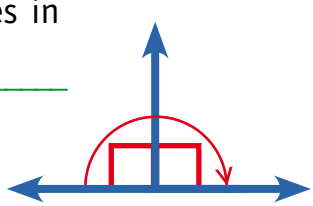
Draw a house. Colour the right angles blue, colour the smaller angles pink, colour the larger angles orange.

Estimate angles

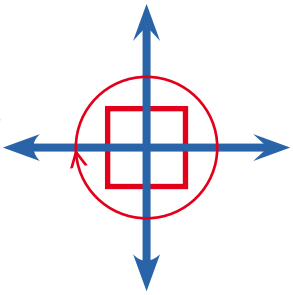
We use the symbol ° for degrees.
A right angle measures 90°.

1 How many right angles in

a a straight angle _____



b a full rotation _____



2 How many degrees in

a a straight angle: 90° + _____ = _____

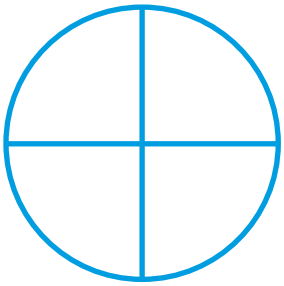
b a full rotation: _____

3 a How many degrees in one quarter of a circle? _____

b How many degrees in half a circle? _____

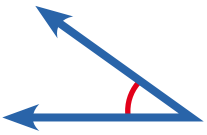
c How many degrees in three-quarters of a circle? _____

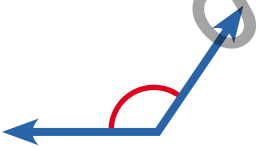
d How many degrees in a full circle? _____

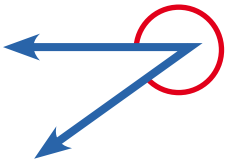


4 Estimate. About how many degrees?

a _____ b _____ c _____ d _____

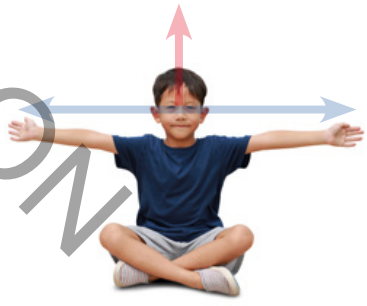






5 Estimate. About how many degrees?

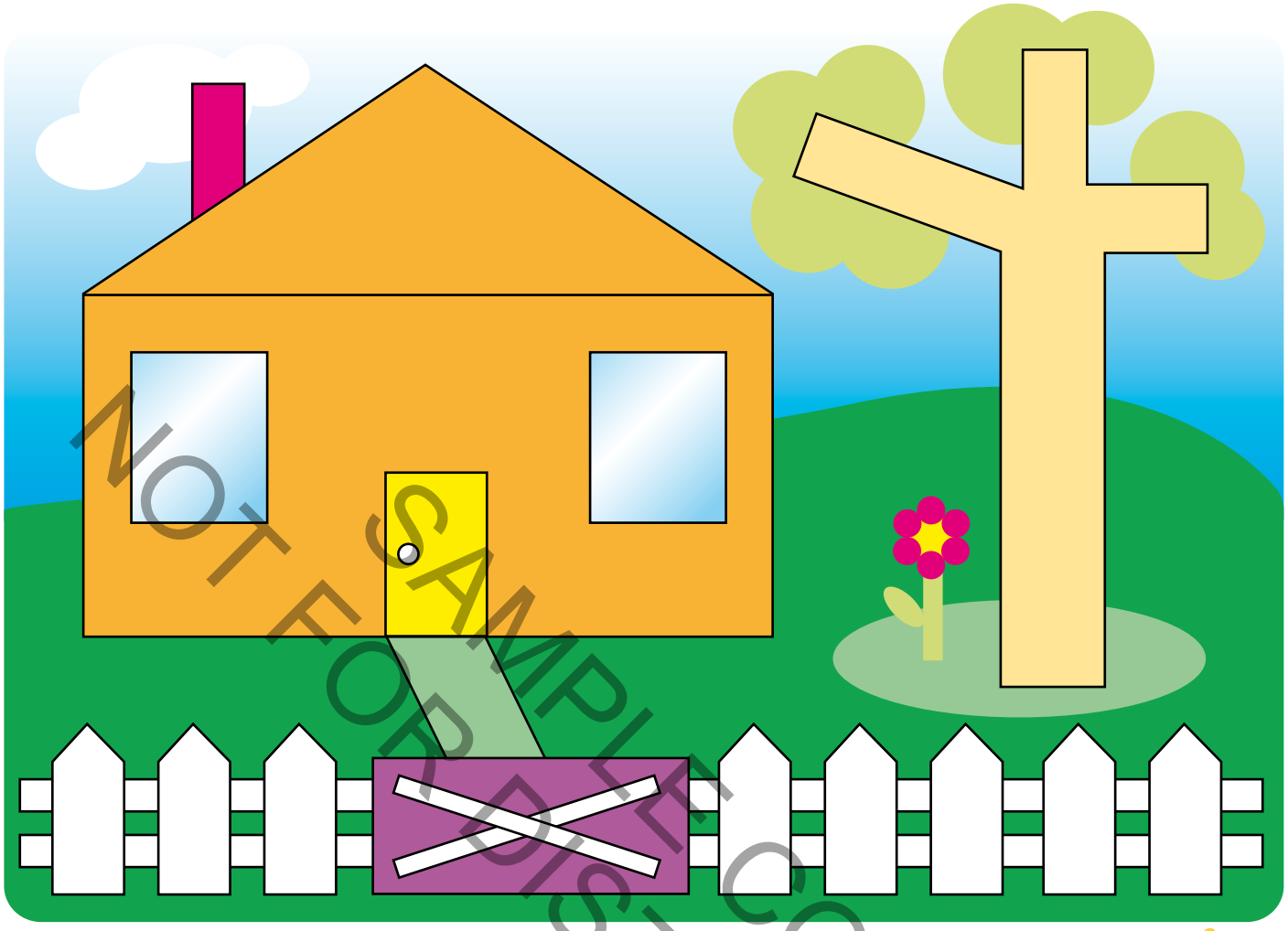
a _____ b _____ c _____ d _____



Mastery Checklist I can:

- ☐ convert between time units
- ☐ answer questions about a timetable
- ☐ count angles in 2D shapes
- ☐ compare angles to a right angle
- ☐ draw and compare angles
- ☐ recognise 90, 180 and 360 degrees as benchmark angles

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.

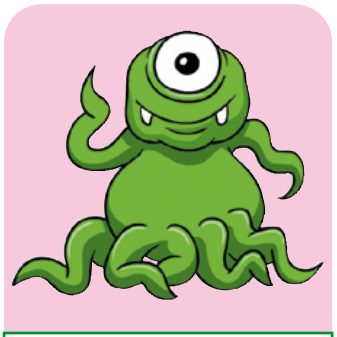
a _____ b _____ c _____

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

TERM 3
Week 9

1 Match.

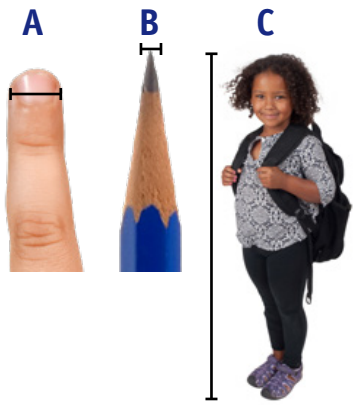
a 1 metre	**A** 1 mm
b 1 centimetre	**B** 1 m
c 1 millimetre	**C** 1 cm

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

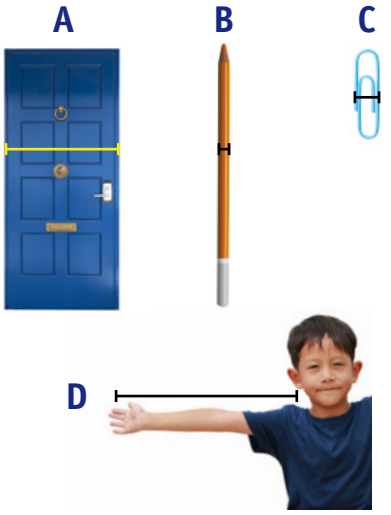
4 Match.

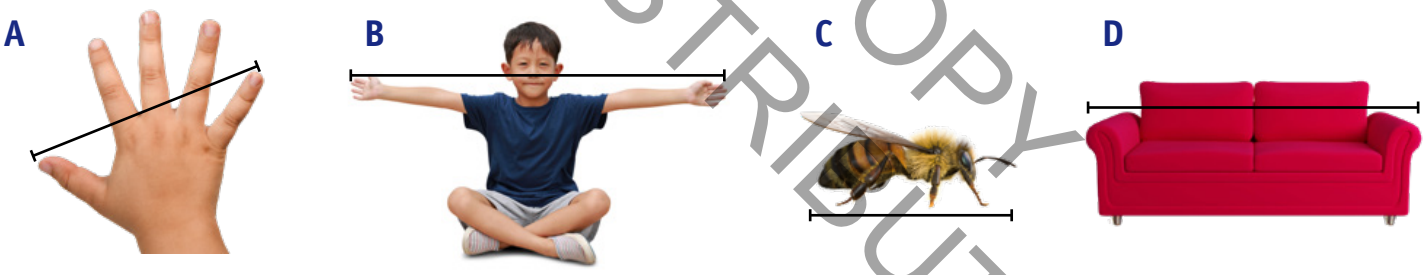
a 1 m ____

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?

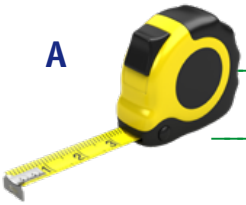
_____

Measurement tools

TERM 3
Week 9

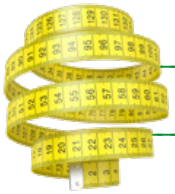
1 Name each tool. **2** Circle the units each tool can measure in.

A



m cm mm

B

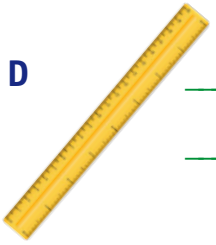


m cm mm

C

m cm mm

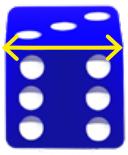
D



m cm mm

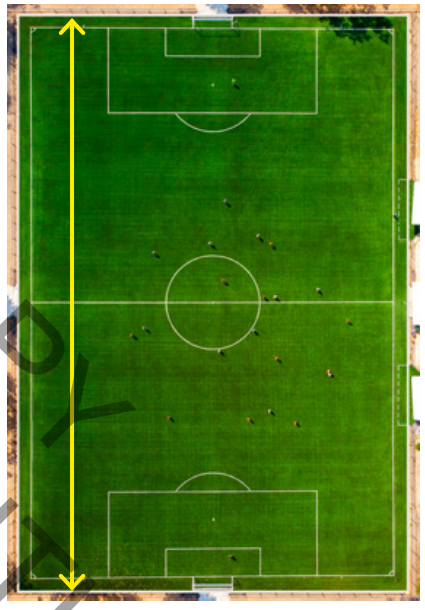
3 Write the letter of the tool that would be useful for measuring each item below: **A**, **B**, **C**, **D**.

a



b

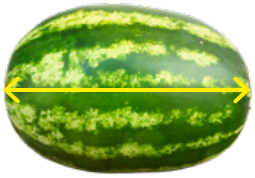
c



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.

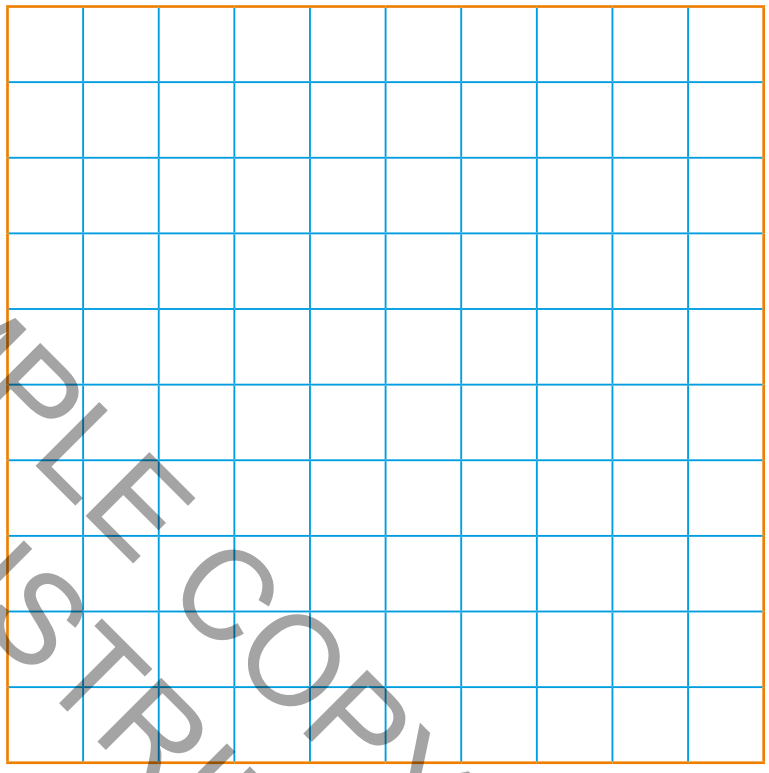
If your classroom was just rows of desks, how many students could you fit in?

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 6

1 Sam had $5. He bought one chocolate for $3.20 and one lollipop for 60c. p 98

a How much did he spend? _____

b How much change did he get? _____

2 p 99

a $\begin{array}{r} 174 \\ +\ 13 \\ \hline \end{array}$ b $\begin{array}{r} 383 \\ +\ 15 \\ \hline \end{array}$ c $\begin{array}{r} 460 \\ +\ 37 \\ \hline \end{array}$

3 Fill in the boxes. p 99

a $\begin{array}{r} 2\square \\ +\ 54 \\ \hline \square 9 \end{array}$ b $\begin{array}{r} \square 2 \\ +\ 34 \\ \hline 7\square \end{array}$ c $\begin{array}{r} 64 \\ +\ \square\square \\ \hline 78 \end{array}$

4 p 105

a 4×1 b 5×3 c 4×9 d 10×6

5 Each chapter in a book has 8 pages. How many pages has Liam read if he's read 4 chapters? p 107

_____

6 Make groups of 4. p 106 & 109

a How many groups of 4? _____

b How many total? _____

c _____ × 4 = _____

d _____ ÷ 4 = _____

7 p 111

a $\frac{1}{6}$ of 18 is _____

b $\frac{1}{5}$ is 3. The set is _____.

8 a Draw 30 balls. p 112

b 30 ÷ 6 = _____

c 30 ÷ 3 = _____

d 30 ÷ 2 = _____

9 Circle the larger fraction. $\frac{1}{2}$, $\frac{1}{5}$ p 113

10 True or false? p 113

a $\frac{1}{2}$ is the same as $\frac{2}{4}$ _____

b $\frac{1}{2}$ is more than $\frac{2}{5}$ _____

11 Write the answer. p 117

a Double $2\frac{1}{2}$ = _____

b Half of $2\frac{1}{2}$ = _____

12 Write the missing terms. p 121

a $1.80, $1.60, _____, $1.20, _____

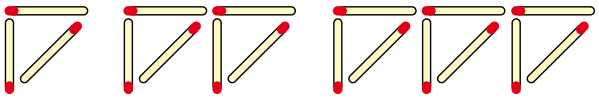
b 25, 33, 41, _____, _____, 65

13 Write the pattern for adding 6 in this table. p 122

Order of the term	1	2	3			
Term	6					

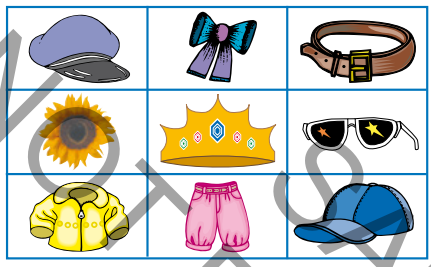
Checkpoint 6

14 Write the missing terms. p 123



Number of shapes	1	2	3	4	5
Number of matches	3				

15 p 124



a What is on the top row in the middle?

_____

b Write the position of the jacket.

_____

_____

16 a Place a circle at B3. p 128

b Where is the X? _____

c From the X, go down 3 squares, then left 2 squares, and up 4 squares. Where are you? _____

5					
4					X
3					
2					
1					
	A	B	C	D	E

17 Name something that is: p 130

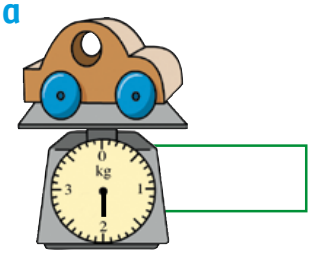
a heavier than 1 kg.

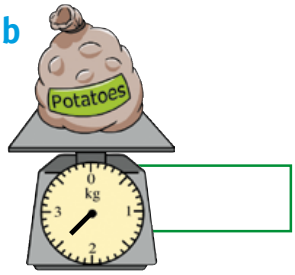
_____

b lighter than 1 kg.

_____

18 How much does it weigh? p 131

a 

b 

19 How many p 134

a hours in 3 days? _____

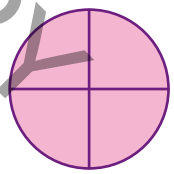
b minutes in 3 hours? _____

c seconds in 3 minutes? _____

20 The writing lesson started at 11:40 and went for 35 minutes. p 135

What time did it finish? _____

21 Draw an angle larger than a right angle. p 136-138

22  p 138

a How many degrees in a right angle?

A 9 B 90 C 18 D 180

b How many degrees in $\frac{1}{2}$ a circle?

_____

c How many degrees in $\frac{3}{4}$ of a circle?

_____

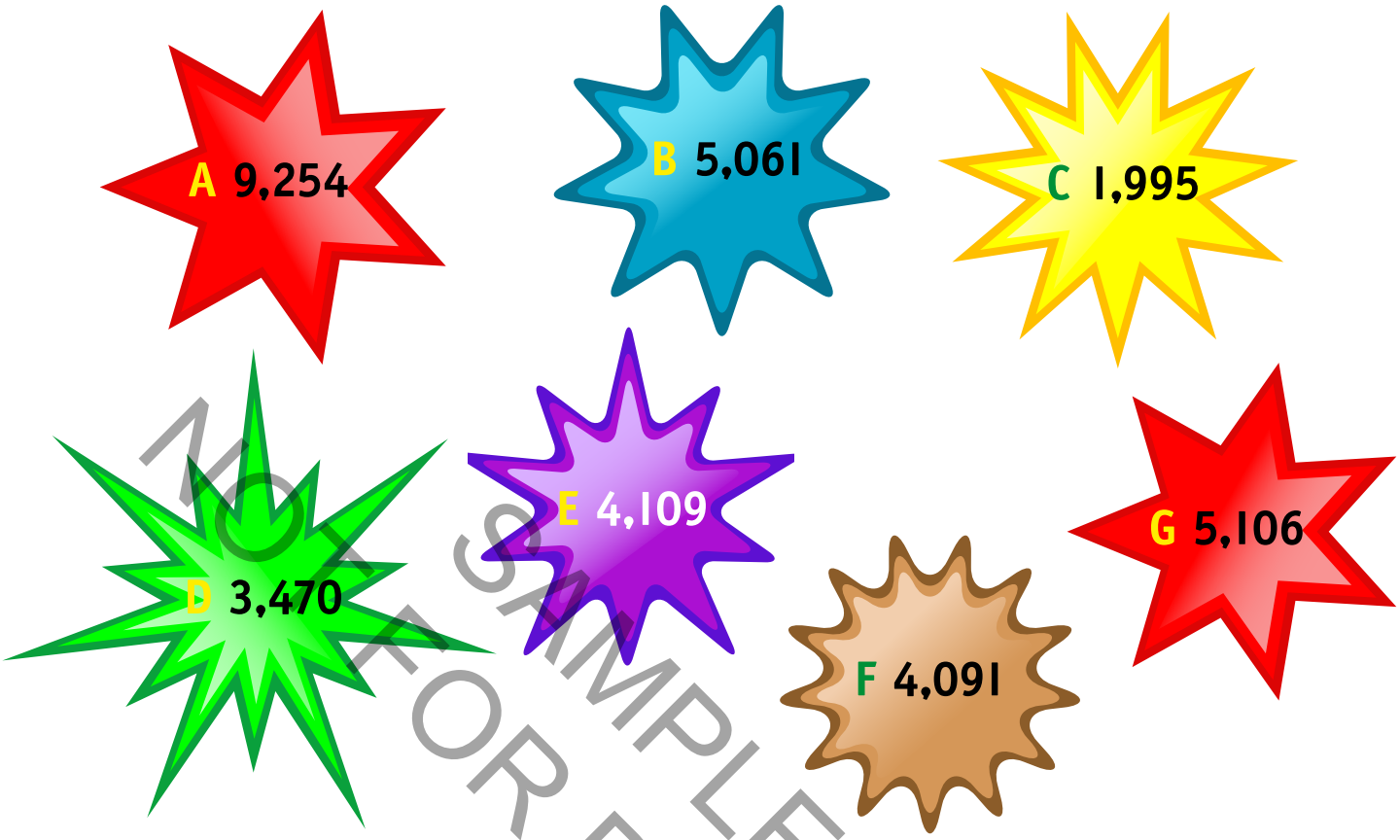
23 a 1 m = _____ cm p 140

b $\frac{1}{2}$ m = _____ cm

c 20 cm = _____ mm

d 2·5 cm = _____ mm

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. _____

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!

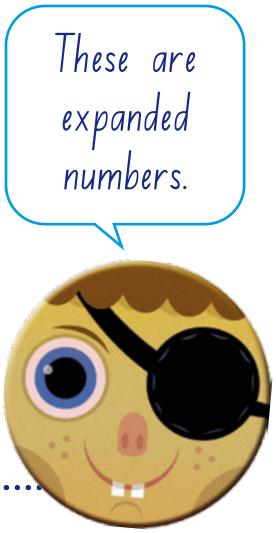
If you turn a calculator upside down, some numbers look like letters, eg **1 = i, 7 = L, 4 = h etc. 7,714 = hill**
What numbers make these words?

sell	lose	shoe	goes	legs

Number Number structures: Reading, writing, comparing, whole numbers up to 10,000 and representing them using base 10 structure;
Algebra Equations and relationships: Checking the truth of number sentences

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

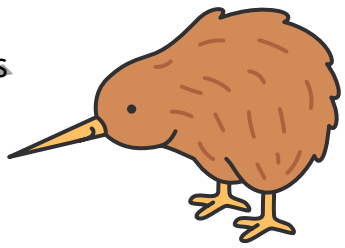
Thousands Hundreds Tens Ones

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 4
Week 1

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 _____

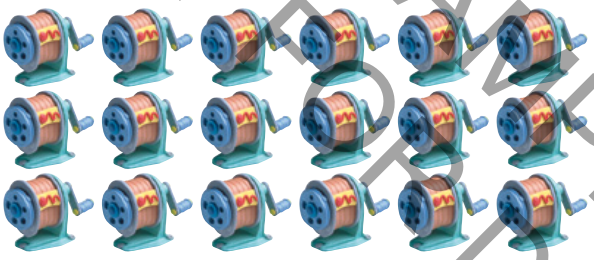
Mastery Checklist I can:
- ☐ write and compare 4-digit numbers
- ☐ round numbers
- ☐ round and add to estimate
- ☐ understand place value to thousands
- ☐ know numbers over 1,000 in Te Reo Māori

Multiplication facts

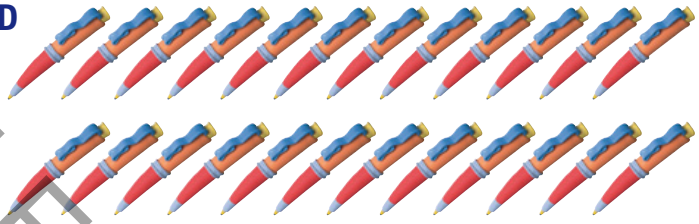
A

B

C



D



E

F

Write as many multiplication facts as you can for each group.

A

B

C

D

E

F

Number facts 6×

Here are 5 groups of 6 children.

1 How many children in:

a 3 groups? _____ **b** 6 groups? _____ **c** 4 groups? _____ **d** 2 groups? _____

e 10 groups? _____ **f** 8 groups? _____ **g** 5 groups? _____ **h** 7 groups? _____

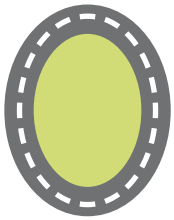
i 9 groups? _____ **j** 0 groups? _____ **k** 11 groups? _____ **l** 12 groups? _____

2 Complete.

3

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

4 It takes 6 minutes to walk around the oval. How long will it take to walk around the oval 8 times?



_____

5 1 toy costs $6. How much will 5 toys cost?

_____

6 There are 6 legs on each bee. How many legs are there on 7 bees?

_____

7 Make up your own '6' story.

_____

_____

_____

Number facts 8×

1 How many legs on:

a 1 spider? _____ **b** 6 spiders? _____

c 4 spiders? _____ **d** 9 spiders? _____

e 2 spiders? _____ **f** 10 spiders? _____

g 3 spiders? _____ **h** 8 spiders? _____

i 7 spiders? _____ **j** 5 spiders? _____

k 0 spiders? _____ **l** 11 spiders? _____

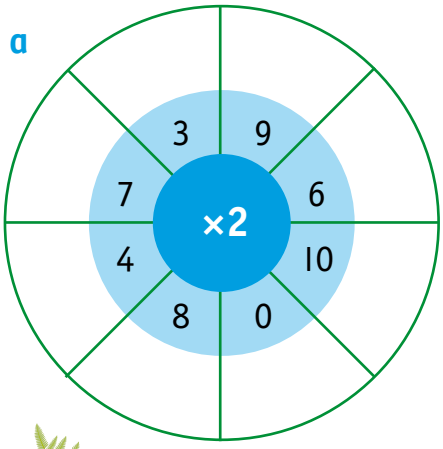
2 Complete.

3

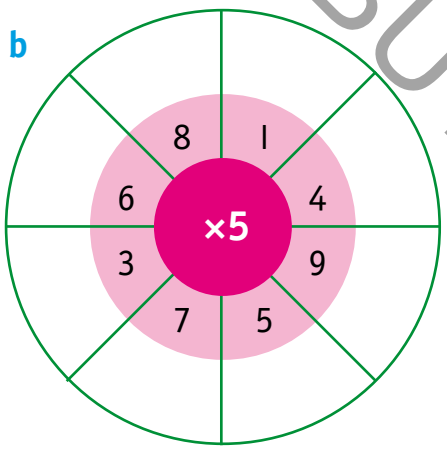
×	6	10	2	8	4	0	7	3	9	1	12	5
8												

4 Complete these as quickly as you can.

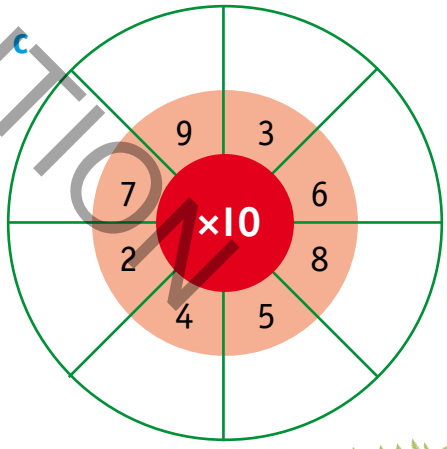
a

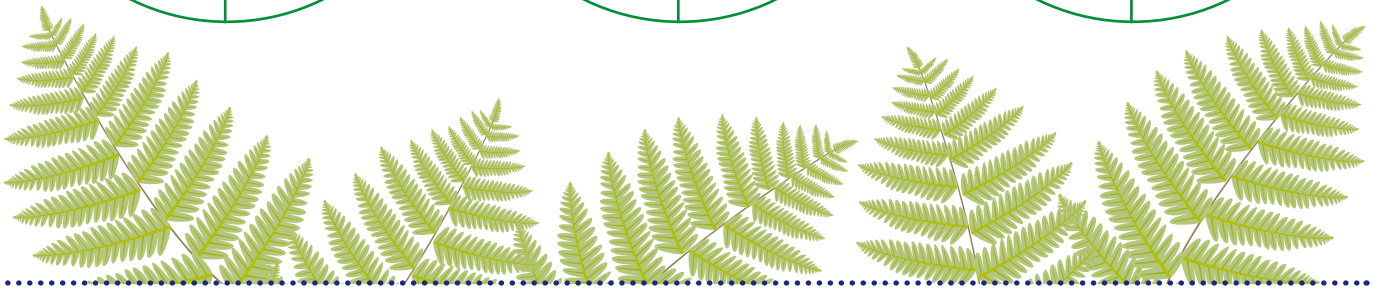


b



c





Number facts 9×

1 How many fish hooks in each group? _____

2 How many groups? _____

3 How many fish hooks?

a in 1 group _____	b in 5 groups _____	c in 3 groups _____
d in 8 groups _____	e in 6 groups _____	f in 10 groups _____
g in 12 groups _____	h in 4 groups _____	i in 11 groups _____
j in 2 groups _____	k in 7 groups _____	l in 9 groups _____

4 Match the number sentence to the answer.

a 9 × 7	72	h 9 × 9
b 9 × 0	0	i 9 × 3
c 9 × 11	108	j 9 × 4
d 9 × 6	99	k 9 × 1
e 9 × 12	81	l 9 × 2
f 9 × 8	63	m 9 × 5
g 9 × 10	90	
	36	
	54	
	9	
	18	
	45	
	27	

5 Complete from memory.

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

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 facts 7×

1 a How many colours does a rainbow have? _____

b Can you name the colour in each arch?

_____

_____

2 How many arches in:

a 10 rainbows _____ b 0 rainbows _____ c 5 rainbows _____

d 2 rainbows _____ e 4 rainbows _____ f 6 rainbows _____

g 3 rainbows _____ h 8 rainbows _____ i 7 rainbows _____

j 9 rainbows _____

3 Complete the 7 times table.

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

4 a Complete the 2 and 5 times tables.

b Add the answers to the 2 and 5 times tables in each column.

×	1	2	3	4	5	6	7	8	9	10	11	12
2												
5												
+												

c Compare to question 3. What do you notice? _____

d What is a strategy to help you remember your 7 times table? _____

_____

5 Complete from memory.

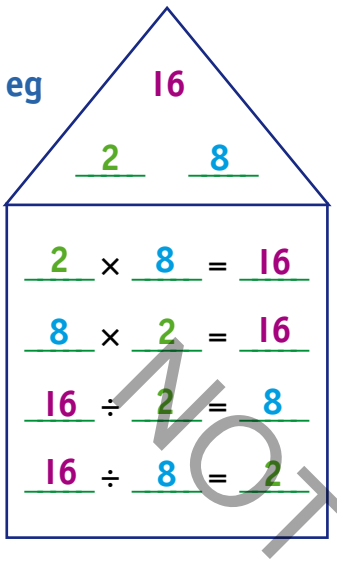
×	3	8	5	4	2	7	1	6	10	11	9	12
7												

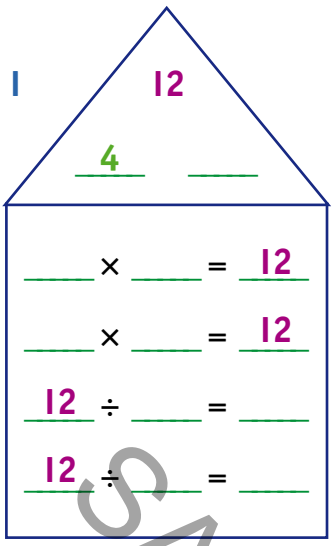
Mastery Checklist I can:

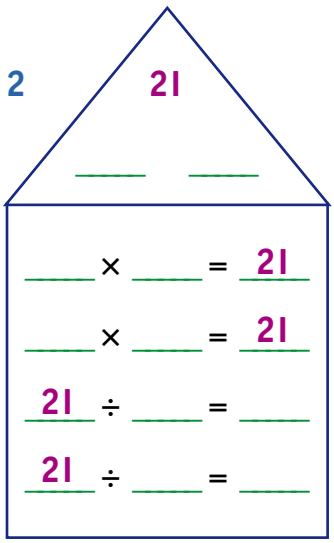
- ☐ write number facts to go with arrays
- ☐ remember the 0×, 1×, 2×, 3×, 4×, 5×, 10× tables
- ☐ memorise the 6×, 7×, 8×, 9× tables
- ☐ complete number facts from memory

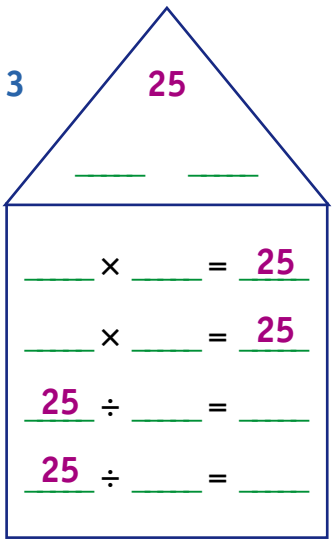
Multiplication and division facts

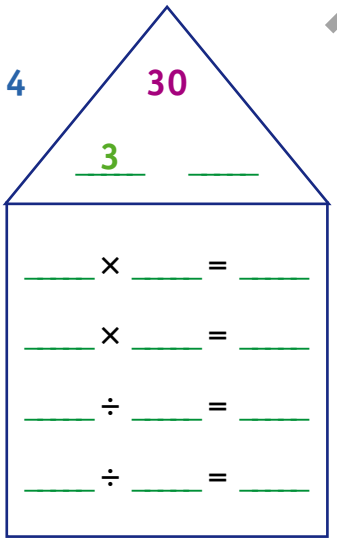
Complete the number fact families.

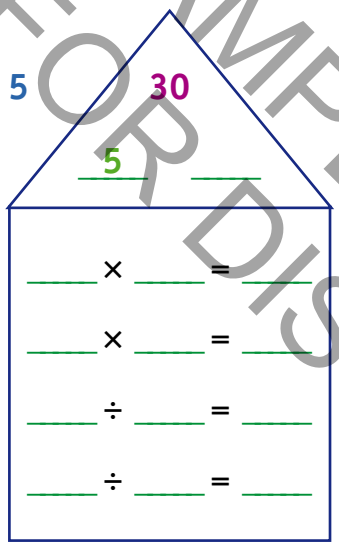


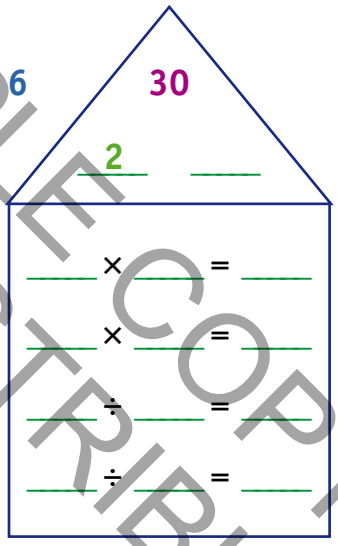


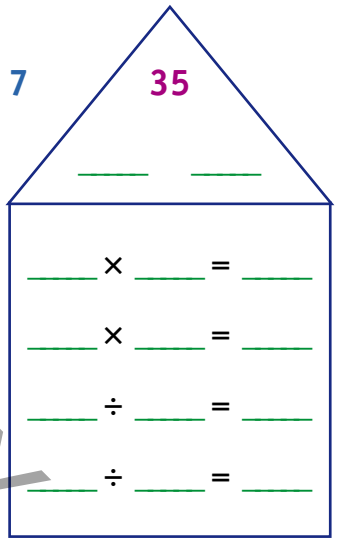


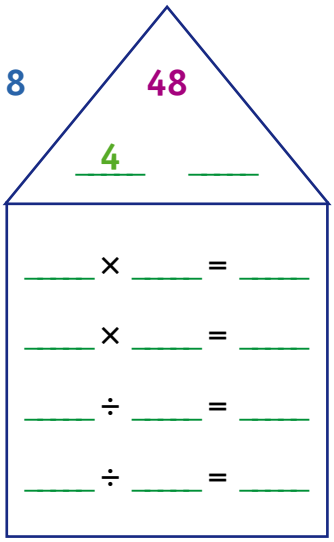


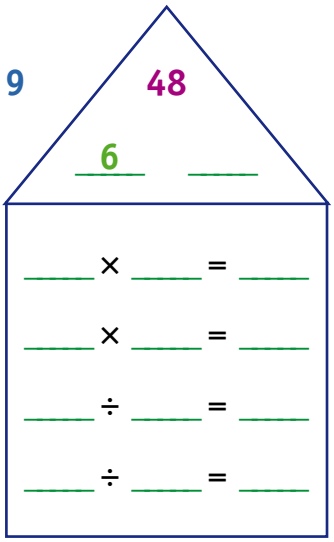


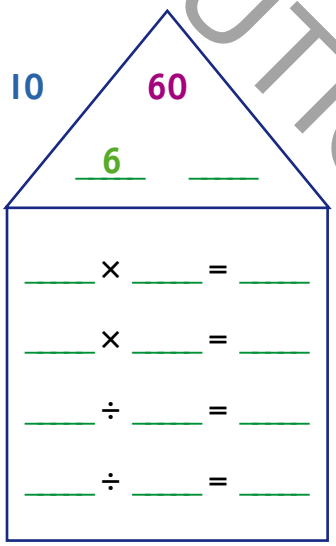


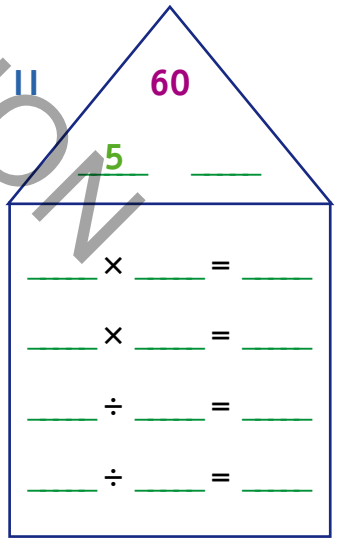












Mental multiplication strategies

1 a Complete the 2 times table. b Double the answers.

c What are these numbers? _____

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

d Double those answers.

e What are these numbers? _____

f What is a strategy for the 4 times table? _____

_____

g What is a strategy for the 8 times table? _____

_____

2 a Complete the 3 times table. b Double the answers.

c What are these numbers? _____

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

d What is a strategy for the 6 times table? _____

_____

3 a Complete the 4 and 5 times tables.

b Add the answers to the 4 and 5 times tables in each column.

c What are these numbers? _____

×	1	2	3	4	5	6	7	8	9	10	11	12
4												
5												
+												

d What is a strategy to help you remember your 9 times table? _____

_____

Using the division sign

12 ÷ 3 = 4
12 ÷ 4 = 3
3 × 4 = 12
4 × 3 = 12

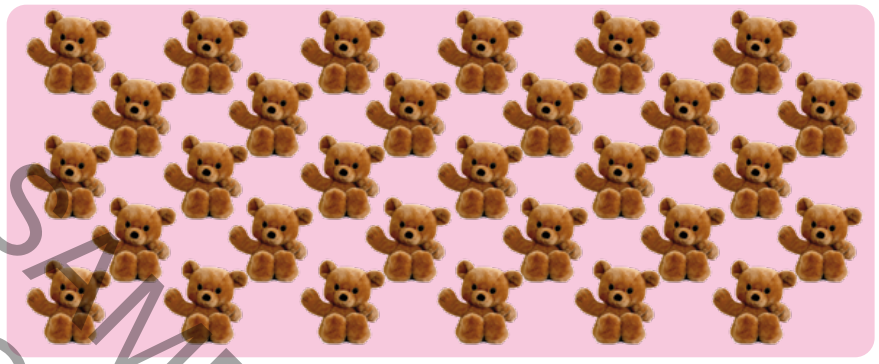
1 Use this group of 24 ice-creams to help you to divide.

a 24 ÷ 8 = _____ b 24 ÷ 6 = _____

c 24 ÷ 3 = _____ d 24 ÷ 24 = _____

e 24 ÷ 4 = _____ f 24 ÷ 1 = _____

2 Use this group of 30 bears to help you to divide.



a 30 ÷ 10 = _____

b 30 ÷ 6 = _____

c 30 ÷ 3 = _____

d 30 ÷ 5 = _____

e 30 ÷ 30 = _____

f 30 ÷ 1 = _____

3 Complete these number sentences.

a 5 × 6 = _____
30 ÷ 5 = _____
30 ÷ 6 = _____

b 3 × 6 = _____
18 ÷ 3 = _____
18 ÷ 6 = _____

c 4 × 8 = _____
32 ÷ 4 = _____
32 ÷ 8 = _____

d 10 × 9 = _____
90 ÷ 10 = _____
90 ÷ 9 = _____

4 a 42 ÷ 7 = _____ b 10 ÷ 5 = _____ c 20 ÷ 10 = _____ d 40 ÷ 10 = _____

e 27 ÷ 9 = _____ f 48 ÷ 8 = _____ g 49 ÷ 7 = _____ h 36 ÷ 6 = _____

i 54 ÷ 9 = _____ j 35 ÷ 5 = _____ k 9 ÷ 9 = _____ l 100 ÷ 10 = _____

5 a 30 balls are packed into boxes of 6. How many boxes are needed?

☐ ÷ ☐ = ☐

b Mrs Lim is making 50 cupcakes. She puts 10 cupcakes on each tray. How many trays are needed?

☐ ÷ ☐ = ☐

c 5 children share 25 biscuits equally. How many biscuits each?

☐ ÷ ☐ = ☐

d Mr Baker has 60 apples. He puts 6 apples in each bag. How many bags?

☐ ÷ ☐ = ☐

Challenge! Maia baked 5 trays of 8 muffins each. She shared the muffins into 10 bags.

How many muffins per bag? ☐

Number Operations: Using known and derived facts to multiply and divide mentally; Dividing up to a three-digit whole number by a one-digit divisor, with no remainder

Equations

1 Circle – true or false?

a	5 × 6 = 20	T	F	**b**	3 × 7 = 21	T	F
c	4 × 6 = 24	T	F	**d**	2 × 10 = 25	T	F
e	16 ÷ 4 = 8	T	F	**f**	24 ÷ 8 = 4	T	F
g	18 ÷ 3 = 6	T	F	**h**	25 ÷ 5 = 4	T	F

equal = means **the same as**

If both sides of the **= sign** work out to the **same number**, the number sentence is **true**. If they are **not the same**, it is **false**.

2 Make each number sentence true.

a 5 × _____ = 20 **b** _____ × 4 = 12 **c** 2 × 10 = _____ **d** 5 × _____ = 10

e 16 ÷ 4 = _____ **f** _____ ÷ 8 = 4 **g** 24 ÷ 8 = _____ **h** 25 ÷ 5 = _____

3 Match to make true number sentences.

a	2 × 8 =	**A**	3 × 6
b	4 × 5 =	**B**	4 × 4
c	2 × 9 =	**C**	2 × 10
d	30 ÷ 3 =	**D**	28 ÷ 4
e	14 ÷ 2 =	**E**	30 ÷ 6
f	45 ÷ 9 =	**F**	100 ÷ 10

4 Make each number sentence true.

a 4 × 9 = 6 × _____

b 5 × 8 = _____ × 10

c 6 × _____ = 4 × 12

d 12 ÷ 3 = 28 ÷ _____

e 30 ÷ 5 = _____ ÷ 4

f 24 ÷ _____ = 21 ÷ 7

5 Which part is false? Cross it out.

a 2 × 6 = 3 × 4 = 3 × 5 **b** 4 × 9 = 3 × 8 = 6 × 6

c 3 × 6 = 4 × 4 = 2 × 8 **d** 5 × 6 = 8 × 4 = 3 × 10

Challenge! Write your own true number sentences with some false ones mixed in. Swap with a partner and see if you can find the false ones.

Mastery Checklist I can:

- ☐ write out multiplication and division fact families
- ☐ use strategies for mental multiplication
- ☐ divide sets into equal groups to solve problems
- ☐ connect division to multiplication
- ☐ solve division word problems
- ☐ solve true or false and open number sentences

Bags to pack

Rangi, Sam and Tye bought 48 grocery items. They wanted to find how many ways they could pack them equally into bags. Rangi found the most ways. Sam thought of 3 ways, 1 less than Tye. Tye thought of 4 less than Rangi. How many ways did Rangi find?

_____

_____

_____

What might be the ways that Rangi thought of, apart from this way?

= 48

2 × 24 = 48

48 ÷ 2 = 24

I can solve problems by:

☐ using multiplication and division ☐ writing equations

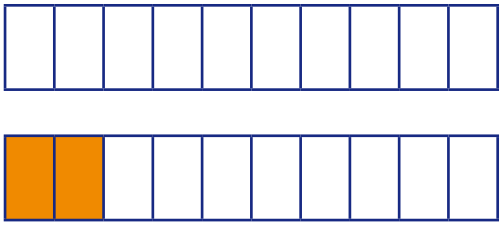
Number Operations: Using place value and known and derived facts to multiply and divide mentally, including multiplying by 1 and dividing by 1; Dividing up to a three-digit whole number by a one-digit divisor, with no remainder

Tenths

This bar is cut into ten equal pieces.

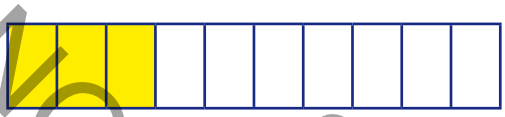
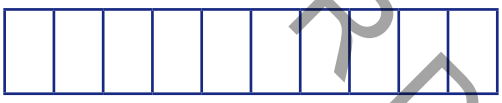
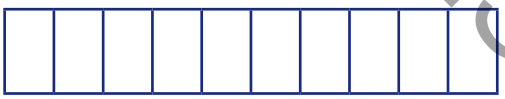
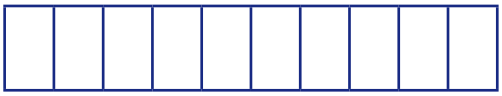
Two pieces are coloured.

$\frac{2}{10}$ = two tenths = 0·2



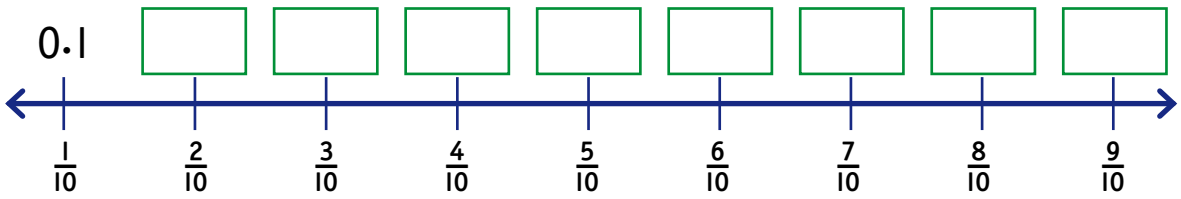
Each piece equals 0·1 or one tenth

1 Complete the table.

a 	three tenths	0·3
b 	_____ tenths	0·_____
c 	one tenth	0·_____
d 	two tenths	0·_____
e 	_____ tenths	0·8
f 	_____ tenths	0·_____
g 	_____ tenths	1·0
h 	_____ tenths	0·7

Decimals to fractions

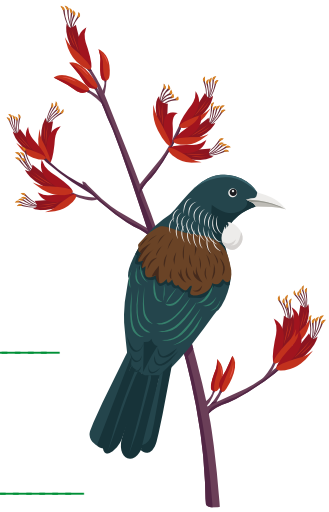
1 Write the decimal tenths in order on the number line:



2 Write the decimal.

a four tenths = _____ **b** nine tenths = _____

c seven tenths = _____ **d** one tenth = _____



3 Write the decimal.

a $\frac{2}{10}$ = _____ **b** $\frac{5}{10}$ = _____ **c** $\frac{8}{10}$ = _____

4 Write the fraction.

a 0·3 = _____ **b** 0·6 = _____ **c** 0·4 = _____

5 Write the fraction, then the decimal.

a 3 out of 10 = $\frac{\square}{10}$ = 0·_____ **b** 9 out of 10 = $\frac{\square}{10}$ = 0·_____

c 8 out of 10 = $\frac{\square}{\square}$ = _____ **d** 5 out of 10 = $\frac{\square}{\square}$ = _____

6 Write the fraction, then the decimal.

a Joe has one book from a 10 book series.

He has $\frac{\square}{\square}$ or _____ of the series.

b Jin made 10 cards and gave away seven.

They gave away $\frac{\square}{\square}$ or _____ of the cards.

c Janna had $10. She spent $6 on lunch.

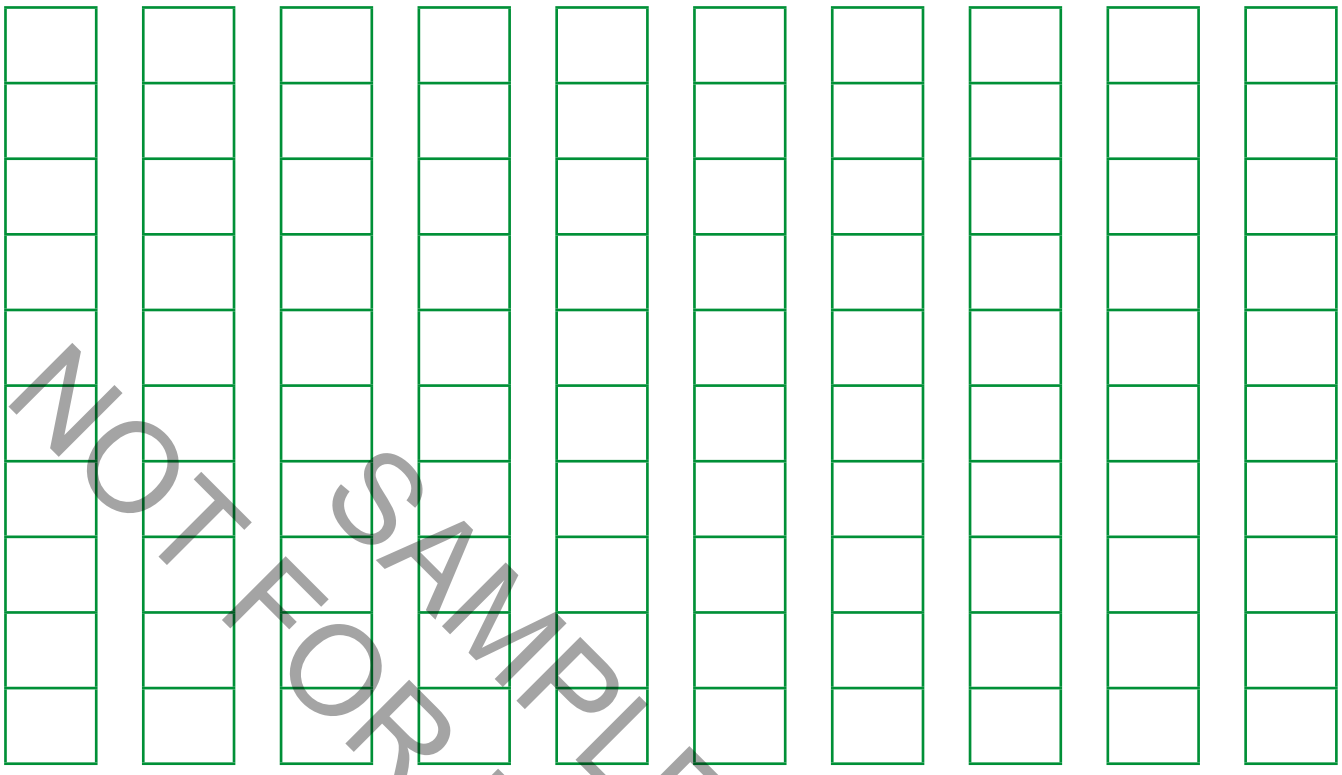
She spent $\frac{\square}{\square}$ or _____ of her money.

d Jose takes two of the 10 apples in the bowl.

Jose took $\frac{\square}{\square}$ or _____ of the apples.

Compare decimals

1 Colour each decimal fraction.



2 **a** What is another name for 1·0?

_____

b What unit fraction is equal to 0·5? $\frac{1}{\square}$

3 Write **bigger than**, **smaller than** or **equal to** to make true sentences.

a 0·3 is _____ 0·7

b 0·6 is _____ 0·2

c 0·5 is _____ 0·4

d 0·8 is _____ 0·9

e 0·2 is _____ 0·5

f 0·1 is _____ 1·0

g 1·0 is _____ a whole

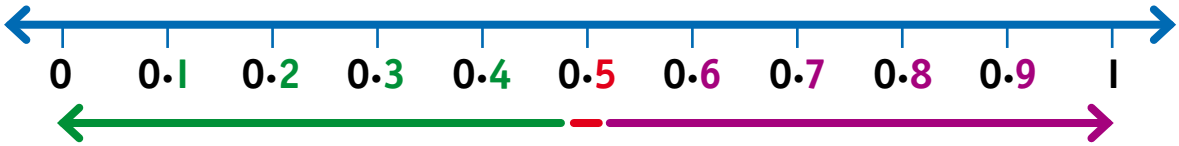
h 0·5 is _____ a half

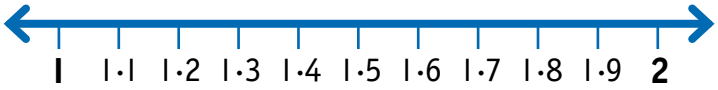
Challenge! Write these amounts in order from smallest to largest.

$0.20, $0.40, $0.80, $1.00

Rounding decimals

0·5 is the **mid-point** between two whole numbers.
0·1, **0·2**, **0·3**, **0·4** round **down**.
0·5, **0·6**, **0·7**, **0·8**, **0·9** round **up**.





1 Round each decimal to the nearest whole number.

a 1·3 _____ **b** 1·8 _____ **c** 1·1 _____ **d** 1·5 _____ **e** 1·9 _____ **f** 1·4 _____

2 Round each decimal to the nearest whole number.

a 4·2 _____ **b** 3·7 _____ **c** 3·3 _____ **d** 4·6 _____ **e** 4·4 _____ **f** 3·5 _____

3 Round each decimal to the nearest whole number.

a 7·1 _____ **b** 5·9 _____ **c** 6·2 _____ **d** 8·8 _____ **e** 0·5 _____ **f** 0·4 _____

4 Round each measurement to the nearest whole number.

a 1·1 m _____ **b** 2·7 cm _____ **c** 3·5 kg _____ **d** 4·3 L _____

5 Measure these lines in cm and mm, then round to the nearest centimetre.

a _____ cm and _____ mm rounds to _____ cm.

b _____ cm and _____ mm rounds to _____ cm.

c _____ cm and _____ mm rounds to _____ cm.

d _____ cm and _____ mm rounds to _____ cm.

Mastery Checklist I can:

- ☐ represent tenths as fractions and decimals and in shapes
- ☐ represent tenths as decimals on a number line
- ☐ convert between fractions and decimals
- ☐ compare and order decimals to 1 place
- ☐ round tenths to the nearest whole number

Order lengths

Huihana measured the height of each garden statue.
She wants to line them up from shortest to tallest.
Can you convert all the units to metres in decimals and put the heights in order?

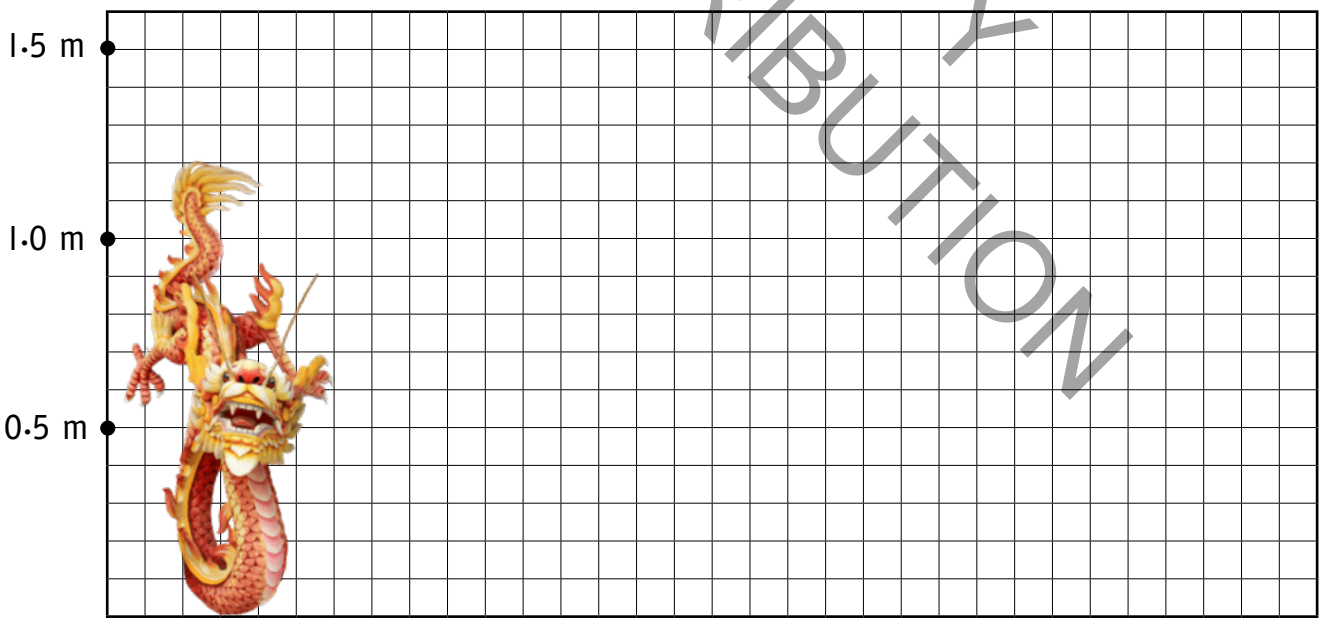
1

	Statue	Height	Metres
	Copper Dragon	$1\frac{2}{10}$ m	1·2 m
a	Painted Gnome	$\frac{1}{2}$ m	_____ m
b	Clay Duck	30 cm	_____ m
c	Wooden Bird	1 m 50 cm	_____ m
d	Concrete Lion	$\frac{8}{10}$ m	_____ m
e	Marble Person	100 m	_____ m
f	Bronze Tree	160 cm	_____ m

2 Write the heights in order from shortest to tallest.

1	2	3	4	5	6	7
_____ m	_____ m	_____ m	_____ m	_____ m	_____ m	_____ m

3 Draw the statues in size order.



I can solve problems by:

☐ converting fractions to decimals ☐ converting centimetres and metres

Checkpoint 7

1 Which operation shows these shells divided into 6 equal groups?

Shade one bubble.

18 ÷ 3 ○ 18 − 6 ○ 18 − 4 ○ 18 ÷ 6 ○

2 **a** 9 × 5 = _____ **b** 9 × 0 = _____

c 3 × 9 = _____ **d** 9 × 4 = _____

Write your answer.

3 **a** 7 × 4 = _____

_____ × _____ = _____

_____ ÷ _____ = _____

_____ ÷ _____ = _____

b _____ × 4 = 32

_____ × _____ = _____

_____ ÷ _____ = _____

_____ ÷ _____ = _____

c 9 × _____ = 45

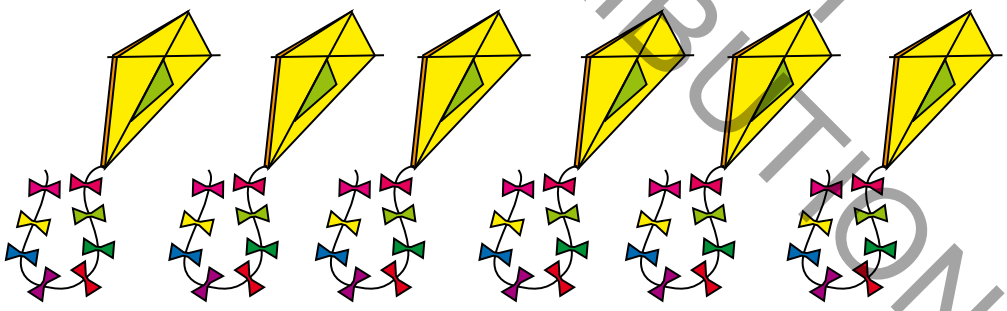
_____ × _____ = _____

_____ ÷ _____ = _____

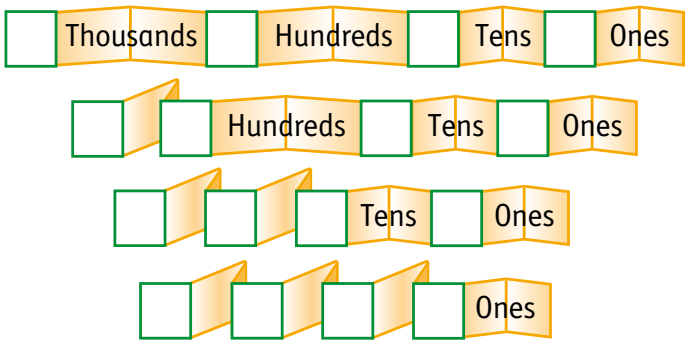
_____ ÷ _____ = _____

4 **a** How many kites? _____ **b** How many bows on each kite? _____

c How many bows altogether? _____ **d** _____ × _____ = _____



5 Fill in 5,479.



Checkpoint 7

6 Which number is 356 rounded to the closest ten?

Shade one bubble.

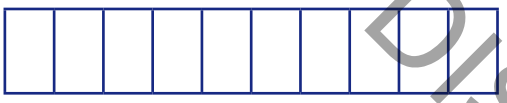
360 ○ 350 ○ 400 ○ 355 ○

Write your answer.

7 Multiply.

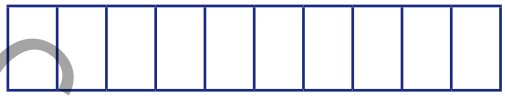
a	5 × 8 = _____	f	10 × 11 = _____	k	7 × 7 = _____
b	3 × 7 = _____	g	4 × 9 = _____	l	6 × 10 = _____
c	5 × 7 = _____	h	3 × 6 = _____	m	4 × 6 = _____
d	10 × 0 = _____	i	9 × 8 = _____	n	5 × 8 = _____
e	3 × 12 = _____	j	10 × 10 = _____	o	4 × 11 = _____

8 Complete for five tenths.

a 

b $\frac{\square}{\square}$ c 0._____

9 Complete for 8 out of 10.

a 

b $\frac{\square}{\square}$ c 0._____

Shade one bubble.

10 Fifi thought of a number. She then doubled it and added 3. The answer was 19. What number did she first think of?

5 ○ 6 ○ 7 ○ 8 ○

Write your answer.

11 Round to the nearest whole number.

a 4·3 = ☐ b 1·9 = ☐ c 7·5 = ☐

d 2·6 m = ☐ e 5·4 cm = ☐ f 12 cm and 2 mm = ☐

Missing terms

The young bears are lost. Match the mothers with their children. Give your reasons why.

_____ _____ _____

Reason _____

_____ _____ _____

Reason _____

_____ _____ _____

Reason _____

_____ _____ _____

Reason _____

HINT! Each mother can only have 3 children.

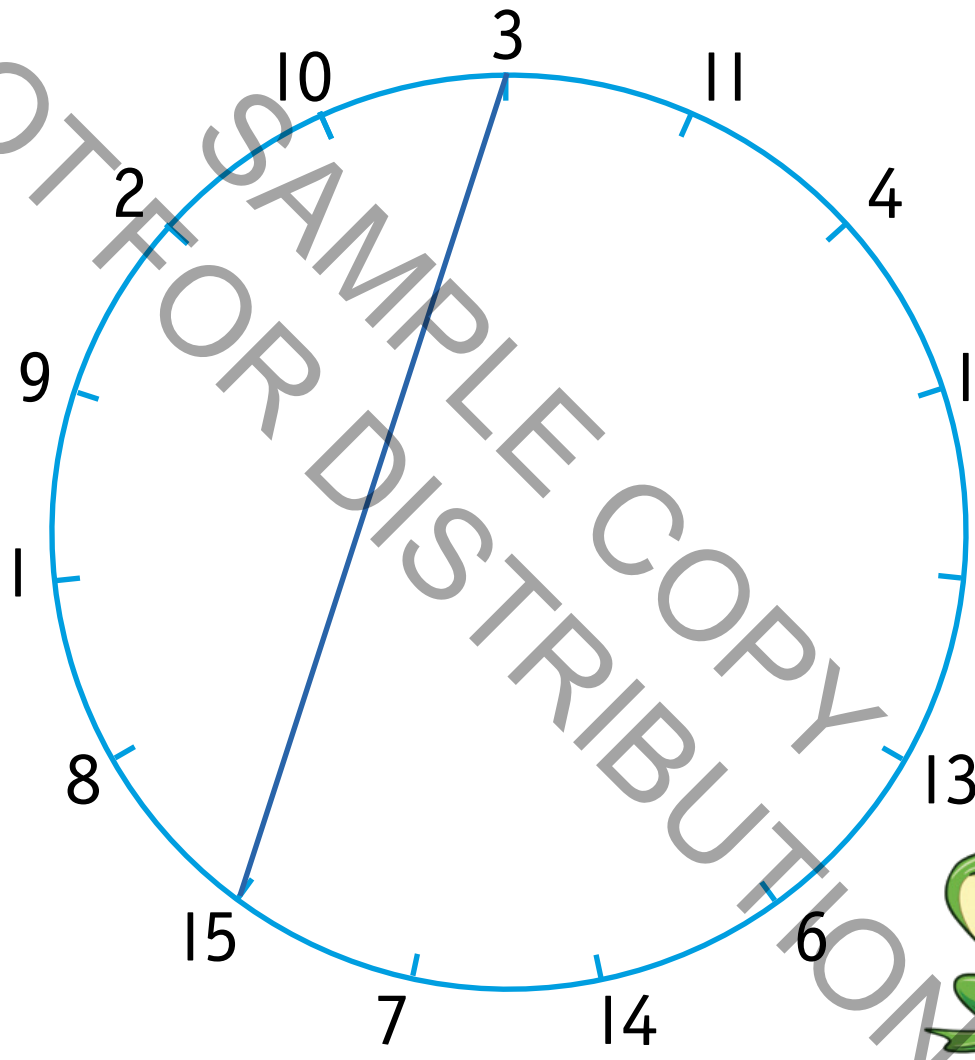
Multiples

A **multiple** is the answer you get when you **multiply a number**.
5 × 1 = **5**, **5** × 2 = **10**, **5** × 3 = **15**. So **5**, **10** and **15** are **multiples** of **5**.

1 Write out the multiples of 3 up to 15.

_____

2 Start at 3. Use a straight line to join it to the next multiple of 3. Continue until you have reached 15.



3 What shape have you made? _____

4 a Circle the multiples of 5.

b Highlight the number which is a multiple of 3 and 5.

5 a Circle the multiples of 4.

b Highlight the number which is a multiple of 3 and 4.

Multiple patterns

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
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

1 **a** Put a yellow stripe on the multiples of 2.

b Put a blue stripe on the multiples of 3.

c Which numbers have yellow and blue?

_____

d These numbers are multiples of _____

e Why? Think about multiplication facts.

_____

_____

_____

_____

2 **a** Put a red stripe on the multiples of 4.

b Which numbers have red and yellow? _____

c These numbers are multiples of _____.

d Why? _____

_____

3 **a** Which numbers have blue and red? _____

b These numbers are multiples of _____.

c Why? _____

_____

4 **a** Put a green stripe on the multiples of 5.

b Which numbers have green and yellow? _____

c These numbers are multiples of _____.

d Why? _____

_____

5 **a** Put a purple stripe on the multiples of 9.

b Which other colour always shows up on the multiples of 9? _____

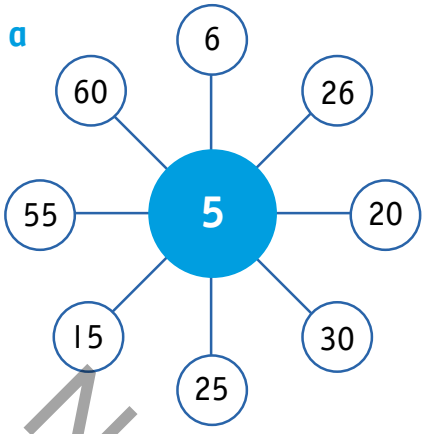
c Why? _____

_____

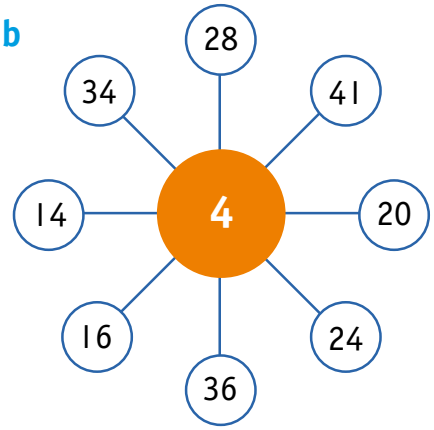
Factors and multiples

1 Colour the multiples of the middle number.

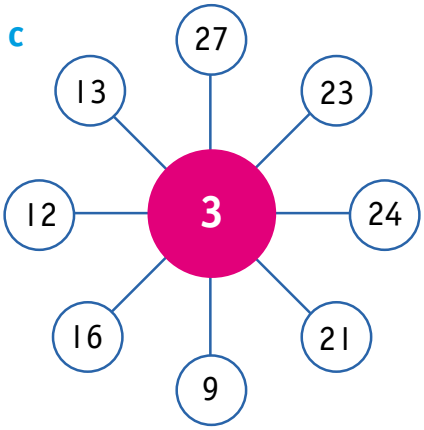
a



b



c



A **factor** is a number that **divides into a larger number** with no remainder.
The **factors** of **12** are **1**, **2**, **3**, **4**, **6**, **12** because:
12 ÷ **1** = 12, **12** ÷ **2** = 6, **12** ÷ **3** = 4, **12** ÷ **4** = 3, **12** ÷ **6** = 2, **12** ÷ **12** = 1

2 Write division facts for each number.

a 16 _____

b 18 _____

c 20 _____

d 30 _____

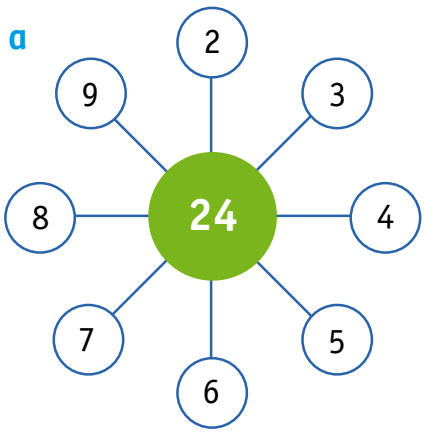
e 40 _____

3 **a** Highlight the factors of each number above.

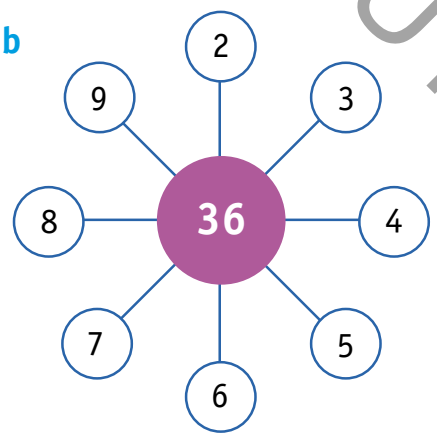
b Compare with a buddy. Did you miss any factors? Add them in.

4 Colour the factors of the middle number.

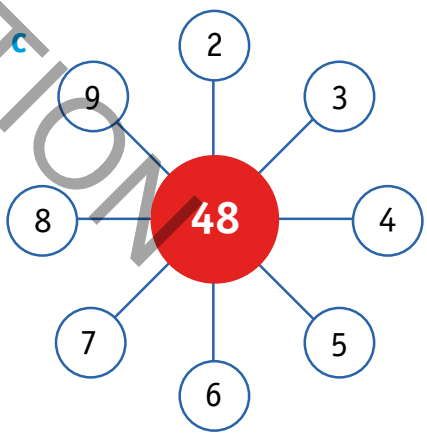
a



b



c



Mastery Checklist I can:

- ☐ identify multiples of 2, 3, 4, 5, 6, 7, 8, 9 up to 100
- ☐ identify numbers that are multiples of more than one number
- ☐ identify factors of numbers within 100 using division facts
- ☐ remember the times tables from 1 × 1 to 12 × 12

Patterns using multiples

Look for the patterns in tables.

1 Complete this multiplication square neatly in pencil.

×	1	2	3	4	5	6	7	8	9	10	11	12
1												
2		4										
3									27			
4												
5					25							
6												
7								56				
8												
9				36								
10										100		
11							77					
12												

12

3

18

42

9

2 Colour the multiples of 3.

3 Describe the pattern you coloured.

_____

_____

4 Use different colours, make some different patterns. Try colouring different patterns, using the multiples of 4 and 5.

5 What patterns did you find?

_____

I can solve problems by:

☐ identifying multiples ☐ looking for and identifying patterns

Number Operations: Memorising multiplication facts for 2s to 10s; Multiplying two-digit numbers by a one-digit number;
Algebra Equations and relationships: Describing growing patterns (including numerical patterns) that change by multiplying by a constant whole number

Garden area

This is the Luu's garden. Study the key.

1 How many square metres is:

a the rose garden bed? _____ b the shed? _____

c the pond? _____ d the strawberry patch? _____

2 Which gardens have an area of:

a 3 square metres? _____ and _____.

b 6 square metres? _____ and _____.

3 What has an area the same as:

a the shed? _____ b the pond? _____

4 What is the area of the path? _____

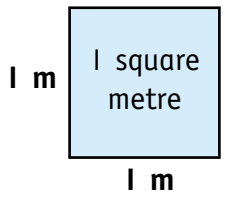
5 What is the area of the whole garden? _____

Challenge!

How many square metres of grass are there? _____

Area and perimeter

Look at page 173. Remember:



Area is the size of a surface. **Perimeter** is the distance around the outside.

1 Find the perimeter of the:

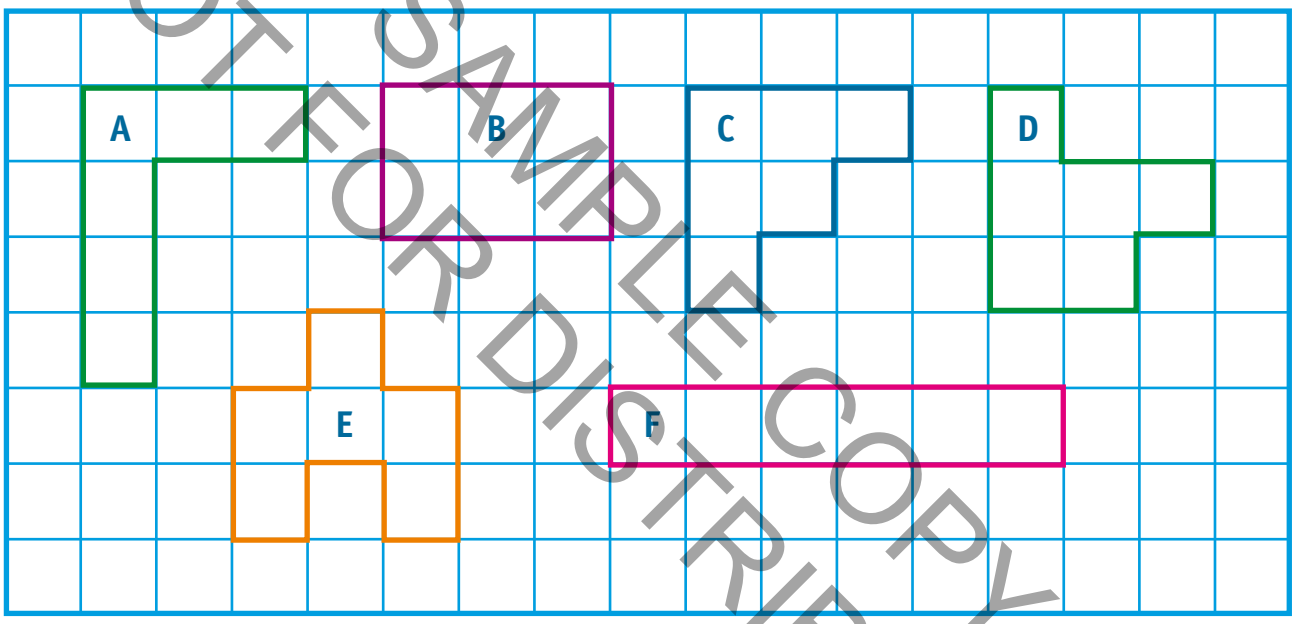
a vegetable garden. _____ b herb garden. _____

c strawberry patch. _____ d flower garden. _____

e rose garden. _____ f shed and rose garden. _____

2 Estimate the perimeter of the pond. _____

3 These are 1 cm squares.



a Find the area of each in cm².

A _____ B _____ C _____ D _____ E _____ F _____

b Find the perimeter of each in cm.

A _____ B _____ C _____ D _____ E _____ F _____

c Write a statement about your answers.

_____

_____

_____

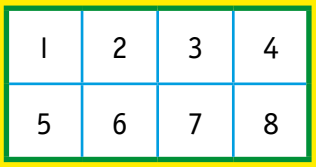
Challenge!

On centimetre grid paper draw 6 different shapes, each with an area of 8 cm². Work out the perimeter of each shape. Write about what you discover.

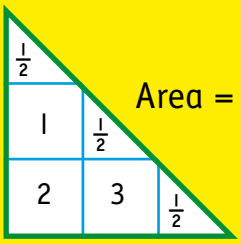
Measurement Measuring: Measuring the perimeter of polygons using metric units (mm, cm and m); Measuring the areas of irregular shapes covered with squares

Squares and halves

Area = 1 cm²

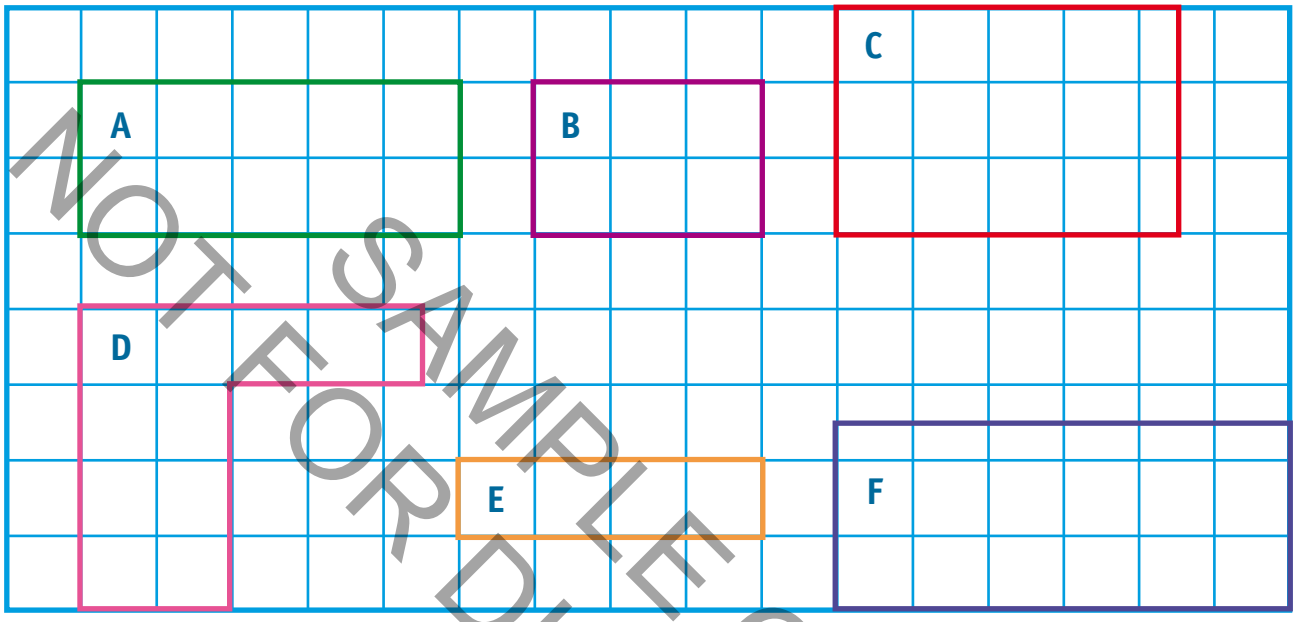


Area = 8 cm²



Area = 4.5 cm²

1 Write the area of these shapes.

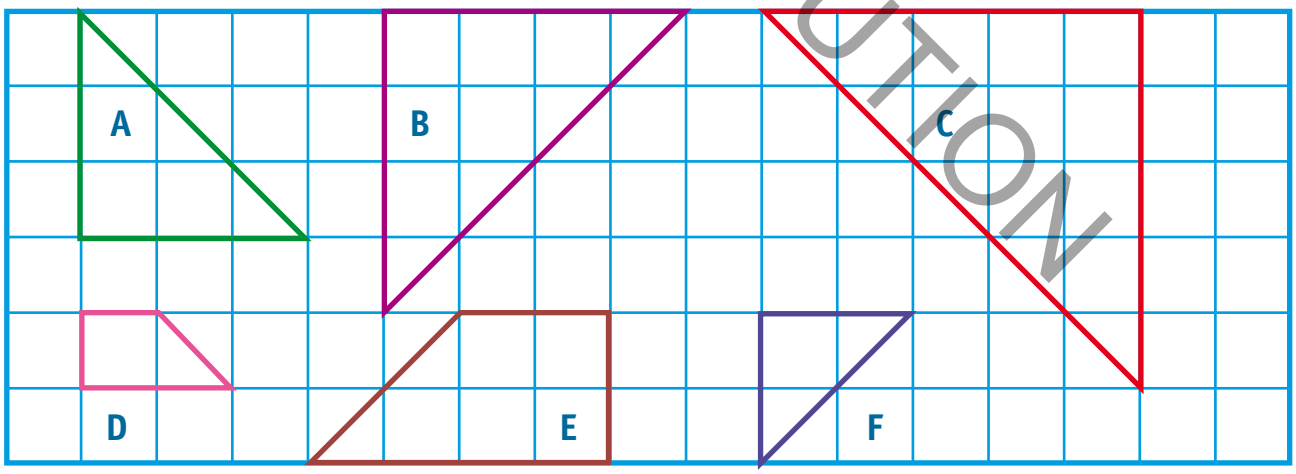


A _____ B _____ C _____ D _____ E _____ F _____

2 Which shapes have: **a** the largest area? _____ **b** the smallest area? _____

c an area with $10\frac{1}{2}$ cm²? _____ **d** an area of $13\frac{1}{2}$ cm²? _____

3 Write the area of these shapes.



A _____ B _____ C _____ D _____ E _____ F _____

4 Which shape has: **a** the largest area? _____ **b** the smallest area? _____

c an area of 8 cm²? _____ **d** an area of $12\frac{1}{2}$ cm²? _____

Area by multiplication

TERM 4
Week 6

To find the **area of a rectangle**, **multiply** its **length** by its **width**. **A = L × W**

Area is measured in squares.

1 square centimetre = 1 cm²

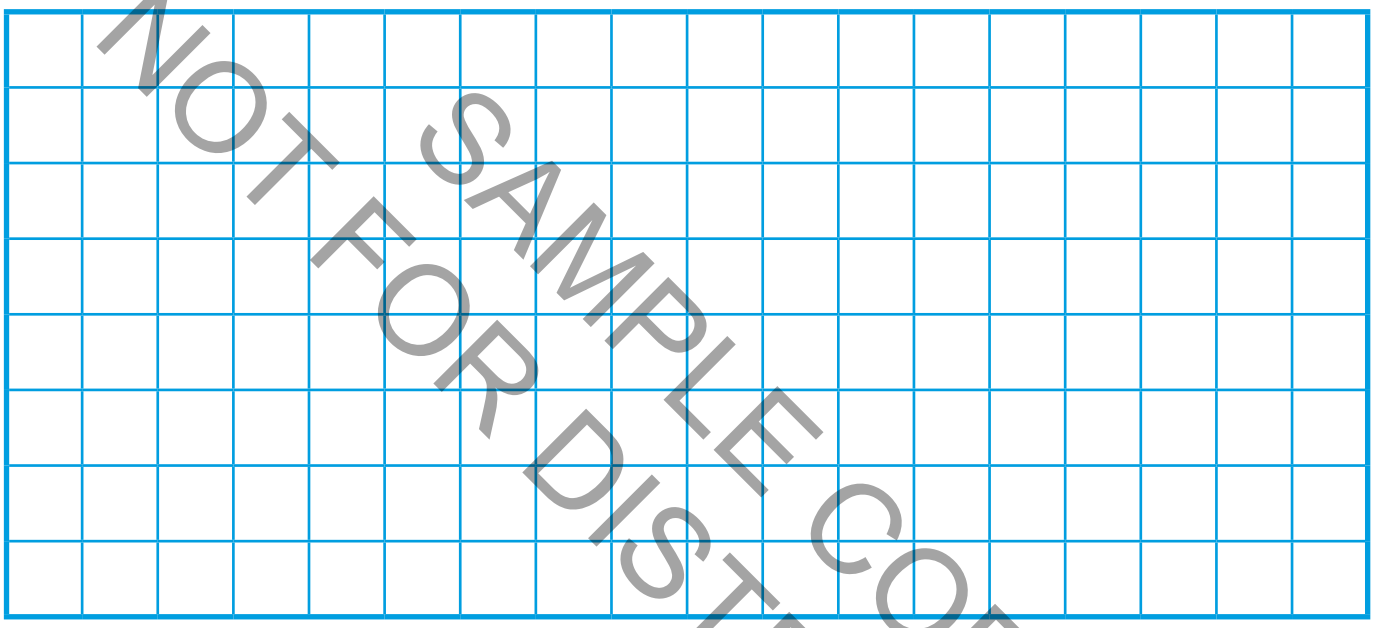
1 Use the formula **A = L × W** to calculate these areas.

a L = 8 cm, W = 3 cm 8 × 3 = _____ cm²

b L = 10 cm, W = 4 cm _____ × _____ = _____ cm²

c L = 4 cm, W = 4 cm _____ × _____ = _____ cm²

2 Draw these rectangles on this 1 cm grid paper. Label them **a**, **b**, **c**.



3 Count the squares in each shape to find the area. Write the area inside the shape.

4 Do these areas match the areas from question 1? _____

If not, redo your calculations to see where the mistake was made.

5 Measure the sides of these rectangles and use the formula **A = L × W** to calculate their areas.

a _____ × _____ = _____ cm² b _____ × _____ = _____ cm²

c _____ × _____ = _____ cm² d _____ × _____ = _____ cm²

a

b

c

d

Perimeter and area

1 Calculate the perimeter.

a

P = ☐ + ☐ + ☐ + ☐

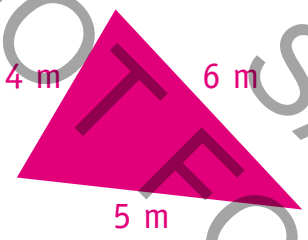
= ☐ cm

b

P = ☐ + ☐ + ☐ + ☐

= ☐ cm

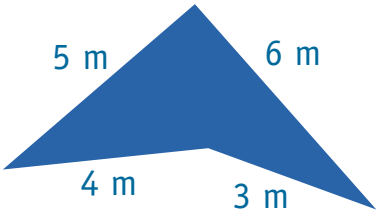
c



P = ☐ + ☐ + ☐

= ☐ m

d



P = ☐ + ☐ + ☐ + ☐

= ☐ m

2 Write a rule for calculating perimeter:

_____

3 **a** Measure the side lengths. **b** Calculate the perimeter. **c** Calculate the area.
Don't forget to put the units – centimetres or metres.

	a Side lengths	**b** Perimeter	**c** Area
This book	+ + +	=	× =
Your desk			
The door			
This room			
A window			

Mastery Checklist I can:
- ☐ measure area in square metres and centimetres
- ☐ measure perimeter in centimetres and metres
- ☐ measure area in whole and half squares
- ☐ calculate area using multiplication

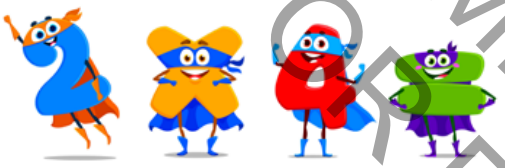
Multiplication and division facts

TERM 4
Week 7

Test your memory! Have you memorised the multiplication and division facts?

1 Answer these sums. Time yourself.

a $8 \times 2 =$ _____	b $10 \times 7 =$ _____	c $3 \times 9 =$ _____	d $6 \times 5 =$ _____
e $4 \times 9 =$ _____	f $5 \times 5 =$ _____	g $10 \times 3 =$ _____	h $9 \times 8 =$ _____
i $7 \times 4 =$ _____	j $8 \times 8 =$ _____	k $9 \times 2 =$ _____	l $4 \times 6 =$ _____
m $3 \times 8 =$ _____	n $36 \div 4 =$ _____	o $45 \div 5 =$ _____	p $72 \div 9 =$ _____
q $64 \div 8 =$ _____	r $42 \div 6 =$ _____	s $24 \div 8 =$ _____	t $25 \div 5 =$ _____
u $18 \div 2 =$ _____	v $24 \div 4 =$ _____	w $30 \div 6 =$ _____	x $27 \div 9 =$ _____
y $18 \div 3 =$ _____	z $20 \div 5 =$ _____		



Time:

What was your score? /26

2 Swap and check answers with a buddy.

3 Complete the bottom half. Time yourself again.

a $4 \times 4 =$ _____	b $7 \times 8 =$ _____	c $8 \times 6 =$ _____	d $8 \times 5 =$ _____
e $3 \times 7 =$ _____	f $9 \times 4 =$ _____	g $8 \times 3 =$ _____	h $9 \times 5 =$ _____
i $4 \times 5 =$ _____	j $8 \times 9 =$ _____	k $7 \times 6 =$ _____	l $5 \times 7 =$ _____
m $9 \times 3 =$ _____	n $18 \div 6 =$ _____	o $45 \div 9 =$ _____	p $24 \div 6 =$ _____
q $48 \div 6 =$ _____	r $32 \div 8 =$ _____	s $70 \div 7 =$ _____	t $40 \div 8 =$ _____
u $21 \div 7 =$ _____	v $24 \div 3 =$ _____	w $64 \div 8 =$ _____	x $36 \div 9 =$ _____
y $36 \div 6 =$ _____	z $56 \div 8 =$ _____		

Time:

What was your score? /26

4 Swap and check answers with a buddy.

5 Were you faster? Yes ☐ No ☐ Did you get a higher score? Yes ☐ No ☐

Area model multiplication

$5 \times 19 =$

5	19 Area = ?

$5 \times (10 + 9) =$
$(5 \times 10) + (5 \times 9) =$
$50 + 45 = 95$

5	10 5 × 10	9 5 × 9
	50	45

$5 \times 19 = 95$

5	19 Area = 95

The Area Model
Split one factor into smaller parts.
Multiply each smaller part by the **other factor**.
Then **add** the answers to find the **total**.

$5 \times 19 = 5 \times (10 + 9)$
$= (5 \times 10) + (5 \times 9)$
$= 50 + 45$
$= 95$

1 Use the area diagrams to multiply by a teen number.

a $5 \times 13 =$ _____

5	10 5 × 10 = **50**	3 5 × 3 = **15**

b $4 \times 18 =$ _____

4	10	8

c $8 \times 16 =$ _____

Multiply by tens:
$3 \times 40 = 3 \times 4 \times 10$
$= 12 \times 10$
$= 120$

2 Use the area diagrams to multiply by a two-digit number.

a $6 \times 37 =$ _____

6	30 6 × 3 × 10 = **180**	7 **42**

b $9 \times 54 =$ _____

9	50	4

c $4 \times 75 =$ _____

d $5 \times 46 =$ _____

Multiplication strategies

1 Post each letter by SNAIL MAIL and follow the snail to the answer.

a 8 × 600 = 8 × 6 × _____ = _____ × 100 = _____

b 7 × 70 = 7 × _____ × 10 = _____ × 10 = _____

c 4 × 500 = 4 × _____ × 100 = _____ × 100 = _____

d 5 × 30 = _____ × 3 × 10 = _____ × 10 = _____

2 Break the large number into a smaller sum to find the answer.

a 17 × 5 = (10 × 5) + (7 × 5) = _____ + _____ = _____

b 16 × 8 = (_____ × 8) + (6 × 8) = _____ + _____ = _____

c 18 × 3 = (10 × 3) + (_____ × 3) = _____ + _____ = _____

d 14 × 8 = (_____ × 8) + (_____ × 8) = _____ + _____ = _____

e 13 × 9 = (_____ × 9) + (_____ × 9) = _____ + _____ = _____

f 25 × 7 = (20 × 7) + (_____ × 7) = _____ + _____ = _____

g 32 × 4 = (_____ × 4) + (2 × 4) = _____ + _____ = _____

h 45 × 6 = (40 × 6) + (_____ × 6) = _____ + _____ = _____

i 36 × 5 = (_____ × 5) + (_____ × 5) = _____ + _____ = _____

j 28 × 4 = (_____ × 4) + (_____ × 4) = _____ + _____ = _____

Multiplication

1 Mentally multiply a single digit by a 2-digit number.

e.g. $5 \times 38 = 5 \times (30 + 8)$
$= (5 \times 3 \times 10) + (5 \times 8)$
$= (15 \times 10) + 40$
$= 150 + 40$
$= 190$

a $4 \times 92 = 4 \times (\_\_\_\_\_ + \_\_\_\_\_)$
$= (4 \times \_\_\_\_\_ \times 10) + (4 \times 2)$
$= (36 \times \_\_\_\_\_) + 8$
$= \_\_\_\_\_ + 8$
$= \_\_\_\_\_$

b $3 \times 29 = 3 \times (20 + \_\_\_\_\_)$
$= (3 \times \_\_\_\_\_ \times 10) + (3 \times 9)$
$= (\_\_\_\_\_ \times 10) + 27$
$= \_\_\_\_\_ + 27$
$= \_\_\_\_\_$

c $3 \times 78 = 3 \times (\_\_\_\_\_ + \_\_\_\_\_)$
$= (3 \times \_\_\_\_\_ \times 10) + (3 \times \_\_\_\_\_)$
$= (\_\_\_\_\_ \times 10) + \_\_\_\_\_$
$= \_\_\_\_\_ + \_\_\_\_\_$
$= \_\_\_\_\_$

d $6 \times 37 = 6 \times (\_\_\_\_\_ + 7)$
$= (6 \times 3 \times 10) + (6 \times \_\_\_\_\_)$
$= (\_\_\_\_\_ \times 10) + \_\_\_\_\_$
$= \_\_\_\_\_ + \_\_\_\_\_$
$= \_\_\_\_\_$

e $5 \times 64 = 5 \times (\_\_\_\_\_ + 4)$
$= (5 \times \_\_\_\_\_ \times 10) + (5 \times \_\_\_\_\_)$
$= (\_\_\_\_\_ \times 10) + \_\_\_\_\_$
$= \_\_\_\_\_ + \_\_\_\_\_$
$= \_\_\_\_\_$

2 Follow the arrows to find each multiple then add the results to solve.

For example: $6 \times 41 = 6 \times (40 + 1) = 240 + 6 = 246$

a $5 \times 32 = 5 \times (30 + 2) = 150 + \_\_\_\_\_ = \_\_\_\_\_$

b $3 \times 73 = 3 \times (70 + 3) = \_\_\_\_\_ + \_\_\_\_\_ = 219$

c $8 \times 41 = 8 \times (40 + 1) = \_\_\_\_\_ + 8 = \_\_\_\_\_$

d $7 \times 56 = 7 \times (50 + 6) = \_\_\_\_\_ + \_\_\_\_\_ = 392$

Equation rules

1 True (T) or false (F)?

a 6 + 4 = 4 + 6 ____ b 8 + 5 = 5 + 8 ____ c 1 + 7 = 7 + 1 ____ d 3 + 9 = 9 + 3 ____

e 5 + 8 = 8 + 5 ____ f 7 + 6 = 6 + 7 ____ g 3 + 7 = 7 + 3 ____ h 4 + 5 = 5 + 4 ____

i What rule can you make? _____

_____

2 True (T) or false (F)?

a 3 × 9 = 9 × 3 ____ b 7 × 4 = 4 × 7 ____ c 8 × 5 = 5 × 8 ____ d 5 × 9 = 9 × 5 ____

e 3 × 5 = 5 × 3 ____ f 6 × 5 = 5 × 6 ____ g 9 × 4 = 4 × 9 ____ h 10 × 8 = 8 × 10 ____

i What rule can you make? _____

_____

3 Are the rules the same? _____

4 True (T) or false (F)?

a 6 − 2 = 2 − 6 ____ b 9 − 5 = 5 − 9 ____ c 8 − 3 = 3 − 8 ____ d 7 − 4 = 4 − 7 ____

e Can you make a rule? _____

5 True (T) or false (F)?

a 18 ÷ 3 = 3 ÷ 18 ____ b 25 ÷ 5 = 5 ÷ 25 ____

c 40 ÷ 4 = 4 ÷ 40 ____ d 9 ÷ 3 = 3 ÷ 9 ____

e Can you make a rule? _____

6 True (T) or false (F)?

a 9 + 7 = 7 + 9 _____

b 21 ÷ 3 = 3 ÷ 21 _____

c 14 − 6 = 6 − 14 _____

d 9 × 3 = 9 + 3 _____

7 What happens to all numbers if they are multiplied by 1?

_____

_____

Challenge!

a Add these numbers together in four different ways.

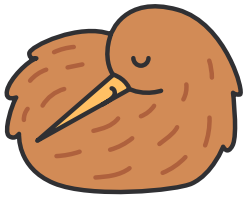
Are the answers always the same?

b Use a calculator to multiply the numbers together in four different ways.

Are the answers always the same?

Mastery Checklist

I can:
- ☐ multiply two-digit by one-digit numbers
- ☐ use the area model and known facts
- ☐ use the associative and distributive properties of multiplication
- ☐ identify rules of commutativity in all operations



Number Operations: Adding and subtracting; Multiplying; Dividing; **Algebra** Equations and relationships: Checking the truth of number sentences involving addition and subtraction; Checking the truth of number sentences involving multiplication and division; Recognising and describing patterns

Decimal place value

Tens	Ones	•	Tenths
2	3	•	4

1 Which digit is in the:

a tens place? _____

b ones place? _____

c tenths place? _____

2 What is the value of each digit?

a _____ b _____ c _____

Tens	Ones	•	Tenths
5	0	•	7

3 Which digit is in the:

a tens place? _____

b ones place? _____

c tenths place? _____

4 What is the value of each digit?

a _____ b _____ c _____

Tens	Ones	•	Tenths
	8	•	9

5 Which digit is in the:

a tens place? _____

b ones place? _____

c tenths place? _____

6 What is the value of each digit?

a _____ b _____ c _____

When dividing by 10 each digit moves one place to the right.
e.g. 120 ÷ 10 = 12 and 12 ÷ 10 = 1·2

7 Divide each number by 10.

	Tens	Ones	•	Tenths		Tens	Ones	•	Tenths
a	2	0	•	0	÷ 10 =			•	
b		3	•	0	÷ 10 =			•	
c	4	3	•	0	÷ 10 =			•	

8 Divide each number by 10.

a 200 ÷ 10 = _____ b 30 ÷ 10 = _____ c 4 ÷ 10 = _____

d 56 ÷ 10 = _____ e 789 ÷ 10 = _____ f 101 ÷ 10 = _____

Order decimal numbers

1 Write these numbers in order from smallest to largest.

1·0, 0·9, 1·4, 0·6, 1·8, 0·3

_____ _____ _____ _____ _____ _____

2 Place these numbers on the number line.

a 0·8 **b** 2·1 **c** 1·7 **d** 1·4 **e** 2·9 **f** 0·2 **g** 2·6

3 Divide each number by 10.

a 32 _____ **b** 28 _____ **c** 12 _____ **d** 10 _____

f 9 _____ **g** 98 _____ **h** 65 _____ **i** 100 _____

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

_____ _____ _____ _____ _____ _____

When multiplying by 10 each digit moves one place to the left. Tenths become ones, ones become tens and so on. E.g. 1·2 × 10 = 12

5 Wultiply each number by 10.

a 0·5 × 10 = _____ **b** 2·8 × 10 = _____ **c** 3·2 × 10 = _____

d 17·4 × 10 = _____ **e** 0·9 × 10 = _____ **f** 61·3 × 10 = _____

6 Write each decimal number in words.

0·5 = zero point five 2·4 = two point four 13·6 = thirteen point six

a 0·2 = _____

b 7·8 = _____

c 16·9 = _____

d 34·5 = _____

e 214·7 = _____

f 999·9 = _____

Add and subtract decimals

Add the **tenths** and the **ones** separately, then **add together.**

Eg 1·5 + 3·2 = (1 + 3) + (0·5 + 0·2)
= 4 + 0·7
= 4·7

Subtract the **tenths** and the **ones** separately, then **put together.**

Eg 7·9 − 3·2 = (7 − 3) + (0·9 − 0·2)
= 4 + 0·7
= 4·7

1 Add.

a 4·3 + 2·5 = _____ b 3·6 + 4·2 = _____

c 5·4 + 3·2 = _____ d 1·5 + 5·1 = _____

2 Subtract.

a 7·8 − 3·6 = _____ b 9·9 − 2·7 = _____

c 8·5 − 4·2 = _____ d 6·7 − 1·5 = _____

3 Add.

a 6·5 + 1·5 = _____ b 4·7 + 1·7 = _____

c 3·8 + 3·3 = _____ d 5·6 + 2·5 = _____

If the **tenths add to more than 0·9**, add the **whole** to the **ones**.

Eg 1·9 + 3·2 = (1 + 3) + (0·9 + 0·2)
= 4 + 1·1
= 5·1

4 Circle – true or false?

a 4·2 + 3·5 = 7·7 T F b 1·6 + 4·2 = 5·6 T F

c 3·6 + 2·4 = 5·1 T F d 8·6 − 2·5 = 5·1 T F

e 7·5 − 1·2 = 6·3 T F f 5·9 − 3·5 = 2·4 T F

5 Write the missing number.

a 4·5 + _____ = 7·9 b _____ + 1·2 = 4·5 c 5·6 + _____ = 9·0

d 9·6 − _____ = 4·3 e _____ − 3·2 = 2·7 f 7·8 − _____ = 4·1

6 Write a number sentence to solve each problem.

a I add 1·2 kg of sugar to 3·5 kg of flour. How much do my ingredients weigh now?

_____

b A rope is 9·9 m long. If 3·7 m is cut off, how much rope is left?

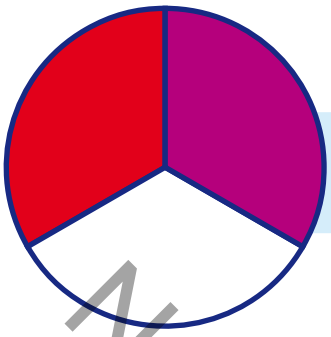
_____

c Huatare ran 7·8 km on Monday and 5·6 km on Tuesday. How far did he run in total?

_____

Add and subtract fractions

When we **add** or **subtract** **fractions** with the **same denominator**, the denominator stays the same. We only **add** or **subtract** the **numerators**.



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

$\frac{4}{5} - \frac{1}{5} = \frac{3}{5}$

1 Add.

a $\frac{1}{4} + \frac{2}{4} = \frac{\square}{4}$ **b** $\frac{2}{6} + \frac{3}{6} = \frac{\square}{6}$ **c** $\frac{3}{8} + \frac{4}{8} = \frac{\square}{8}$ **d** $\frac{4}{10} + \frac{5}{10} = \frac{\square}{10}$

2 Add.

a $\frac{3}{7} + \frac{3}{7} = \frac{\square}{\square}$ **b** $\frac{2}{5} + \frac{2}{5} = \frac{\square}{\square}$ **c** $\frac{4}{9} + \frac{4}{9} = \frac{\square}{\square}$ **d** $\frac{5}{12} + \frac{5}{12} = \frac{\square}{\square}$

3 Subtract.

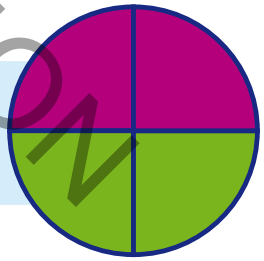
a $\frac{3}{5} - \frac{1}{5} = \frac{\square}{5}$ **b** $\frac{7}{9} - \frac{6}{9} = \frac{\square}{9}$ **c** $\frac{3}{3} - \frac{2}{3} = \frac{\square}{3}$ **d** $\frac{4}{4} - \frac{2}{4} = \frac{\square}{4}$

4 Subtract.

a $\frac{5}{6} - \frac{4}{6} = \frac{\square}{\square}$ **b** $\frac{6}{8} - \frac{2}{8} = \frac{\square}{\square}$ **c** $\frac{9}{10} - \frac{2}{10} = \frac{\square}{\square}$ **d** $\frac{5}{7} - \frac{3}{7} = \frac{\square}{\square}$

If the **numerator** is the **same** as the **denominator**, that makes **one whole**.

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



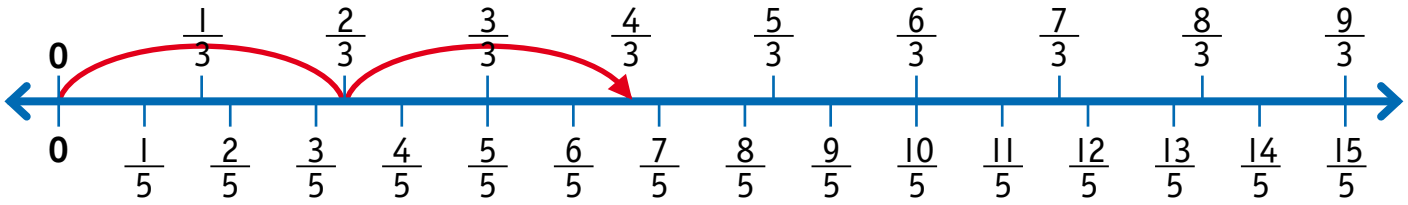
5 Add to make a whole.

a $\frac{3}{4} + \frac{\square}{4} = \frac{4}{4}$ **b** $\frac{1}{6} + \frac{\square}{6} = \frac{6}{6}$ **c** $\frac{3}{8} + \frac{\square}{8} = \frac{8}{8}$ **d** $\frac{6}{10} + \frac{\square}{10} = \frac{10}{10}$

e $\frac{3}{5} + \frac{\square}{5} = \frac{\square}{\square}$ **f** $\frac{4}{7} + \frac{\square}{7} = \frac{\square}{\square}$ **g** $\frac{7}{9} + \frac{\square}{9} = \frac{\square}{\square}$ **h** $\frac{8}{12} + \frac{\square}{12} = \frac{\square}{\square}$

Calculate fractions beyond 1

TERM 4
Week 8



1 Jump along the number line to add.

a $\frac{2}{3} + \frac{2}{3} = \frac{\square}{3}$ **b** $\frac{3}{5} + \frac{3}{5} = \frac{\square}{5}$

2 Jump down the number line to subtract.

a $\frac{8}{3} - \frac{2}{3} = \frac{\square}{3}$ **b** $\frac{6}{5} - \frac{3}{5} = \frac{\square}{5}$

3 Add. Write the answer as a mixed number.

a $\frac{3}{3} + \frac{5}{3} = \frac{\square}{\square} = \square\frac{\square}{\square}$ **b** $\frac{3}{5} + \frac{6}{5} = \frac{\square}{\square} = \square\frac{\square}{\square}$ **c** $\frac{7}{5} + \frac{5}{5} = \frac{\square}{\square} = \square\frac{\square}{\square}$

4 Subtract. Write the answer as a mixed number.

a $\frac{15}{5} - \frac{4}{5} = \frac{\square}{\square} = \square\frac{\square}{\square}$ **b** $\frac{8}{3} - \frac{3}{3} = \frac{\square}{\square} = \square\frac{\square}{\square}$ **c** $\frac{13}{5} - \frac{6}{5} = \frac{\square}{\square} = \square\frac{\square}{\square}$

Convert **mixed numbers** to **improper fractions** with the **same denominators** to calculate using **numerators**.

5 Convert. Add. Write the answer as a mixed number.

a $1\frac{2}{4} + \frac{2}{4} = \frac{\square}{\square} + \frac{2}{4} = \frac{\square}{\square} = \square$ **b** $2\frac{4}{6} + \frac{5}{6} = \frac{\square}{\square} + \frac{5}{6} = \frac{\square}{\square} = \square$

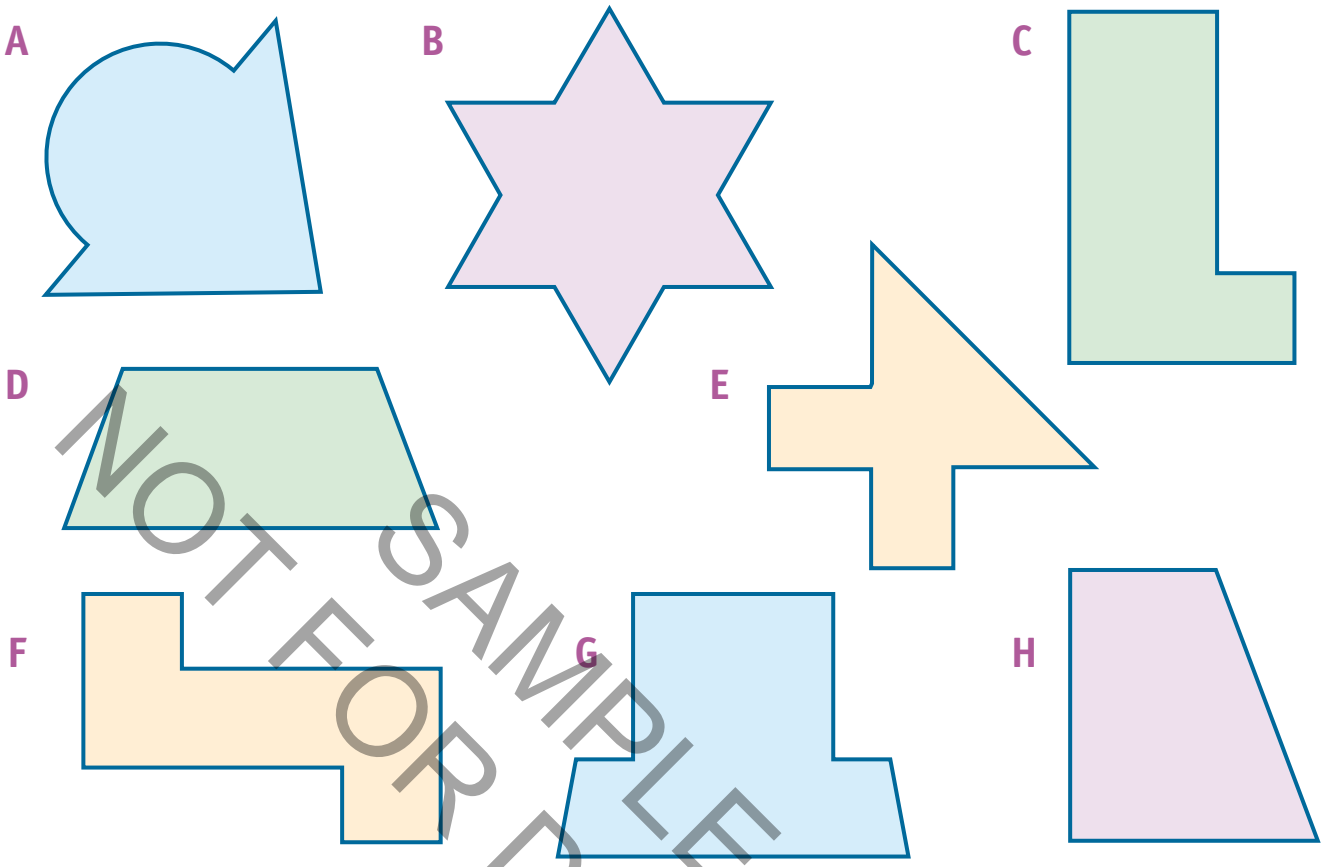
6 Convert. Subtract. Write the answer as a mixed number.

a $2\frac{3}{4} - \frac{5}{4} = \frac{\square}{\square} - \frac{5}{4} = \frac{\square}{\square} = \square$ **b** $1\frac{4}{6} - \frac{5}{6} = \frac{\square}{\square} - \frac{5}{6} = \frac{\square}{\square} = \square$

Mastery Checklist I can:

- ☐ understand tenths as a place value and multiply or divide to change place values
- ☐ order decimal numbers and write them in words
- ☐ add and subtract decimals and fractions, improper fractions, and mixed numbers with the same denominators

Symmetry



1 Using a pencil and ruler draw in lines of symmetry.

2 a Use a mirror to check your lines.

b How many did you get right? _____

3 Which shapes are not symmetrical? _____

4 Name the shapes. a D _____ b H _____

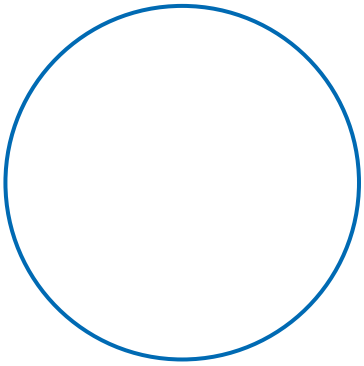
c Do all trapeziums have a line of symmetry? _____

5 Which shape has more than 1 line of symmetry? _____

6 a Draw as many lines of symmetry as you can on the circle.

b Tick the statement that best describes symmetry in a circle.

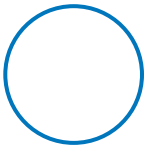
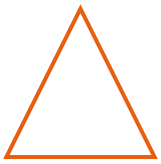
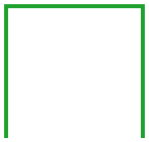
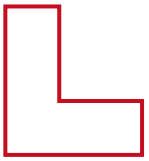
- ☐ A circle has 2 lines of symmetry.
- ☐ A circle has no lines of symmetry.
- ☐ A circle has infinite lines of symmetry.
- ☐ A circle has 1 line of symmetry.



Geometry Shapes: Identifying the number of lines of symmetry in 2D shapes; Circles have an infinite number of lines of symmetry

Polygons

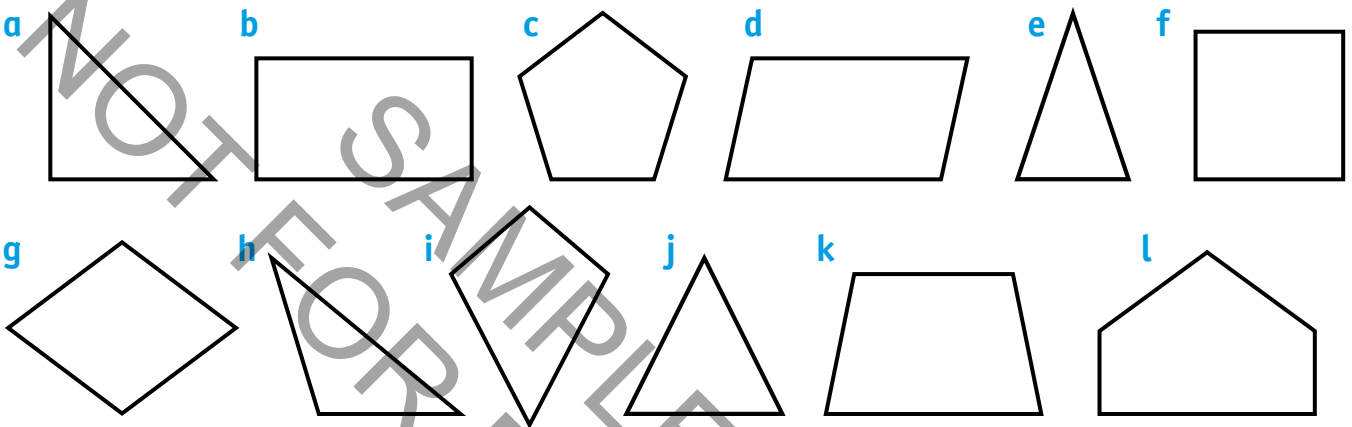
1 Colour in the polygons.

a  b  c  d  e 

2 Make these sentences true.

a A _____ has 3 sides. b A quadrilateral has _____ sides.

3 Colour the **triangles blue** and the **quadrilaterals green**.



4 Can you name the quadrilaterals?

_____

_____

5 Look at the shapes that are not coloured in.

a How many sides do they have?

_____

b Can you draw another shape with the same number of sides?

c Do you know what these shapes are called?

_____

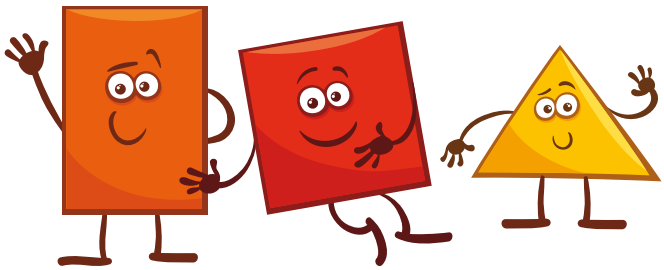
6 Circle – true or false?

a A triangle has 4 angles. T F

b A triangle can have 1 right angle. T F

c A rectangle only has right angles. T F

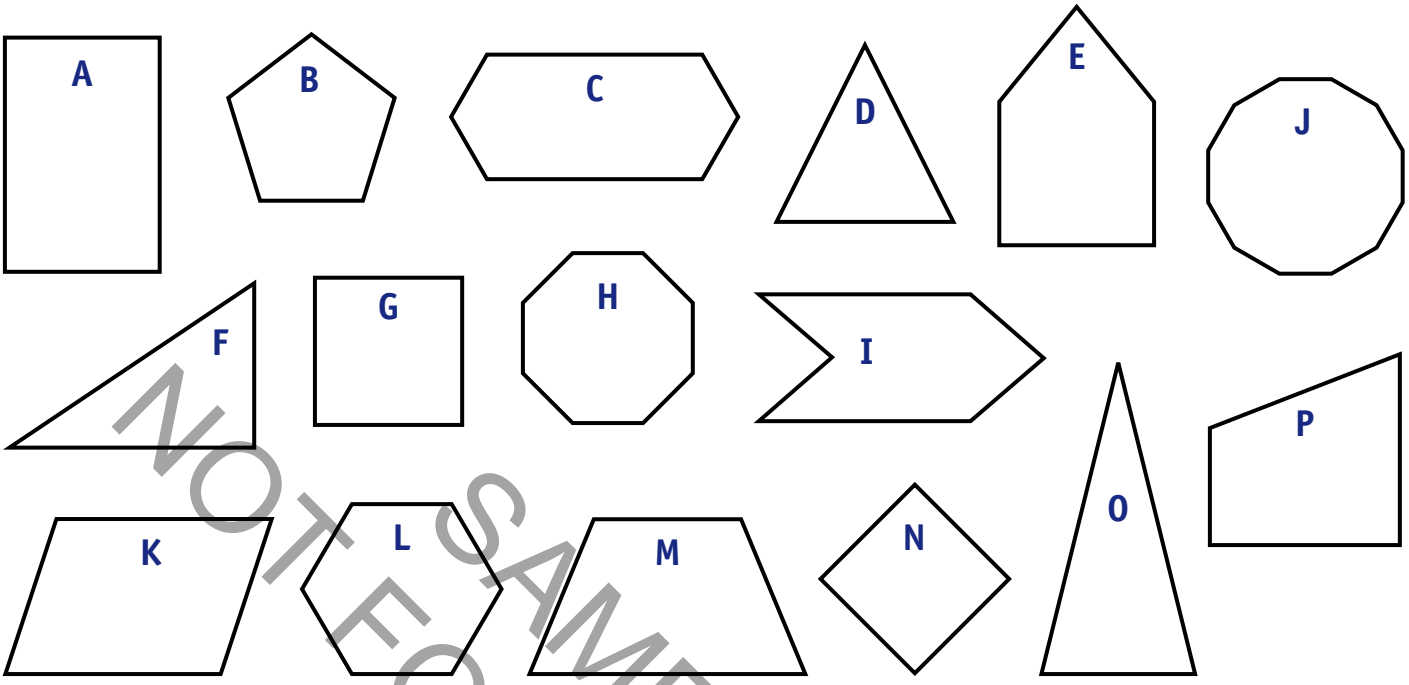
d A square has 3 right angles. T F



Angles in shapes

A regular polygon has:
- all sides same length
- all angles same size

1 Shade the **regular** polygons in blue.



2 Complete the sentence.

Irregular polygons have _____ of different lengths and _____ of different sizes.

3 Mark the right angles in the above shapes with this symbol ⌞.

4 a Which shapes have 4 right angles? _____

b What sort of shapes are they? _____

_____

c Which shapes have 2 right angles above? _____

d What sort of shapes are they? _____

_____

e Which shape above has 1 right angle? _____

f What sort of shape is it? _____

5 a Which shapes have angles smaller than a right angle?

_____

b Which shapes have angles larger than a right angle?

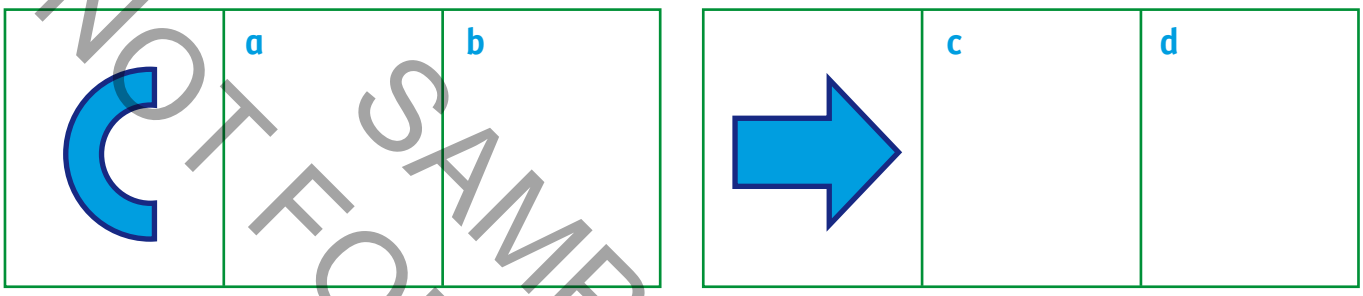
_____

Measurement Measuring: Rectangles and squares have four right angles;
Geometry Shapes: Identifying the attributes of regular and irregular polygons

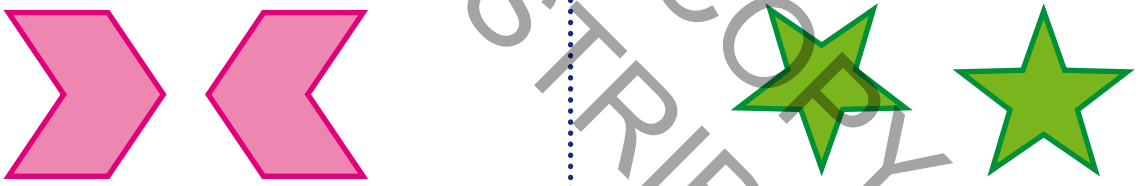
Shape movements

1 This shape has been flipped. Flip and draw it again. Continue across the page.

2 Slide and flip each shape.



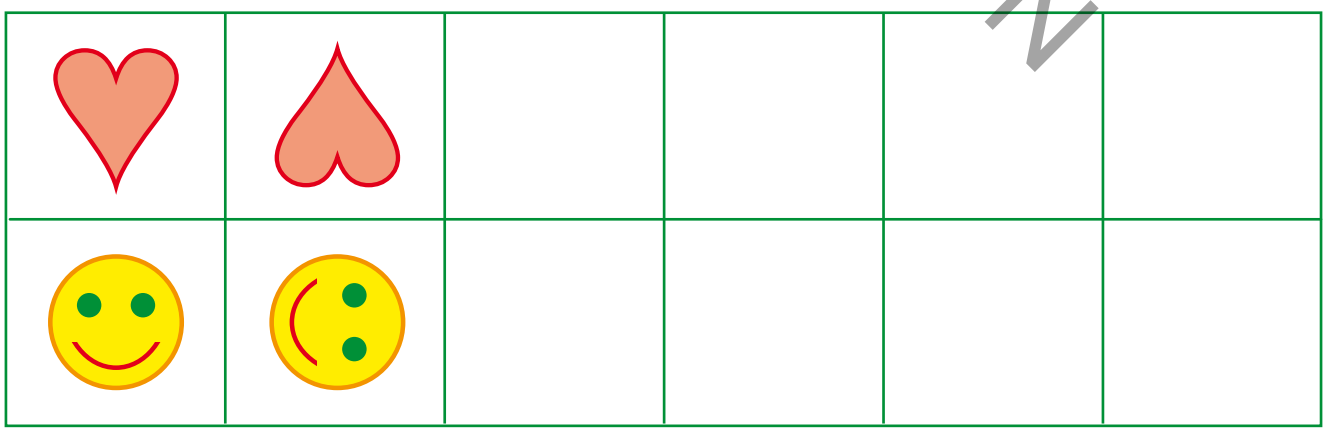
3 How has the shape been moved? Write flip across or flip up.



a flip _____

b flip _____

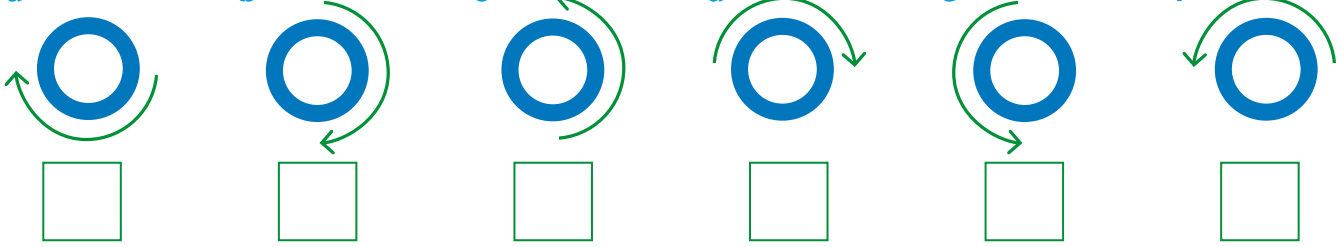
4 Complete the patterns using half or quarter turns.



Patterns of turns

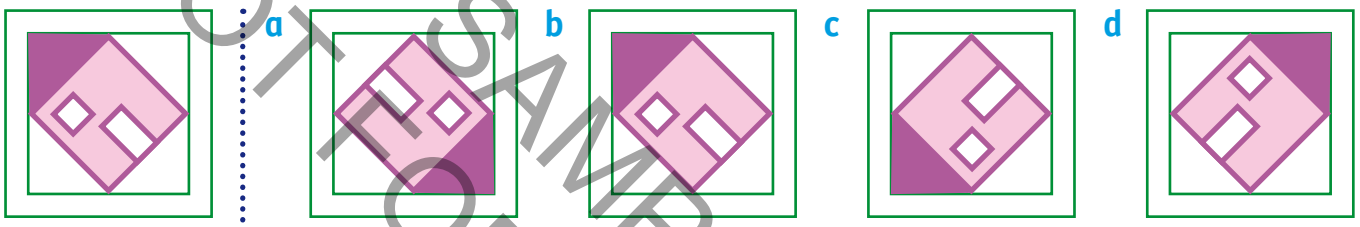
1 Tick the clockwise turns (✓) and cross the anti-clockwise turns (✗).

a b c d e f



2 Choose one word from the list to describe the rotation of the original house.

clockwise	anti-clockwise	full	half



Original

a _____ turn

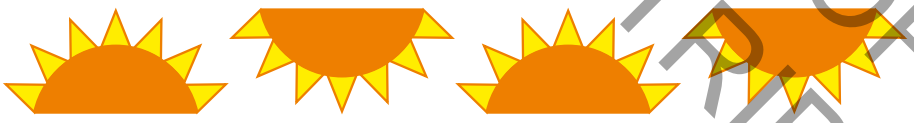
b _____ turn

c quarter turn _____

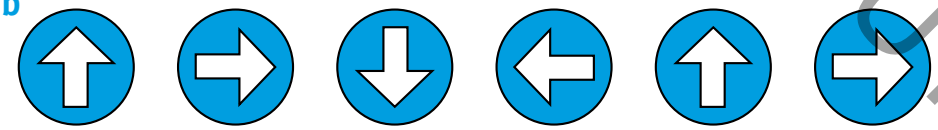
d quarter turn _____

3 Draw the next picture in each rotating pattern.

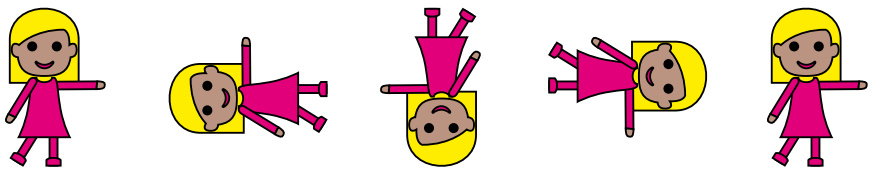
a



b



c



Mastery Checklist

I can:

- ☐ identify lines of symmetry
- ☐ identify triangles and quadrilaterals
- ☐ identify regular and irregular polygons
- ☐ explore angles in polygons
- ☐ investigate patterns with shape movements

Checkpoint 8

1 Write each number in words. p 146

a 1,042 _____

_____

b 7,932 _____

_____

c 8,650 _____

_____

2 Round to the nearest hundred. p 147

a 468 _____ b 215 _____

3 Round to the nearest thousand. p 147

a 4,695 _____ b 2,398 _____

4 Write 'is less than' or 'is more than'. p 148

a 479 _____ 749

b 1,280 _____ 1,820

c 1,005 _____ 1,500

d 3,600 _____ 3,006

5 7,426 is the same as: p 149

a _____ tens _____ ones

b _____ hundreds _____ tens _____ ones

c _____ thousands _____ ones

6 Write as many multiplication facts as you can for this group. p 151

_____

_____

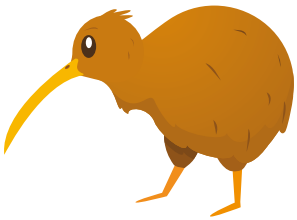
7 Multiply. p 152-155

a 6 × 8 = _____

b 7 × 9 = _____

c 8 × 7 = _____

d 9 × 6 = _____



8 _____ × _____ = 49 p 156

_____ × _____ = 49

49 ÷ _____ = _____

49 ÷ _____ = _____

9 a 40 ÷ 10 = _____ b 18 ÷ 2 = _____ p 158

c 21 ÷ 3 = _____ d 55 ÷ 5 = _____

10

Divide the stars into: p 158

a 2 groups. 1 group = _____ stars

b 3 groups. 1 group = _____ stars

c 9 groups. 1 group = _____ stars

d 6 groups. 1 group = _____ stars

11 Make these equations equal. p 159

a 6 × 8 = 4 × _____

b 32 ÷ 8 = 8 ÷ _____

c 3 × 8 = _____ × 6

d 21 ÷ 7 = _____ ÷ 4

12 Write the decimal. p 162

a three tenths = _____

b $\frac{7}{10}$ = _____

c 1 out of 10 = _____

13 Write the fraction. p 162

a 0·6 = _____

b 10 out of 10 _____

c 0·9 _____

14 True or false? p 163

a 0·5 is smaller than 0·8 _____

b 0·7 is smaller than 0·6 _____

c 0·3 is bigger than 0·2 _____

d 0·1 is bigger than 1·0 _____

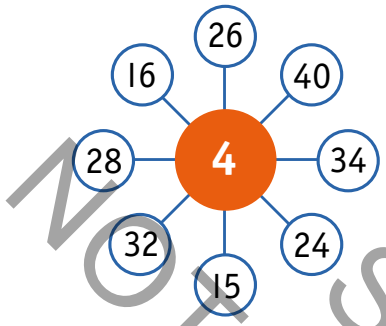
Checkpoint 8

15 Round to the nearest whole number. p 164

a 0·8 = _____ **b** 2·5 = _____

c 1·1 = _____ **d** 12·3 = _____

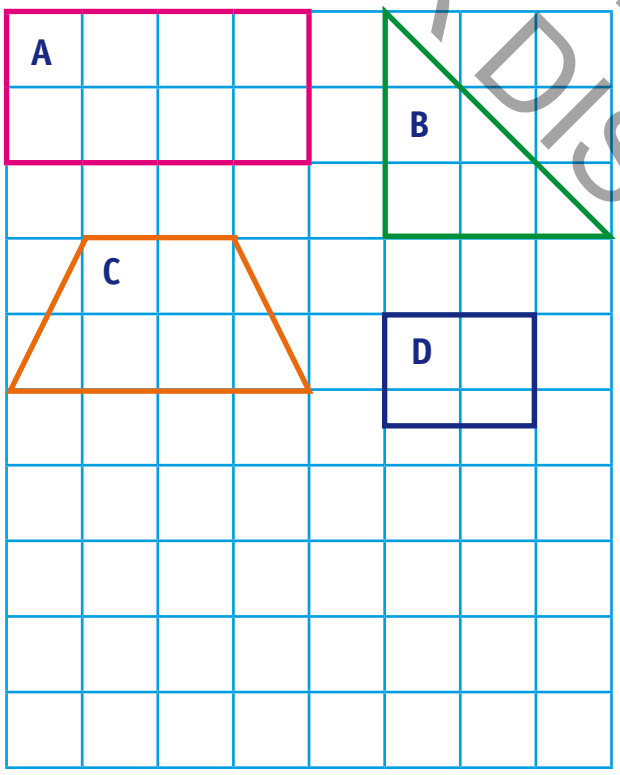
16 Colour the multiples of 4. p 171



17 p 172

×	4	5	6	7	8	9	12
12							

18 p 174-175



a What is the area of these shapes?

A _____ **B** _____

C _____ **D** _____

b What is the perimeter of these shapes?

A _____ **D** _____

c Draw two shapes in the grid.

E has a perimeter of 12.

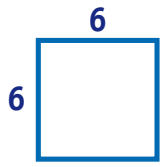
F has an area of 12.

d What is the area of **E**? _____

e What is the perimeter of **F**?

_____

19 p 176



Write an equation to find the area.

_____ _____ _____ = _____

20 Multiply. p 180

a 5 × 90 = _____

b 7 × 600 = _____

21 Multiply. p 181

a 4 × 57 = _____ **b** 6 × 28 = _____

c 5 × 39 = _____ **d** 3 × 46 = _____

22 True or false? p 182

a 6 × 8 = 8 × 6 _____

b 32 ÷ 8 = 8 ÷ 32 _____

23 Which digit is in the: p 183

5·2

a tenths place? _____

b ones place? _____

24 What is the value of each digit? p 183

3·9

a _____

b _____

25 Divide each number by 10. p 183

a 2 ÷ 10 = _____

b 30 ÷ 10 = _____

c 400 ÷ 10 = _____

d 65 ÷ 10 = _____

e 978 ÷ 10 = _____

Checkpoint 8

26 Multiply each number by 10. p 184

a $0.9 \times 10 =$ _____

b $7.5 \times 10 =$ _____

c $63.4 \times 10 =$ _____

27 Add or subtract. p 185

a $2.5 + 1.3 =$ _____

b $3.9 - 1.6 =$ _____

c $4.2 + 1.5 =$ _____

d $5.7 - 1.3 =$ _____

28 Add or subtract. p 186

a $\frac{1}{5} + \frac{4}{5} = \frac{\square}{\square}$

b $\frac{7}{8} - \frac{5}{8} = \frac{\square}{\square}$

c $\frac{2}{6} + \frac{\square}{\square} = \frac{6}{6}$

d $\frac{7}{10} + \frac{3}{10} = \frac{\square}{\square}$

29 Add or subtract. p 187

Convert to a mixed number.

a $\frac{3}{5} + \frac{4}{5} = \frac{\square}{\square} = \square\frac{\square}{\square}$

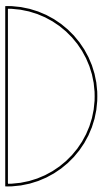
b $\frac{9}{4} - \frac{6}{4} = \frac{\square}{\square} = \square\frac{\square}{\square}$

30 Add or subtract. p 187

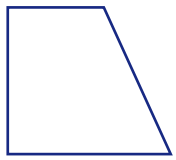
a $1\frac{2}{3} + \frac{2}{3} = \square\frac{\square}{\square}$

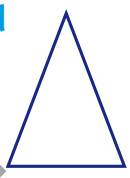
b $2\frac{1}{5} - \frac{4}{5} = \square\frac{\square}{\square}$

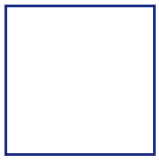
31 Draw all the lines of symmetry. p 188

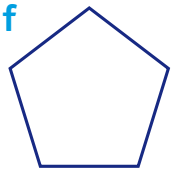
a 

b 

c 

d 

e 

f 

32 a Tick the polygons. p 189

b Cross the triangle.

c Circle the quadrilateral.

33 Shade the regular polygons in questions 31 and 32 in blue. p 190

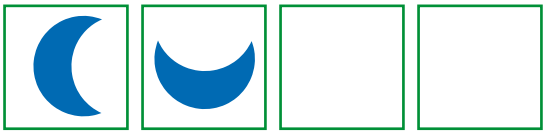
34 True or false? p 190

a A trapezium can have 2 right angles. T F

b A triangle can have 2 right angles. T F

c A rectangle always has 4 right angles. T F

35 Complete the pattern. p 192



Fast facts

×0, ×1, ×2, ×5, ×10

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

÷1, ÷2, ÷5, ÷10

1 ÷ 1	10 ÷ 1	30 ÷ 1	50 ÷ 10	8 ÷ 2
50 ÷ 5	60 ÷ 10	25 ÷ 5	12 ÷ 2	2 ÷ 1
90 ÷ 10	10 ÷ 10	16 ÷ 2	10 ÷ 2	10 ÷ 10
20 ÷ 2	70 ÷ 10	10 ÷ 5	14 ÷ 2	40 ÷ 5
35 ÷ 5	5 ÷ 1	80 ÷ 10	30 ÷ 10	18 ÷ 2
15 ÷ 5	45 ÷ 5	20 ÷ 5	3 ÷ 1	4 ÷ 1
6 ÷ 3	100 ÷ 10	20 ÷ 10	4 ÷ 2	70 ÷ 7
6 ÷ 2	30 ÷ 6	30 ÷ 5	16 ÷ 8	40 ÷ 10

Fast facts

×3, ×4, ×8

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

÷3, ÷4, ÷8

15 ÷ 3	9 ÷ 3	8 ÷ 8	40 ÷ 4	12 ÷ 4
8 ÷ 4	16 ÷ 4	6 ÷ 3	24 ÷ 8	3 ÷ 3
40 ÷ 8	12 ÷ 3	80 ÷ 8	16 ÷ 8	24 ÷ 4
20 ÷ 4	32 ÷ 8	30 ÷ 3	21 ÷ 3	4 ÷ 4
48 ÷ 8	24 ÷ 3	27 ÷ 3	28 ÷ 4	88 ÷ 8
36 ÷ 4	64 ÷ 4	32 ÷ 4	56 ÷ 8	18 ÷ 3
72 ÷ 8	33 ÷ 3	48 ÷ 4	40 ÷ 10	16 ÷ 2
36 ÷ 3	15 ÷ 5	30 ÷ 10	80 ÷ 10	44 ÷ 4

Fast facts

Multiply by 7, 8, 9

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

Divide by 7, 8, 9

49 ÷ 7	27 ÷ 9	80 ÷ 8	35 ÷ 7	36 ÷ 9
16 ÷ 8	18 ÷ 9	56 ÷ 8	28 ÷ 7	70 ÷ 7
64 ÷ 8	81 ÷ 9	63 ÷ 9	45 ÷ 9	48 ÷ 8
21 ÷ 7	63 ÷ 7	32 ÷ 8	90 ÷ 9	42 ÷ 7
7 ÷ 7	24 ÷ 8	72 ÷ 9	14 ÷ 7	54 ÷ 9
40 ÷ 8	99 ÷ 9	56 ÷ 7	9 ÷ 9	72 ÷ 8
24 ÷ 3	8 ÷ 8	77 ÷ 7	88 ÷ 8	35 ÷ 5
36 ÷ 4	45 ÷ 5	42 ÷ 6	18 ÷ 2	21 ÷ 3

Fast facts

Multiply by 11, 12

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

Divide by 11, 12

99 ÷ 11	24 ÷ 12	60 ÷ 12	55 ÷ 11	77 ÷ 11
36 ÷ 12	12 ÷ 12	22 ÷ 11	33 ÷ 11	120 ÷ 12
120 ÷ 12	88 ÷ 11	1 ÷ 11	96 ÷ 12	9 ÷ 12
44 ÷ 11	11 ÷ 11	72 ÷ 12	132 ÷ 12	110 ÷ 11
121 ÷ 11	84 ÷ 12	132 ÷ 11	108 ÷ 12	55 ÷ 11
24 ÷ 12	22 ÷ 11	36 ÷ 12	66 ÷ 11	120 ÷ 12
99 ÷ 11	48 ÷ 12	33 ÷ 11	132 ÷ 12	110 ÷ 11
96 ÷ 12	77 ÷ 11	60 ÷ 12	44 ÷ 11	72 ÷ 12

Mathletics

Looking Good!

Tūiro Pai!

You've successfully completed the Year 4 program!
Are you excited for Year 5?