

Written in
NZ for NZ

Help Me at HOME Series



Curriculum Strand Worksheets

A Teacher's resource supplied as PHOTOCOPY MASTERS

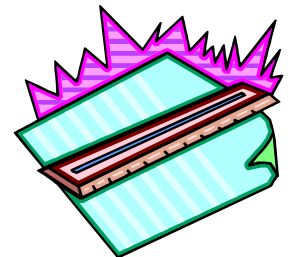
Book 5b



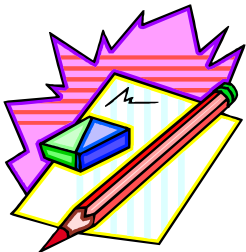
This resource contains
**40 CURRICULUM STRAND
WORKSHEETS**



which covers **Level 3** of the achievement
objectives as outlined in the
**Mathematics in the New Zealand
Curriculum for the strands ...**
Number & Algebra,
Measurement & Geometry
and Statistics.



This resource is to be used in conjunction
with **Book 5a** and supports the
**Numeracy Professional Development
Project Stages 6 & 7**



Author: A. W. Stark



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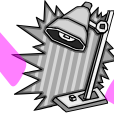
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Book 5b



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AH5b

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AH5b



Note from the author:

About this resource ...

Help Me at Home Curriculum Strand Worksheets

- Book 5b (Code: AH5b)

is one of a series of **TWO sets** of 8 resources and has been written to cover the achievement objectives as outlined in the *Mathematics in the New Zealand Curriculum* (2007 revised edition) document for the teaching areas or strands of ... Number & Algebra, Measurement & Geometry and Statistics.

Resource Book 5b is to be used in conjunction with a second resource, Book 5a.

Help Me at Home Number Knowledge Worksheets

- Book 5a (Code: AH5a)

Book 5a has been written to support the *Numeracy Professional Development Project* currently being implemented within many New Zealand schools.

Background Information:

The *Numeracy Professional Development Project* being implemented in many schools involves a **knowledge section** and a **strategy section**.

The **knowledge section** introduces and revises the key number knowledge facts required.

The **strategy section** describes the mental processes students employ to estimate answers and solve problems involving the four operations of addition, subtraction, multiplication and division.

The **strategy stages** are listed in this table.

The aim of this project is to equip students with various strategies that allow them to be successful at Mathematics.

In order for this to occur, it is essential for students to be confident with number knowledge.

	Strategy Stages
0	Emergent
1	One-to-one Counting
2	Counting from One on Materials
3	Counting from One by Imaging
4	Advanced Counting (Counting On)
5	Early Additive Part-Whole
6	Advanced Additive Part-Whole
7	Advanced Multiplicative Part-Whole
8	Advanced Proportional Part-Whole

Without the 'knowledge', that is, knowing the basic numeracy facts, it is difficult for a student to progress through the strategy stages. Students move through the strategy stages at different rates and may be working at different stages given a certain problem. This is often a result of gaps in key knowledge, hence it CANNOT be stressed enough the importance of learning the numeracy facts. How children learn the numeracy facts is not as important as knowing them. These resources are designed to systematically introduce and revise the key numeracy facts.

How to use these resources:

There are **2 sets** of **8 resources** in this series.

The table opposite shows the suggested Year Group each book can be used at, but this is only a suggestion.

Example: 1 - 2 - 3 means it is likely to be used at Year 2, the bold underlined number.

Book	Resource Code	Suggested Year Group (underlined)	Strategy Stages covered	Curriculum Level
1a / 1b	AH1a & AH1b	1 - <u>2</u> - 3	1 to 3	1
2a / 2b	AH2a & AH2b	2 - <u>3</u> - 4	4	1 / 2
3a / 3b	AH3a & AH3b	3 - <u>4</u> - 5	4 & 5	2
4a / 4b	AH4a & AH4b	4 - <u>5</u> - 6	5 & 6	2 / 3
5a / 5b	AH5a & AH5b	5 - <u>6</u> - 7	6 & 7	3
6a / 6b	AH6a & AH6b	6 - <u>7</u> - 8	6 & 7	3 / 4
7a / 7b	AH7a & AH7b	7 - <u>8</u> - 9	6 to 8	4
8a / 8b	AH8a & AH8b	8 - <u>9</u> - 10	6 to 8	5

Why so many resources?

A note for Teachers

There are 2 sets of 8 resources in this series to allow you to have a different book available each year for classes which are made up of mixed year groups. This will stop the problem of a student saying "We used this book last year!". Which book you use for your class is up to your professional judgement, taking into account which resource classes above or below your class might use.

How to use these TWO resources - Book 5a & Book 5b



Book AH5a

40x Number Knowledge Worksheets

- This resource systematically introduces and revises the number knowledge, presented in various formats.
- Designed to reinforce the Numeracy Professional Development Project, it is intended that one worksheet per week is completed in order from worksheet 1 to worksheet 40.
- One worksheet per week is to be done in conjunction with one worksheet selected from the **Curriculum Strand Worksheet** resource (**Book 5b**).
- **Book 5a** covers the **Strategy Stages 6 & 7**.

Note to Teachers:

- The aim of these TWO resources (**AH5a & AH5b**) are to provide the classroom teacher with a systematic and comprehensive series of worksheets, which form the basis of your mathematics homework.

Worksheets from Book 5a:

- **Photocopy** weekly and sequentially in order, a **Number Knowledge** worksheet from **Book 5a**. On the Number Knowledge worksheet, pupils can record their **Name, Term, Week** and the **Curriculum Strand Worksheet** that is also to be done that week.

Worksheets from Book 5b:

- **Select** and **photocopy** the appropriate **Curriculum Strand Worksheet** required, as determined by what you are currently teaching in class or a topic you are revising. In the table on the next page, record the curriculum worksheet being used each week.

Select ONE worksheet from each book to make up your homework worksheet

Book AH5b

40x Curriculum Strand Worksheets

- The **40 worksheets** in this resource cover the Achievement Objectives as outlined in **Mathematics in the New Zealand Curriculum** for Number & Algebra, Measurement & Geometry and Statistics.
- These worksheets can be completed in any order.
- One worksheet is selected per week to be done in conjunction with one worksheet from the **Number Knowledge Worksheet** resource (**Book 5a**).
- The worksheet selected per week relates to the topic being covered at school or as revision.
- **Book 5b** covers Level 3 of the **Curriculum**.

Extension Activity for Parents:

- Each **Curriculum Strand Worksheet** has an **AT HOME** activity as an extension activity for parents or caregivers.
- Success in mathematics is greatly enhanced by having a good understanding of Number Knowledge. That is, from being able to add, subtract, multiply and divide with confidence, ... with success ... comes enjoyment.
- Either staple the two worksheets together or create a double sided homework sheet.

Book 5a (AH5a) - Number Knowledge Worksheets

Number Knowledge Worksheet	Term & Week Enter details below	Curriculum Strand Worksheet Enter the worksheet number issued each week
1	Term: Week:	
2	Term: Week:	
3	Term: Week:	
4	Term: Week:	
5	Term: Week:	
6	Term: Week:	
7	Term: Week:	
8	Term: Week:	
9	Term: Week:	
10	Term: Week:	
11	Term: Week:	
12	Term: Week:	
13	Term: Week:	
14	Term: Week:	
15	Term: Week:	
16	Term: Week:	
17	Term: Week:	
18	Term: Week:	
19	Term: Week:	
20	Term: Week:	

Number Knowledge Worksheet	Term & Week Enter details below	Curriculum Strand Worksheet Enter the worksheet number issued each week
21	Term: Week:	
22	Term: Week:	
23	Term: Week:	
24	Term: Week:	
25	Term: Week:	
26	Term: Week:	
27	Term: Week:	
28	Term: Week:	
29	Term: Week:	
30	Term: Week:	
31	Term: Week:	
32	Term: Week:	
33	Term: Week:	
34	Term: Week:	
35	Term: Week:	
36	Term: Week:	
37	Term: Week:	
38	Term: Week:	
39	Term: Week:	
40	Term: Week:	

Book 5b (AH5b) - Curriculum Strand Worksheets

(Tick next to worksheet as each ONE worksheet is issued per week)

1	Reading and writing whole numbers	<i>Tick</i>	21	Reading scales / measuring & drawing lines	<i>Tick</i>
2	Place value revision		22	Perimeter	
3	Reading and writing decimal numbers		23	Area	
4	Decimal place value		24	Volume	
5	Addition & subtraction strategies		25	Temperature	
6	More addition & subtraction strategies		26	Time	
7	Ordering decimals		27	2-Dimensional shapes	
8	Rounding numbers and estimating answers		28	3-Dimensional shapes	
9	Multiples of 7's / multiplication facts		29	Maps / Compass directions	
10	Multiples of 8's / multiplication facts		30	Reading map (grid) references	
11	Introducing division by 'grouping' - 7 & 8		31	Rotation & reflection	
12	Multiplication strategies		32	Translation & enlargements	
13	Division strategies		33	Conducting an investigation	
14	Fractions		34	Sorting data using tally charts	
15	More fractions		35	Column graphs, pictograms & dot plots	
16	Solving equations		36	Stem and leaf graphs & time series graphs	
17	Number patterns or sequences		37	Finding the mean (average) and the range	
18	Measuring units - length		38	Finding the median and the mode	
19	Measuring units - weight (mass)		39	Finding outcomes	
20	Measuring units - volume (capacity)		40	Simple probability experiments	

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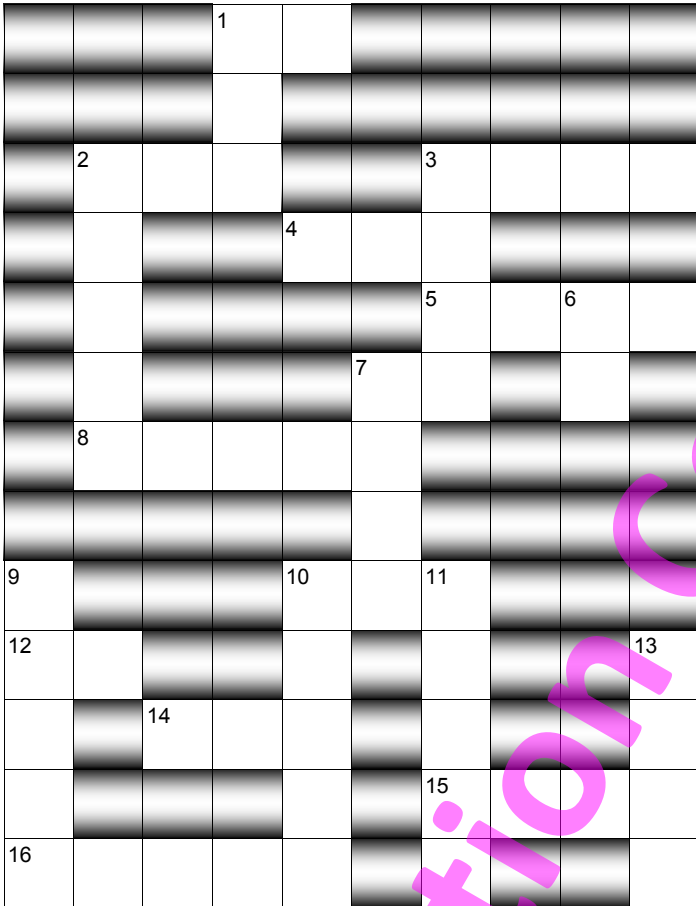
Curriculum Strand Worksheets Section

(Level 3)

Number & Algebra, Measurement & Geometry, and Statistics Worksheets

Select **ONE** Curriculum Strand Worksheet per week from this book (AH5b) to be completed in conjunction with **ONE** Number Knowledge Worksheet, selected from Book 5a (AH5a).

Record your selection in the table at the front of this resource.



Down

- 6 seventy-three
- 7 six thousand and fifty-four
- 9 eighty-nine thousand and sixteen
- 10 thirty-one thousand, nine hundred and fifty-four
- 11 eighty-nine thousand, three hundred and forty
- 13 one thousand, six hundred and thirty-eight

Write these numerals as number words.



- (2) 65 _____
- (3) 83 _____
- (4) 316 _____
- (5) 1097 _____
- (6) 8302 _____
- (7) 15360 _____
- (8) 76002 _____

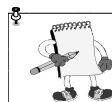
(1) Use the clues **across** and **down** to complete this number cross involving whole numbers.

Across

- 1 twenty-four
- 2 one hundred and forty-seven
- 3 five thousand, six hundred and two
- 4 nine hundred and four
- 5 two thousand, five hundred and seventy
- 7 sixty-one
- 8 seventy-three thousand, five hundred and twenty
- 10 three hundred and forty-eight
- 12 ninety-two
- 14 six hundred and fifty-nine
- 15 four thousand, nine hundred and sixty-three
- 16 sixty-nine thousand, two hundred and fourteen

Down

- 1 two hundred and thirty-seven
- 2 sixteen thousand, nine hundred and eighty-seven
- 3 five thousand, four hundred and twenty-one



The aim of this activity sheet is to read number words for multi-digit numerals and write numerals as number words.

Suggested HOME activity:

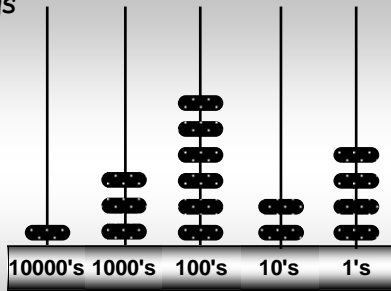
Say aloud or write any multi-digit numeral, as on this worksheet, in number words and ask your child to write it as a numeral. Concentrate on pairs where the digits have been reversed. Example: 423, 324 2147, 7412 ... etc.

Write any multi-digit number as numerals and ask your child to say, then write the numeral as number words.

Sign when completed: _____

Sam placed some rings on an abacus to show the number **13624**.

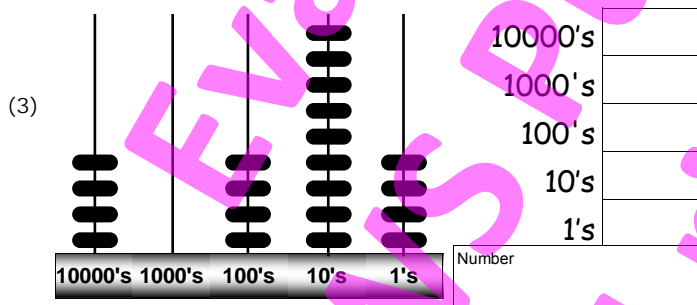
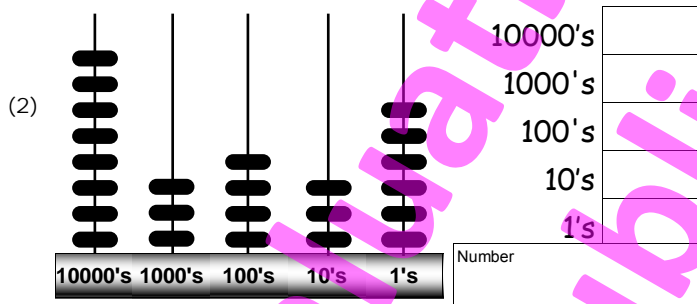
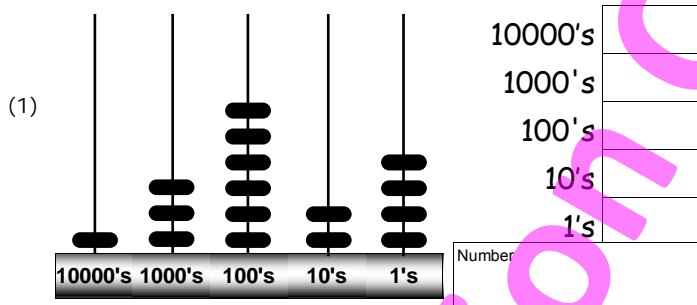
How many rings are on each peg?



Answer:

1 10000's, 3 1000's, 6 100's, 2 10's & 4 1's.

Count the number of rings on each peg. What number is shown on each abacus?



(4) Colour in rings on this abacus to show the number **15043**.



The place a digit has in a number will affect its value.

Example: In 950, the 5 has a place value of 10 and means 50.



What is the **place value** of the **BOLD** digit in each number and what does it **mean**?

	Place value	means
(5) 249 3 4	_____	30
(6) 5 7620	1000's	_____
(7) 2349 3	_____	_____
(8) 89 5 12	_____	_____
(9) 4 1735	_____	_____
(10) 6 2340	_____	_____
(11) 397 8 2	_____	_____
(12) 8 9 137	_____	_____
(13) 34 6 50	_____	_____
(14) 7 8912	_____	_____
(15) 52 3 74	_____	_____

To show you understand place value, circle the following digits ...



- (16) ... circle the 1000's digit in **29504**
- (17) ... circle the 100's digit in **13876**
- (18) ... circle the 10's digit in **300489**
- (19) ... circle the 10000's digit in **19317**
- (20) ... circle the 1000's digit in **98135**



The aim of this activity sheet is to understand place value for 5-digit numbers, i.e. tens of thousands, thousands, hundreds, tens and units.

Suggested HOME activity:

Find five different coloured blocks or objects to represent 10000's, 1000's, 100's, 10's and 1's. Ask your child to model any 5-digit number using the blocks.

Example: For 172 ... 1 100's block, 7 10's blocks and 2 1's blocks.

Ask your child how many of each place value in any 5-digit number.

Sign when completed: _____

1			•					
•								
2		•	3		4			5
			•					
			6			•		
					•			•
7	•							
				8	9	•		
					•			
		10		11	•			12
13								•
•		14	•					
				•				
15			•					

Down

- 9 five point three seven nine
- 11 nine hundred and four point two seven
- 12 two point six three four
- 13 one point three six eight

Write these decimals as number words.



- (2) 6.4 _____
- (3) 5.02 _____
- (4) 89.6 _____
- (5) 43.87 _____
- (6) 350.13 _____
- (7) 18.019 _____
- (8) 58.513 _____

(1) Use the clues across and down to complete this number cross involving decimals.

Across

- 1 three hundred and eighteen point four six
- 2 fifty-nine point two four six
- 6 one hundred and eight point four eight
- 7 six point three two four
- 8 fifteen point six nine
- 10 three hundred and forty-nine point three point seven two
- 14 five four zero nine
- 15 six hundred and seventeen point two zero five

Down

- 1 three point five seven one
- 3 two point one eight three seven
- 4 six hundred and forty-eight point four one
- 5 six hundred and eighteen point seven six



The aim of this activity sheet is to read and write decimals as numerals and number words.

Suggested HOME activity:

Say aloud or write any multi-digit decimal, as on this worksheet, in number words and ask your child to write it as a numeral. Concentrate on pairs where the digits have been reversed. Example: 1.89, 98.1 214.7, 741.2 ... etc.

Write any multi-digit decimal as numerals and ask your child to say, then write the decimal as number words.

Sign when completed: _____

4 Decimal place value

Name: _____



As we have seen, the 'digits' in a whole number all have a place value. Numbers involving decimals also have particular place values.



Example: What is the value of the digit '9' in each of these numbers? 20.95 and 7.196

Answer: The digit '9' in 20.95 stands for 9 tenths (0.9). The digit '9' in 7.196 stands for 9 hundredths (0.09).

Some of the **place values** for numbers involving decimals are shown in this chart below.

100 hundreds	10 tens	1 ones (units)	$\frac{1}{10}$ tenths	$\frac{1}{100}$ hundredths	$\frac{1}{1000}$ thousandths
-----------------	------------	-------------------	--------------------------	-------------------------------	---------------------------------

Count the number of rings on each peg. What decimal number is shown on each abacus?

(1)

10's	1's	$\frac{1}{10}$'s	$\frac{1}{100}$'s	$\frac{1}{1000}$'s
------	-----	-------------------	--------------------	---------------------

Number _____

(2)

10's	1's	$\frac{1}{10}$'s	$\frac{1}{100}$'s	$\frac{1}{1000}$'s
------	-----	-------------------	--------------------	---------------------

Number _____

(3)

10's	1's	$\frac{1}{10}$'s	$\frac{1}{100}$'s	$\frac{1}{1000}$'s
------	-----	-------------------	--------------------	---------------------

Number _____

(4) Colour in rings on this abacus to show the number 15.603



10's	1's	$\frac{1}{10}$'s	$\frac{1}{100}$'s	$\frac{1}{1000}$'s
------	-----	-------------------	--------------------	---------------------

The place a digit has in a number will affect its value.

Example: In 950, the 5 has a place value of 10 and means 50.



What is the **place value** of the **BOLD** digit in each number and what does it **mean**?

	Place value	means
(5)	42. 9 34	0.0 3
(6)	9 7 6.20	10's
(7)	32.49 3	
(8)	98. 5 12	
(9)	5 2 .735	
(10)	4 2.386	
(11)	39.7 8 2	
(12)	0.58 9 1	
(13)	3.4 6 50	
(14)	4. 8 912	
(15)	9.24 3 3	

To show you understand place value, circle the following digits ...



- (16) ... circle the 1's digit in 19.752
- (17) ... circle the $\frac{1}{100}$'s digit in 24.143
- (18) ... circle the $\frac{1}{10}$'s digit in 987.68
- (19) ... circle the $\frac{1}{1000}$'s digit in 0.8261
- (20) ... circle the $\frac{1}{100}$'s digit in 123.856



The aim of this activity sheet is to understand place value for decimals. i.e. tens, units, tenths, hundredths and thousandths.

Suggested HOME activity:

Find five different coloured blocks or objects to represent the various place values. Ask your child to model each decimal using the blocks.

Example: For 1.93 ... 1's 100's block, 9 $\frac{1}{10}$'s blocks and 3 $\frac{1}{100}$'s blocks.

Ask your child how many of each place value is in the decimal.

Sign when completed: _____

There is more than one way to work out an answer. Here are some examples.

Groupings of 10, 100 or 1000

Adding $62 + 9 + 40$ is the same as $100 + 11 = 111$

- (1) $74 + 7 + 30 =$ _____ $+$ _____ $=$ _____
- (2) $80 + 35 + 25 =$ _____ $+$ _____ $=$ _____
- (3) $520 + 29 + 500 =$ _____ $+$ _____ $=$ _____
- (4) $1310 + 1190 + 26 =$ _____ $=$ _____

Using known doubles

Adding $75 + 76$ is the same as $70 + 70 + 11 = 151$
or $80 + 80 - 9 = 151$

- (5) $62 + 63 = 60 + 60 +$ _____ $=$ _____
- (6) $71 + 74 =$ _____ $+ 70 +$ _____ $=$ _____
- (7) $102 + 107 = 100 +$ _____ $+$ _____ $=$ _____
- (8) $224 + 219 =$ _____ $+$ _____ $+$ _____ $=$ _____

Round to make '10' or a 'multiple of 10'

Add $68 + 9$ (add 2 to 68, subtract 2 from 9)
Answer: $68 + 9 = 70 + 7 = 77$

- (9) $77 + 26 = 80 +$ _____ $=$ _____
- (10) $29 + 156 =$ _____ $+$ _____ $=$ _____
- (11) $236 + 37 =$ _____ $+$ _____ $=$ _____
- (12) $48 + 528 =$ _____ $+$ _____ $=$ _____

Adding or subtracting 100's, 10's and 1's

Example: Add $123 + 245$
(100's) $100 + 200$ (10's) $20 + 40$ (1's) $3 + 5$
Answer: $300 + 60 + 8 = 368$

- (13) $362 + 137$ is the same as ...
 $300 +$ _____ $+ 60 +$ _____ $+ 2 +$ _____ $=$ _____
- (14) $145 + 524$ is the same as ...
_____ $=$ _____
- (15) $267 - 124$ is the same as ...
 $200 -$ _____ $+$ _____ $- 20 +$ _____ $- 4 =$ _____
- (16) $539 - 216$ is the same as ...
_____ $=$ _____

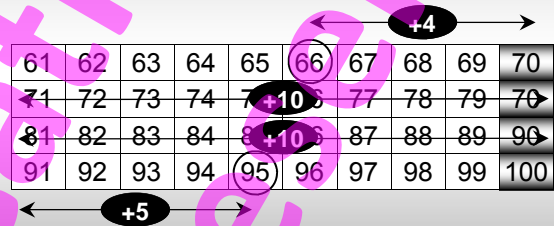
Splitting numbers to make '10'

Work out $123 - 8 = \bullet$ ($123 = 120 + 3$)
 $120 - 8 = 112$, Answer: $112 + 3 = 115$

- (17) $175 - 6$ is the same as ...
 $170 - 6 +$ _____ $=$ _____
- (18) $326 - 9$ is the same as ...
_____ $- 9 +$ _____ $=$ _____
- (19) $432 - 8$ is the same as ...
 $430 -$ _____ $+$ _____ $=$ _____
- (20) $531 - 7$ is the same as ...
_____ $=$ _____

Don't subtract ... add

$95 - 66 = \bullet$ is the same as $66 + \bullet = 95$
Use 'tidy' numbers to work this out.



Answer: $4 + 20 + 5 = 29$ ($66 + 4 + 20 + 5 = 95$)

- (21) $74 - 39 = \bullet$ is the same as $39 + \bullet = 74$
 $\bullet = 1 + 30 +$ _____ $=$ _____
- (22) $95 - 68 = \bullet$ is the same as $68 + \bullet = 95$
 $\bullet = 2 +$ _____ $+$ _____ $=$ _____
- (23) $92 - 47 = \bullet$ is the same as $47 + \bullet = 92$
 $\bullet =$ _____ $+$ _____ $+$ _____ $=$ _____
- (24) $117 - 99 = \bullet$ is the same as $99 + \bullet = 117$
 $\bullet =$ _____ $+$ _____ $+$ _____ $=$ _____
- (25) $138 - 67 = \bullet$ is the same as $67 + \bullet = 138$
 $\bullet =$ _____ $+$ _____ $+$ _____ $=$ _____



The aim of this activity sheet is to look at different strategies that could be used to work out addition or subtraction problems.

Suggested HOME activity:

Make up similar questions that cover the basic numeracy facts at the back of this resource. These are **key number knowledge facts**.

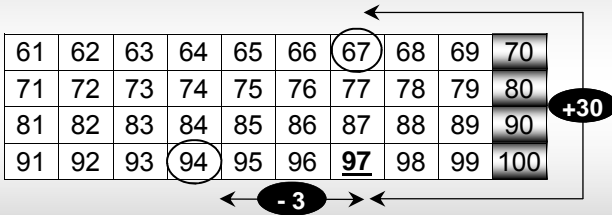
The strategies used on this worksheet are only a suggestion. Your child may not need to use some or all of these strategies and may have strategies of their own. Encourage them to talk about how they work out their answers. Remember that working out the answer with confidence is more important than the strategy used.

Sign when completed: _____

Don't subtract ... add

$94 - \bullet = 67$ is the same as $67 + \bullet = 94$

Use 'tidy' numbers to work this out.



Add a 'large' tidy number, then count back

Answer: $30 - 3 = 27$ ($67 + 30 = 97 - 3 = 94$)

Both sides are equal

Find the missing number ... $45 + 32 = \bullet + 30$

(add 2 to 45 because 30 is 2 less than 32)

Answer: $45 + 32 = 47 + 30$

Find the missing number ... $\bullet - 37 = 78 - 40$

(subtract 3 from 78 because 37 is 3 less than 40)

Answer: $75 - 37 = 78 - 40$

Find the missing numbers.

(15) $19 + \underline{\hspace{2cm}} = 20 + 78$

(16) $89 + 25 = 80 + \underline{\hspace{2cm}}$

(17) $\underline{\hspace{2cm}} - 24 = 67 - 30$

(18) $47 + 86 = \underline{\hspace{2cm}} + 83$

(19) $95 - 28 = 100 - \underline{\hspace{2cm}}$

Work out the problems using any strategy you like.



(20) $89 - 43 = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

(21) $112 + 79 = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

(22) $91 - 76 = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

(23) $134 - 86 = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

(24) $58 + 116 = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

(25) $45 + 64 + 19 = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

(26) $176 - 124 = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

(27) $63 + 149 = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

(28) $27 + 43 + 62 = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

The aim of this activity sheet is to look at different strategies that could be used to work out addition or subtraction problems.

Suggested HOME activity:
Make up similar questions that cover the basic numeracy facts at the back of this resource. These are **key number knowledge facts**.
The strategies used on this worksheet are only a suggestion. Your child may not need to use some or all of these strategies and may have strategies of their own. Encourage them to talk about how they work out their answers. Remember that working out the answer with confidence is more important than the strategy used.

Sign when completed: _____

- (1) $134 - 79 = \bullet$ is the same as $79 + \bullet = 134$
 $\bullet = 60 - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$
- (2) $275 - 86 = \bullet$ is the same as $86 + \bullet = 275$
 $\bullet = \underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$
- (3) $521 - 57 = \bullet$ is the same as $57 + \bullet = 521$
 $\bullet = \underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$
- (4) $347 - 89 = \bullet$ is the same as $89 + \bullet = 347$
 $\bullet = \underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

Reversing order
 $\bullet + 24 = 41$ can be written as $24 + \bullet = 41$, then work out using any strategy

- (5) $\bullet + 26 = 82$ $26 + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$
- (6) $\bullet + 49 = 93$ $\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$
- (7) $\bullet + 58 = 114$ $\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$
- (8) $\bullet + 67 = 245$ $\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$
- (9) $\bullet + 118 = 341$ $\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

Equal additions to make 'tidy' numbers
Subtract $157 - 98$ (add 2 to both numbers)
Answer: $157 - 98 = 159 - 100 = 59$

- (10) $63 - 28 = 65 - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$
- (11) $182 - 65 = \underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$
- (12) $276 - 37 = \underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$
- (13) $354 - 96 = \underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$
- (14) $421 - 89 = \underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$



(1) Write these decimals in order from smallest to largest.

_____, _____,
 _____, _____,
 _____, _____

- 1.56
- 3.45
- 12.6
- 0.95
- 8.04
- 18.3

Mark competed in the javelin throw. His throwing distances are in the table.



Throw	1	2	3	4	5
Distance	23.65m	23.37m	23.48m	23.71m	23.52m

- (2) What was the distance of his longest throw?

- (3) What was the distance of his shortest throw?

- (4) What was the length of the 2nd longest throw?

- (5) Write the throwing distances in order from longest throw to shortest throw.
_____, _____, _____, _____, _____

This table shows the results of a 200m race, run in 8 lanes. The time is in seconds and there were eight runners.



Lane	Time
1	33.4
2	37.7
3	36.3
4	31.9
5	34.4
6	30.1
7	35.8
8	32.9

- (6) In which lane was the fastest runner?

- (7) In which lane was the 7th fastest runner?

- (8) What were the times for 1st, 2nd and 3rd?
_____, _____, _____
- (9) Write the 200m race times in order from fastest time to slowest time.
_____, _____, _____, _____, _____, _____, _____, _____

Honey jars are filled by a machine. Below are the weights of five jars.



Honey jars	A	B	C	D	E
Weight	0.996kg	1.012kg	0.987kg	1.036kg	1.023kg

- (10) What is the weight of the lightest honey jar?

- (11) What is the weight of the heaviest honey jar?

- (12) What is the weight of the 3rd lightest honey jar?

- (13) What weight of honey do you think the machine is trying to pour into the jars?

- (14) Write the weight of these honey jars in order of lightest to heaviest.
_____, _____, _____, _____, _____

Using the five digits in this box and a decimal point, create the largest number closest to 30.

9 4 5 7 2 • Answer: 29.754

- (15) Use these digits ...

9	4	1	5	7	2	•
---	---	---	---	---	---	---

 to make the three closest numbers below and above 15, in order from smallest to largest.
 _____, _____, _____
 _____, _____, _____
 _____, _____, _____



The aim of this activity sheet is to learn to order decimals from smallest to largest or largest to smallest and revise words such as first, last, heaviest and lightest etc.

Suggested HOME activity:

Create up to six decimals and ask your child to order the totals from smallest to largest total.
 Example: weight of a tomato, 3.6g, 4.5g, 6.1g, 5.8g 3.9g, 4.7g etc.
 Make up similar word problems as above that involve different weight, distance or volume values and ask your child to order each group.

Sign when completed: _____

Rounding a money total to the **nearest \$10** can make adding up money less difficult.

Example: \$87 is almost \$90, \$82 is just over \$80

Round **UP** if the end number is 5, 6, 7, 8 or 9.

Round **DOWN** if the number is 0, 1, 2, 3 or 4.

Round each money amount to the nearest \$10.

- | | | | | | |
|-----|-------|-------|------|-------|-------|
| (1) | \$58 | _____ | (6) | \$644 | _____ |
| (2) | \$82 | _____ | (7) | \$786 | _____ |
| (3) | \$97 | _____ | (8) | \$267 | _____ |
| (4) | \$74 | _____ | (9) | \$573 | _____ |
| (5) | \$146 | _____ | (10) | \$916 | _____ |

When **rounding** a number to the **nearest 100**, look at the 10's place value number.

Example: 767 rounds **up** to 800 (5, 6, 7, 8, 9 \uparrow)
but 437 rounds **down** to 400 (0, 1, 2, 3, 4 \downarrow)

Round these numbers to the nearest 100.

- | | | | | | |
|------|-----|-------|------|-----|-------|
| (11) | 340 | _____ | (16) | 729 | _____ |
| (12) | 760 | _____ | (17) | 806 | _____ |
| (13) | 190 | _____ | (18) | 477 | _____ |
| (14) | 372 | _____ | (19) | 303 | _____ |
| (15) | 164 | _____ | (20) | 826 | _____ |

When **rounding** a decimal to **1 decimal place** (1 d.p.), look at the $\frac{1}{100}$'s place value digit.

Example: 4.56 rounds **up** to 4.6 (5, 6, 7, 8, 9 \uparrow)
but 2.43 rounds **down** to 2.4 (1, 2, 3, 4 \downarrow)

Round these decimals to 1 decimal place.

- | | | | | | |
|------|------|-------|------|--------|-------|
| (21) | 3.49 | _____ | (26) | 17.29 | _____ |
| (22) | 7.62 | _____ | (27) | 28.84 | _____ |
| (23) | 1.94 | _____ | (28) | 124.77 | _____ |
| (24) | 3.77 | _____ | (29) | 133.65 | _____ |
| (25) | 1.64 | _____ | (30) | 813.21 | _____ |

Round these money amounts to the nearest \$10, \$100 or 10 cents, then work out an answer.

Add \$29 + \$32 ... Rounded \$30 + \$30 = \$60

Add \$117 + \$769 ... Rounded \$100 + \$800 = \$900

Add \$1.28 + \$4.53 ... Rounded \$1.30 + \$4.50 = \$5.80

The **answer** you get is called an **estimate** because it is not the **exact answer**.



Round each money amount to the nearest \$10, then work out an **estimated answer**.

- (31) \$81 + \$79 = _____ + _____ = _____
- (32) \$157 + \$52 = _____ + _____ = _____
- (33) \$98 - \$59 = _____ - _____ = _____
- (34) \$234 - \$74 = _____ - _____ = _____

Round each money amount to the nearest \$100, then work out an **estimated answer**.

- (35) \$275 + \$739 = _____ + _____ = _____
- (36) \$645 + \$389 = _____ + _____ = _____
- (37) \$1062 - \$529 = _____ - _____ = _____
- (38) \$2431 - \$959 = _____ - _____ = _____

Round each money amount to the nearest 10 cents (1 d.p.), then work out an **estimated answer**.

- (39) \$7.68 + \$8.27 = _____ + _____ = _____
- (40) \$9.54 + \$3.86 = _____ + _____ = _____
- (41) \$16.83 - \$9.49 = _____ - _____ = _____
- (42) \$19.95 - \$8.43 = _____ - _____ = _____



The aim of this activity sheet is to round numbers / decimals to the nearest 10, 100 or 1 d.p. Rounded numbers can be used to work out estimated answers.

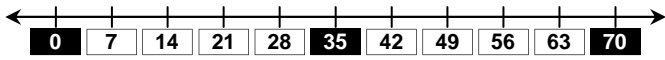
Suggested HOME activity:

Call out money amounts of less than \$100 and ask your child to round them to the nearest \$10.00. Repeat the exercise for money amounts greater than \$100 and ask your child to round to the nearest \$100.00.
Example: Round \$27 to the nearest 10. Round \$286 to the nearest 100.

Ask your child to round 2, 3, 4 or more numbers to the nearest 10, then have them add them up to come up with an estimated answer.

Sign when completed: _____

This number line shows skip counting in 7's.



"What's $7 + 7 + 7 + 7 + 7$ is that the same as 7×5 ?" asked Jack.



Write in the missing numbers for the $7 \times$ multiplication facts.



- | | |
|----------------------------|---------------------------|
| (11) $1 \times 7 =$ _____ | (16) $7 \times 5 =$ _____ |
| (12) $7 \times 4 =$ _____ | (17) $2 \times 7 =$ _____ |
| (13) $6 \times 7 =$ _____ | (18) $7 \times 7 =$ _____ |
| (14) $7 \times 9 =$ _____ | (19) $3 \times 7 =$ _____ |
| (15) $10 \times 7 =$ _____ | (20) $7 \times 8 =$ _____ |

"What number multiplied by 7 gives me an answer of 28?" asked Mark.

Written as $7 \times$ _____ = 28 ... the answer is 4.

Write in the missing numbers for these $7 \times$ multiplication facts.



- | | |
|----------------------------|----------------------------|
| (21) _____ $\times 7 = 14$ | (26) $7 \times$ _____ = 28 |
| (22) $7 \times$ _____ = 56 | (27) _____ $\times 7 = 7$ |
| (23) _____ $\times 7 = 21$ | (28) $7 \times$ _____ = 35 |
| (24) $7 \times$ _____ = 49 | (29) _____ $\times 7 = 70$ |
| (25) _____ $\times 7 = 42$ | (30) $7 \times$ _____ = 63 |

(31) If one book costs \$8.00, how much would 7 books cost?



_____ \times _____ = _____

(32) If one ice-cream costs \$4.00, how much would 7 ice-creams cost?



_____ \times _____ = _____

(33) If you sent \$56.00 buy 7 C.D.'s, how much did each C.D. cost?

_____ \div _____ = _____



The aim of this activity sheet is to use skip counting in 7's to introduce the $7 \times$ multiplication facts. Multiplication is 'short-hand' for repeated addition of the same number.

Suggested HOME activity:

Revise skip counting in 7's until your child can successfully and quickly count in 7's up to at least 70. These are called the multiples of 7. Ask your child each multiplication fact until they know them all.

Example: What is 7 multiplied by 5? 7, 14, 21, 28, 35.

At this stage, your child may still skip count to get the answer.

Sign when completed: _____

(1) Write the missing multiples of 7 as you skip count in 7's up to 70.

7, _____, _____, 28, _____,
 _____, 49, _____, 63, _____

Work out these skip counting questions and write them as multiplication facts.

(2) $7 + 7 + 7 + 7 =$ _____ and is the same as $7 \times$ _____ = _____

(3) $7 + 7 + 7 + 7 + 7 + 7 + 7 =$ _____ and is the same as $7 \times$ _____ = _____

(4) $7 + 7 + 7 + 7 + 7 =$ _____ and is the same as $7 \times$ _____ = _____

(5) $7 + 7 =$ _____ and is the same as $7 \times$ _____ = _____

(6) $7 + 7 + 7 + 7 + 7 + 7 + 7 + 7 =$ _____ and is the same as $7 \times$ _____ = _____

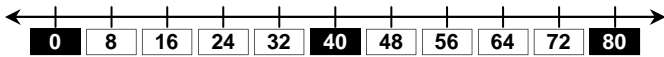
(7) $7 + 7 + 7 =$ _____ and is the same as $7 \times$ _____ = _____

(8) $7 + 7 + 7 + 7 + 7 + 7 + 7 + 7 + 7 =$ _____ and is the same as $7 \times$ _____ = _____

(9) $7 + 7 + 7 + 7 + 7 + 7 =$ _____ and is the same as $7 \times$ _____ = _____

(10) $7 + 7 + 7 + 7 + 7 + 7 + 7 + 7 + 7 + 7 =$ _____ and is the same as $7 \times$ _____ = _____

This number line shows skip counting in 8's.



"What's $8 + 8 + 8 + 8 + 8$ is that the same as 8×5 ?" asked David.



- (1) Write the missing multiples of 8 as you skip count in 8's up to 80.

8, _____, _____, 32, _____,
 _____, 56, _____, 72, _____

Work out these skip counting questions and write them as multiplication facts.

- (2) $8 + 8 + 8 + 8 =$ _____ and is the same as $8 \times$ _____ = _____
- (3) $8 + 8 + 8 + 8 + 8 + 8 + 8 =$ _____ and is the same as $8 \times$ _____ = _____
- (4) $8 + 8 + 8 + 8 + 8 =$ _____ and is the same as $8 \times$ _____ = _____
- (5) $8 + 8 =$ _____ and is the same as $8 \times$ _____ = _____
- (6) $8 + 8 + 8 + 8 + 8 + 8 + 8 + 8 =$ _____ and is the same as $8 \times$ _____ = _____
- (7) $8 + 8 + 8 =$ _____ and is the same as $8 \times$ _____ = _____
- (8) $8 + 8 + 8 + 8 + 8 + 8 + 8 + 8 + 8 =$ _____ and is the same as $8 \times$ _____ = _____
- (9) $8 + 8 + 8 + 8 + 8 + 8 =$ _____ and is the same as $8 \times$ _____ = _____
- (10) $8 + 8 + 8 + 8 + 8 + 8 + 8 + 8 + 8 + 8 =$ _____ and is the same as $8 \times$ _____ = _____

Write in the missing numbers for the $8 \times$ multiplication facts.



- | | |
|----------------------------|---------------------------|
| (11) $1 \times 8 =$ _____ | (16) $8 \times 5 =$ _____ |
| (12) $8 \times 4 =$ _____ | (17) $2 \times 8 =$ _____ |
| (13) $6 \times 8 =$ _____ | (18) $8 \times 7 =$ _____ |
| (14) $8 \times 9 =$ _____ | (19) $3 \times 8 =$ _____ |
| (15) $10 \times 8 =$ _____ | (20) $8 \times 8 =$ _____ |

"What number multiplied by 8 gives me an answer of 40?" asked Rangī.

Written as $8 \times$ _____ = 40 ... the answer is 5.

Write in the missing numbers for these $8 \times$ multiplication facts.



- | | |
|----------------------------|----------------------------|
| (21) _____ $\times 8 = 16$ | (26) $8 \times$ _____ = 32 |
| (22) $8 \times$ _____ = 64 | (27) _____ $\times 8 = 8$ |
| (23) _____ $\times 8 = 24$ | (28) $8 \times$ _____ = 40 |
| (24) $8 \times$ _____ = 56 | (29) _____ $\times 8 = 80$ |
| (25) _____ $\times 8 = 48$ | (30) $8 \times$ _____ = 72 |

- (31) If one book costs \$9.00, how much would 8 books cost?



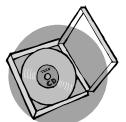
_____ \times _____ = _____

- (32) If one ice-cream costs \$5.00, how much would 8 ice-creams cost?



_____ \times _____ = _____

- (33) If you spent \$64.00 buy 8 C.D.'s, how much did each C.D. cost?



_____ \div _____ = _____



The aim of this activity sheet is to use skip counting in 8's to introduce the $8 \times$ multiplication facts. Multiplication is 'short-hand' for repeated addition of the same number.

Suggested HOME activity:

Revise skip counting in 8's until your child can successfully and quickly count in 8's up to at least 80. These are called the multiples of 8. Ask your child each multiplication fact until they know them all.

Example: What is 8 multiplied by 5? 8, 16, 24, 32, 40.

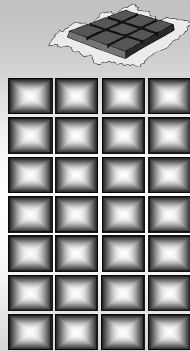
At this stage, your child may still skip count to get the answer.

Sign when completed: _____

This 28 piece chocolate block is to be shared amongst Jane's friends.

"We will all get 7 pieces each," said Jane.

How many friends is Jane sharing her chocolate with?



Answer: 4 friends, written as $28 \div 7 = 4$

Use this 8 x 10 grid to help work out how many groups of 8 there would be in each shape.



1	2	3	4	5	6	7	8	9	10
2									
3									
4									
5									
6									
7									
8									

Write each question as a division fact.

How many groups of 7 can you get from each group of shapes?

Write each question as a division fact.

(1) $28 \div 7 =$
 Total number of shapes: _____ Number of groups of 7: _____

(2) $\div 7 =$

(3) $\div 7 =$

(4) $\div 7 =$

(5) $\div 7 =$

(6) $\div 7 =$

(7) $\div 7 =$

(8) $\div 7 =$

(9) $\div 7 =$

(10) $\div 7 =$

Total number of squares in each shape Number of groups

- (11) 24 squares 24 $\div 8 =$ _____
- (12) 48 squares $\div 8 =$ _____
- (13) 72 squares $\div 8 =$ _____
- (14) 32 squares $\div 8 =$ _____
- (15) 56 squares $\div 8 =$ _____
- (16) 16 squares $\div 8 =$ _____
- (17) 80 squares $\div 8 =$ _____
- (18) 64 squares $\div 8 =$ _____
- (19) 8 squares $\div 8 =$ _____
- (20) 40 squares $\div 8 =$ _____

Word problems.

(21) If 7 books cost \$42.00, how much does 1 book cost?
 _____ \div _____ = _____

(22) If 8 ice-creams cost \$24.00, how much does 1 ice-cream cost?
 _____ \div _____ = _____

(23) If 8 movie tickets cost \$72.00, how much does 1 movie ticket cost?
 _____ \div _____ = _____

The aim of this activity sheet is to introduce division by working out how many known sized 'groups' can go into a given number of objects or squares.

Suggested HOME activity:
 Division and multiplication are opposite operations. If your child knows the multiplication facts, reverse them to learn division facts.
 Example: "If 7 multiplied by 5 is 35, then ... 35 divided by 7 is 5."
 Using objects if required, ask your child to 'group' the objects to model all 7x and 8x division facts, as done on this worksheet.
 Sign when completed: _____

When working with large numbers, there is more than one way to work out an answer. Here are some strategies.

Splitting numbers using place value

Working out 49×7 is the same as ...
 $(40 \times 7) + (9 \times 7) = 280 + 63 = 343$



Doubling and halving factors

Working out 16×5 is the same as ...
 $8 \times 10 = 80$ ($\frac{1}{2} \times 16 = 8$, $2 \times 5 = 10$)



(11) $4 \times 24 = 8 \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

(12) $36 \times 5 = \underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

(13) $5 \times 54 = \underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

(14) $40 \times 7 = \underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

(15) $8 \times 25 = \underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

(1) $75 \times 5 = (70 \times \underline{\hspace{1cm}}) + (5 \times \underline{\hspace{1cm}})$
 $= \underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

(2) $67 \times 6 = (\underline{\hspace{1cm}} \times \underline{\hspace{1cm}}) + (\underline{\hspace{1cm}} \times \underline{\hspace{1cm}})$
 $= \underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

(3) $54 \times 7 = (\underline{\hspace{1cm}} \times \underline{\hspace{1cm}}) + (\underline{\hspace{1cm}} \times \underline{\hspace{1cm}})$
 $= \underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

(4) $98 \times 3 = (100 \times \underline{\hspace{1cm}}) - (2 \times \underline{\hspace{1cm}})$
 $= \underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

(5) $86 \times 4 = (\underline{\hspace{1cm}} \times \underline{\hspace{1cm}}) - (\underline{\hspace{1cm}} \times \underline{\hspace{1cm}})$
 $= \underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

Using written working forms

To work out 97×6 , rewrite as ...



Firstly, $7 \times 6 = 42$

(Note: small 4 represents 40)

then, $90 \times 6 = 540$ plus $40 = 580$

97	
$\times 6$	
\hline	582

(16) $94 \times 3 = \underline{\hspace{2cm}}$

(19) $87 \times 7 = \underline{\hspace{2cm}}$

(17) $86 \times 4 = \underline{\hspace{2cm}}$

(20) $521 \times 8 = \underline{\hspace{2cm}}$

(18) $69 \times 6 = \underline{\hspace{2cm}}$

(21) $374 \times 5 = \underline{\hspace{2cm}}$

Rounding to use 'tidy' numbers

Working out 298×5 is the same as ...
 $(300 \times 5) - (2 \times 5) = 1500 - 10 = 1490$



(6) $397 \times 4 = (400 \times \underline{\hspace{1cm}}) - (3 \times \underline{\hspace{1cm}})$
 $= \underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

(7) $292 \times 6 = (\underline{\hspace{1cm}} \times \underline{\hspace{1cm}}) - (\underline{\hspace{1cm}} \times \underline{\hspace{1cm}})$
 $= \underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

(8) $594 \times 7 = (\underline{\hspace{1cm}} \times \underline{\hspace{1cm}}) - (\underline{\hspace{1cm}} \times \underline{\hspace{1cm}})$
 $= \underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

(9) $309 \times 8 = (300 \times \underline{\hspace{1cm}}) + (9 \times \underline{\hspace{1cm}})$
 $= \underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

(10) $706 \times 6 = (\underline{\hspace{1cm}} \times \underline{\hspace{1cm}}) + (\underline{\hspace{1cm}} \times \underline{\hspace{1cm}})$
 $= \underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

The aim of this activity sheet is to look at different strategies that could be used to work out multiplication problems.

Suggested HOME activity:

Make up similar questions that cover the basic numeracy facts at the back of this resource. These are **key number knowledge facts**.

The strategies used on this worksheet are only a suggestion. Your child may not need to use some or all of these strategies and may have strategies of their own. Encourage them to talk about how they work out their answers. Remember that working out the answer with confidence is more important than the strategy used.

Sign when completed: _____

When working with large numbers, there is more than one way to work out an answer. Here are some strategies.

Using known multiples of 10

Working out $95 \div 5$ is the same as ...
 $(50 \div 5) + (45 \div 5) = 10 + 9 = 19$



(1) $64 \div 4 = (40 \div \underline{\quad}) + (24 \div \underline{\quad})$
 $= \underline{\quad} + \underline{\quad} = \underline{\quad}$

(2) $125 \div 5 = (100 \div \underline{\quad}) + (\underline{\quad} \div \underline{\quad})$
 $= \underline{\quad} + \underline{\quad} = \underline{\quad}$

(3) $102 \div 6 = (\underline{\quad} \div \underline{\quad}) + (\underline{\quad} \div \underline{\quad})$
 $= \underline{\quad} + \underline{\quad} = \underline{\quad}$

(4) $112 \div 7 = (\underline{\quad} \div \underline{\quad}) + (\underline{\quad} \div \underline{\quad})$
 $= \underline{\quad} + \underline{\quad} = \underline{\quad}$

(5) $120 \div 8 = (\underline{\quad} \div \underline{\quad}) + (\underline{\quad} \div \underline{\quad})$
 $= \underline{\quad} + \underline{\quad} = \underline{\quad}$

Rounding up or down to use 'tidy' numbers

Working out $85 \div 5$ is the same as ...
 $(100 \div 5) - (15 \div 5) = 20 - 3 = 17$



(6) $592 \div 2 = (600 \div \underline{\quad}) - (8 \div \underline{\quad})$
 $= \underline{\quad} - \underline{\quad} = \underline{\quad}$

(7) $588 \div 6 = (\underline{\quad} \div \underline{\quad}) - (\underline{\quad} \div \underline{\quad})$
 $= \underline{\quad} - \underline{\quad} = \underline{\quad}$

(8) $1584 \div 8 = (\underline{\quad} \div \underline{\quad}) - (\underline{\quad} \div \underline{\quad})$
 $= \underline{\quad} - \underline{\quad} = \underline{\quad}$

(9) $832 \div 4 = (800 \div \underline{\quad}) + (\underline{\quad} \div \underline{\quad})$
 $= \underline{\quad} + \underline{\quad} = \underline{\quad}$

(10) $1421 \div 7 = (\underline{\quad} \div \underline{\quad}) + (\underline{\quad} \div \underline{\quad})$
 $= \underline{\quad} + \underline{\quad} = \underline{\quad}$

Halving factors

Working out $208 \div 16$ is the same as ...
 $104 \div 8 \dots 52 \div 4 \dots 26 \div 2 = 13$



(11) $144 \div 12 = \underline{\quad} \div 6 = \underline{\quad} \div 3 = \underline{\quad}$

(12) $96 \div 16 = \underline{\quad} \div 8 = \underline{\quad} \div \underline{\quad} = \underline{\quad}$

(13) $840 \div 40 = \underline{\quad} \div \underline{\quad} = \underline{\quad} \div \underline{\quad} = \underline{\quad}$

(14) $456 \div 24 = \underline{\quad}$

(15) $512 \div 32 = \underline{\quad}$

Using written working forms, some with remainders. To work out $97 \div 4$, rewrite as ...

Firstly, $9 \div 4 = 2$ $\begin{array}{r} 2 \\ 4 \overline{) 97} \end{array}$
 with a remainder of 1
 then $17 \div 4 = 4$ $\begin{array}{r} 24 \text{ r} 1 \\ 4 \overline{) 97} \end{array}$
 with a remainder of 1



(16) $\begin{array}{r} 3 \overline{) 84} \end{array}$ (21)

$\begin{array}{r} 3 \overline{) 414} \end{array}$

(17) $\begin{array}{r} 4 \overline{) 96} \end{array}$ (22)

$\begin{array}{r} 4 \overline{) 760} \end{array}$

(18) $\begin{array}{r} 6 \overline{) 90} \end{array}$ (23)

$\begin{array}{r} 6 \overline{) 738} \end{array}$

(19) $\begin{array}{r} 7 \overline{) 95} \end{array}$ (24)

$\begin{array}{r} 7 \overline{) 879} \end{array}$

(20) $\begin{array}{r} 8 \overline{) 99} \end{array}$ (25)

$\begin{array}{r} 8 \overline{) 750} \end{array}$

The aim of this activity sheet is to look at different strategies that could be used to work out division problems.

Suggested HOME activity:

Make up similar questions that cover the basic numeracy facts at the back of this resource. These are **key number knowledge facts**.

The strategies used on this worksheet are only a suggestion. Your child may not need to use some or all of these strategies and may have strategies of their own. Encourage them to talk about how they work out their answers. Remember that working out the answer with confidence is more important than the strategy used.

Sign when completed: _____

An object cut into TWO equal sized pieces is said to be cut in **half**.



One half written as a fraction is $\frac{1}{2}$.

For any fraction, the **bottom number**, tells you how many times the 'whole' object has been cut or divided up.



Example: $\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}, \frac{1}{6}, \frac{1}{10}$ etc.

Write the missing fractions, words and numbers in this table. Choose from this box.

one sixth, one tenth, one half, one quarter $\frac{1}{5}$ $\frac{1}{6}$ $\frac{1}{3}$ $\frac{1}{4}$

Fraction	Written as ...	Means ...
(1)	$\frac{1}{2}$	(2) ___ out of ___
one third	(3)	(4) ___ out of ___
(5)	(6)	1 out of 4
one fifth	(7)	(8) ___ out of ___
(9)	(10)	1 out of 6
(11)	$\frac{1}{10}$	(12) ___ out of ___

(13) Each strip below has been divided up. Beside each strip, write what fraction has been shaded in.



= _____
 = _____
 = _____
 = _____
 = _____
 = _____

(14) Show you understand fractions by shading ...

$\frac{3}{4}$ →
 $\frac{3}{5}$ →
 $\frac{5}{6}$ →
 $\frac{6}{7}$ →
 $\frac{5}{8}$ →
 $\frac{3}{10}$ →

... of each strip.

"What's one fifth of \$45?" asked Andy.
(Written as $\frac{1}{5}$ of 45 or $\frac{1}{5} \times 45$)



"Try what number multiplied by 5 is 45 or dividing 45 by 5," said Tom.

(Written as $5 \times \bullet = 45$ or $45 \div 5 = \bullet$)
Answer: $\frac{1}{5} \times 45 = 9$, as $5 \times 9 = 45$ or $45 \div 5 = 9$

Work out each fraction of these numbers.

- (15) Find $\frac{1}{3}$ of 27 = _____ (as $3 \times \underline{\quad} = 27$)
 (16) Find $\frac{1}{5}$ of 45 = _____ (as $5 \times \underline{\quad} = 45$)
 (17) Find $\frac{1}{7}$ of 56 = _____ (as $7 \times \underline{\quad} = 56$)
 (18) Find $\frac{1}{6}$ of 54 = _____ (as $54 \div 6 = \underline{\quad}$)
 (19) Find $\frac{1}{8}$ of 72 = _____ (as $72 \div 8 = \underline{\quad}$)
 (20) Find $\frac{1}{10}$ of 160 = _____ (as $160 \div 10 = \underline{\quad}$)

Finding a 'whole'.

(21) Ben was given 8 chocolate squares which was $\frac{1}{3}$ of a block of chocolate. How many squares in this block of chocolate?



_____ \times _____ = _____

(22) If Helen spent \$10 which was $\frac{1}{8}$ of her pocket money, how much pocket money did she get?

_____ \times _____ = _____

(23) A café has sold 9 bread rolls which was $\frac{1}{7}$ of the bread rolls available for sale that day. How many bread rolls did the café have for sale?



_____ \times _____ = _____

The aim of this activity sheet is to understand how to work out a fraction of a group of shapes or a number. Working with fractions will either involve dividing or multiplying.

Suggested HOME activity:

Find a collection of objects from around the house or use money totals and ask your child to find a fraction of each group / money total, using the fractions on this worksheet. Extend the exercise to include working out what a total group would be, given a fraction of it.

Example: If $\frac{1}{3}$ of a group is 4, how big is the group. Answer: 12

Sign when completed: _____

For any fraction, the **bottom number**, tells you how many times the 'whole' object has been cut or divided up.

Example: $\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}, \frac{1}{6}, \frac{1}{10}$ etc.



If 1 is the top number, the bigger the number on the bottom, the **smaller** the fraction.

(1) Write the fractions in the box in order from smallest to largest.

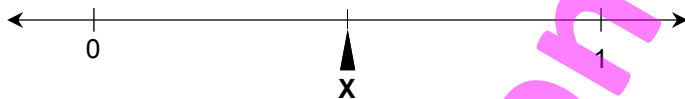
$\frac{1}{9}, \frac{1}{3}$
 $\frac{1}{6}, \frac{1}{8}$
 $\frac{1}{10}, \frac{1}{4}$
 $\frac{1}{7}, \frac{1}{5}$

_____, _____, _____, _____, _____, _____

(2) Mark each fraction (A to E) on this number line, where X = $\frac{1}{2}$.



A = $\frac{1}{5}$, B = $\frac{1}{9}$, C = $\frac{1}{7}$, D = $\frac{1}{6}$, E = $\frac{1}{10}$



Just like whole numbers, a **number sequence** can be created by skip counting in fractions.

Example: $\frac{1}{2}, \frac{2}{2}, \frac{3}{2}, \frac{4}{2}, \frac{5}{2}, \frac{6}{2}$ etc.

This sequence was created by adding $\frac{1}{2}$ to each new fraction.



(3) Write in the missing fractions as you skip count in $\frac{1}{3}$'s to create this fraction sequence.

$\frac{1}{3}, \frac{2}{3}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \frac{5}{3}, \underline{\hspace{1cm}}, \frac{7}{3}, \underline{\hspace{1cm}}$

(4) Write in the missing fractions as you skip count in $\frac{1}{5}$'s to create this fraction sequence.

$\frac{1}{5}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \frac{4}{5}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}$

$\frac{7}{5}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \frac{11}{5}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}$

(5) Write in the missing fractions as you skip count in $\frac{1}{7}$'s to create this fraction sequence.

$\underline{\hspace{1cm}}, \frac{2}{7}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \frac{5}{7}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}$

$\frac{8}{7}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \frac{12}{7}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}$

"What's two thirds of \$24?" asked Andy.

Written as $\frac{2}{3}$ of 24 or $\frac{2}{3} \times 24$



"Firstly, divide 24 by 3 to find $\frac{1}{3}$, then multiply your answer by 2 to find $\frac{2}{3}$," said Tom. Answer: $24 \div 3 = 8$, then $8 \times 2 = 16$

Work out each fraction of these numbers.

(6) Find $\frac{2}{3}$ of 27 = _____ ($27 \div 3 = ? \times 2 = ?$)

(7) Find $\frac{3}{4}$ of 24 = _____ ($24 \div 4 = ? \times 3 = ?$)

(8) Find $\frac{3}{7}$ of 56 = _____ ($56 \div 7 = ? \times 3 = ?$)

(9) Find $\frac{5}{8}$ of 40 = _____ ($40 \div 8 = ? \times 5 = ?$)

(10) Find $\frac{3}{5}$ of 45 = _____

(11) Find $\frac{5}{9}$ of 54 = _____

Word problems.

(12) Andy is $\frac{2}{3}$ the way through a cross-country race. If the race is 3000m long, how far has he run so far?



$3000 \div \underline{\hspace{1cm}} = \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$

(13) Room 9 pupils are $\frac{3}{4}$ the way through a 40 minute game of soccer. How long have they been playing?



$40 \div \underline{\hspace{1cm}} = \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$

(14) A café has sold $\frac{4}{5}$ of the bread rolls available for sale that day. If there are 50 bread rolls available, how many has the café sold so far?



The aim of this activity sheet is to understand how to order fractions, create a sequence and work with fractions when the top number is greater than one.

Suggested HOME activity:

Using money totals, ask your child to find a fraction of each money total, using the fractions on this worksheet where the top number is 1. Extend the exercise to include fractions where the top number is greater than 1 but less than the bottom number.

Example: Find $\frac{1}{2}$ of 24, $\frac{1}{3}$ of 28, $\frac{2}{3}$ of 24, $\frac{3}{4}$ of 24, $\frac{4}{5}$ of 24, etc.

Sign when completed: _____

To solve an equation means to work out the number that would go where the letter is.

Examples:

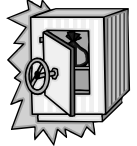
$19 + a = 27$, $b + 8 = 25$,
 $28 - c = 6$, $d - 9 = 12$



Remember that the total on either side of the equals sign, must be the same.

Read each word problem, write an equation, then work out the answer. There may be more than one way to write the equation.

(21) If Jack has \$80.00 and spends \$42.00, how much does he have left?



(22) Emma spends \$15.00 and has \$37.00 left. How much money did Emma start with?



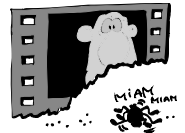
(23) Kate buys 10 books for \$145.00. How much did each book cost?



(24) Sam spends \$72.00 buying 6 C.D.'s. How much did each C.D. cost?



(25) Bill buys 8 movie tickets for \$72.00. How much does each movie ticket cost?



(26) In a new classroom there are only 19 chairs. If a class of 33 pupils are to use this room, how many more chairs will they need?



(27) Mark is reading a book that has 120 pages. If he has 53 pages to go, how many has he read?



Use any strategy you like to solve these equations. Be prepared to talk about what strategy you used.



- (1) $27 + a = 53$ $a =$ _____
- (2) $35 + b = 61$ $b =$ _____
- (3) $52 - c = 39$ $c =$ _____
- (4) $75 - d = 46$ $d =$ _____
- (5) $e + 73 = 98$ $e =$ _____
- (6) $f - 37 = 65$ $f =$ _____
- (7) $g + 19 = 106$ $g =$ _____
- (8) $143 - h = 69$ $h =$ _____
- (9) $i + 83 = 130$ $i =$ _____
- (10) $j - 65 = 37$ $j =$ _____
- (11) $20 \times k = 120$ $k =$ _____
- (12) $m \times 6 = 54$ $m =$ _____
- (13) $240 \div n = 60$ $n =$ _____
- (14) $400 \times p = 1200$ $p =$ _____
- (15) $q \div 10 = 110$ $q =$ _____
- (16) $64 \div r = 8$ $r =$ _____
- (17) $s \times 30 = 150$ $s =$ _____
- (18) $t \div 5 = 95$ $t =$ _____
- (19) $60 \div u = 12$ $u =$ _____
- (20) $v \times 50 = 400$ $v =$ _____

The aim of this activity sheet is to introduce the algebra skill of solving equations using any strategy stages involving + / - and \times / \div numeracy facts.

Suggested HOME activity:

Make up word problems involving everyday events that can be written as equations. Have your child write an equation for each problem.

Example: If I buy 3 C.D.'s for \$36.00, how much does each C.D. cost? If I have \$30.00 and spend \$21.00 on food, how much money do I have left? (Equations would be $3 \times ? = 36$ or $36 \div 3 = ?$ & $30 - ? = 21$ or $21 + ? = 30$)

Sign when completed: _____

Some number patterns or sequences are created by **adding** or **subtracting** a given number.

Example: 3, 8, 13, 18, 23, 28, 33, etc.

How was this number sequence created?

Answer: Starting with 3, add 5 to each new number.



Other number patterns or sequences are created by **multiplying** or **dividing** a given number.

Example: 2, 4, 8, 16, 32, 64, 128, etc.

How was this number sequence created?

Answer: Starting with 2, multiply each new number by 2.



Look at each number sequence to work out how it was created, then **write** the next **three** numbers in each sequence. **Describe** how each number sequence has been created.

(1) 3, 9, 15, 21, _____, _____, _____

(2) 2, 9, 16, 23, _____, _____, _____

(3) 78, 74, 70, 66, _____, _____, _____

(4) 81, 72, 63, 54, _____, _____, _____

As people enter a party, they are given a spot prize ticket numbered from 1 to 50.



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

Ben's lucky number is 5, so the 5th person gets the first spot prize. He then selects every 4th person, who also gets a spot prize.

(5) On the grid above, **circle** all ticket numbers that will receive a prize.

(6) **List** the number sequence you created.

(7) How many spot prizes were won? _____

Look at each number sequence to work out how it was created, then **write** the next **three** numbers in each sequence. **Describe** how each number sequence has been created.

(8) 3, 6, 12, 24, _____, _____, _____

(9) 3, 9, 27, 81, _____, _____, _____

(10) 5, 10, 20, 40, _____, _____, _____

(11) 480, 240, 120, _____, _____, _____

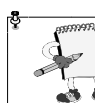
Word problem.

(12) A scoop of chips costs \$1.20.

Work out the number sequence that shows the cost of buying 1, 2, 3, 4 and 5 scoops of chips.



(13) How many scoops of chips can you buy with \$7.20? _____



The aim of this activity sheet is to create number patterns / sequences by adding, subtracting, multiplying or dividing and work out / describe how they were created.

Suggested HOME activity:

Using everyday examples, create your own number patterns by adding or subtracting a constant number from a starting number. Ask your child to work out and describe how the pattern was created.

Example: If a hamburger costs \$3.50, work out the cost of buying 1, 2, 3, 4, 5 up to 10 hamburgers to create a number sequence.

Sign when completed: _____

In New Zealand we use the **metric system**.

In the metric system, the **metre** is the basic unit for **measuring length**.

A metre is about the length of a long stride or about 3 times the length of this page (A4 size).



- (1) Name 5 objects you could measure using the **metre** as the unit of length.

Metric units for measuring length.

kilometre	1000 times longer than a metre
metre	standard unit for length
centimetre	100 times shorter than a metre
millimetre	1000 times shorter than a metre

Name 2 objects or distances you could measure using the following units for length.

- (2) kilometres

- (3) centimetres

- (4) millimetres

Converting between measurement units.

1000 millimetres (mm) = 1 metre (m)
100 centimetres (cm) = 1 metre (m)
10 millimetres (mm) = 1 centimetre (cm)
1000 metres (m) = 1 kilometre (km)



Converting between metres and millimetres.

- (5) 2m = _____ mm (7) _____ m = 6000mm
 (6) 7.5m = _____ mm (8) _____ m = 4200mm

Converting between metres and centimetres.

- (9) 6m = _____ cm (11) _____ m = 900cm
 (10) 5.7m = _____ cm (12) _____ m = 840cm

Converting between millimetres & centimetres.

- (13) 10mm = _____ cm (15) _____ mm = 5cm
 (14) 45mm = _____ cm (16) _____ mm = 6.9cm

Converting between metres and kilometres.

- (17) 3000m = _____ km (19) _____ m = 6km
 (18) 9100m = _____ km (20) _____ m = 2.7km

When adding and subtracting length measurements, the 'units' must be the same.

Sam has two pieces of wood, one is 70cm long and the other is 1.4m long.

What is the total length of wood in metres? Answer: 0.7m + 1.4m = 2.1m



Add or subtract these length units.

- (21) 4000m + 3.5km = ? (answer in metres)

 (22) 2.3m + 2500mm = ? (answer in metres)

 (23) 680mm - 47cm = ? (answer in millimetres)

 (24) 730cm - 6.2m = ? (answer in centimetres)

 (25) 5.4km + 8200m = ? (answer in kilometres)

 (26) 96cm - 745mm = ? (answer in millimetres)

 (27) 1.3m + 54cm + 250mm = ? (answer in cm)

The aim of this activity sheet is to introduce the 'metre', the standard unit for measuring length. Units for measuring smaller or longer distances are also introduced.

Suggested HOME activity:

Demonstrate how long a metre is and ask your child to name at least 5 objects or distances that can be measured using each length unit (mm, cm, m & km).

Ask your child to convert between units as above in Q5 to Q20 and add or subtract lengths presented in different units, such as in Q21 to Q27.

Sign when completed: _____

In New Zealand we use the **metric system**.

In the metric system, the **gram** is the basic unit for **measuring weight**.

A gram is a small weight. A packet of rice crackers weighs about 100 grams.



(1) Name 5 objects you could measure using the gram as the unit of weight.

Metric units for measuring weight.

tonne	1000 times heavier than a kilogram
kilogram	1000 times heavier than a gram
gram	standard unit for weight
milligram	1000 times lighter than a gram

Name 2 objects you could measure using the following units for weight.

(2) **tonne**

(3) **kilogram**

(4) **milligram**

Converting between measurement units.

1000 milligrams (mg) = 1 gram (g)

1000 grams (g) = 1 kilogram (kg)

1000 kilograms (kg) = 1 tonne (t)



Converting between grams and milligrams.

(5) 7g = _____ mg (7) _____ g = 9000mg

(6) 5.4g = _____ mg (8) _____ g = 4700mg

Converting between grams and kilograms.

(9) 8000g = _____ kg (11) _____ g = 3kg

(10) 7200g = _____ kg (12) _____ g = 6.1kg

Converting between kilograms and tonnes.

(13) 4000kg = _____ t (15) _____ kg = 6t

(14) 7600kg = _____ t (16) _____ kg = 2.1t

When adding and subtracting weight measurements, the 'units' must be the same.

Joe has two piles of books, one weighs 8500g and the other weighs 12.4kg.

What is the total weight of books in kilograms? Answer: 8.5kg + 12.4kg = 20.9kg



Add or subtract these weight units.

(17) 4000mg + 4.5g = ? (answer in grams)

(18) 2.3g + 3100mg = ? (answer in milligrams)

(19) 6.8kg - 2400g = ? (answer in kilograms)

(20) 9.2t - 7800kg = ? (answer in tonnes)

(21) 7300g - 4.7kg = ? (answer in kilograms)

(22) 9.6g - 7400mg = ? (answer in milligrams)

(23) 0.8kg + 68g + 2500mg = ? (answer in grams)

(24) 830g x 6 = ? (answer in kilograms)

(25) 3.2kg ÷ 8 = ? (answer in grams)



The aim of this activity sheet is to introduce the 'gram', the standard unit for measuring weight. Units for measuring lighter or heavier weights are also introduced.

Suggested HOME activity:

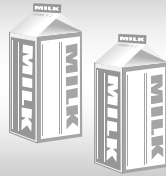
Use some kitchen scales, or some other object of known weight, to demonstrate how light a gram is. Using different sized objects, ask your child which unit for weight would be the best unit to use.

Ask your child to convert between units as above in Q5 to Q16 and add or subtract weights presented in different units, such as in Q17 to Q25.

Sign when completed: _____

In New Zealand we use the **metric system**.

In the metric system, the **litre** is the basic unit for **measuring volume**.



A litre is about 4 cups of water or the size of some milk or juice cartons.

- (1) Name 5 objects you could measure using the litre as the unit of volume.

Metric units for measuring volume.

kilolitre	1000 times more volume than a litre
litre	standard unit for volume
millilitre	1000 times less volume than a litre

Name 2 objects you could measure using the following units for **volume**.

- (2) **kilolitre**

- (3) **millilitre**

Converting between measurement units.

1000 millilitres (mL) = 1 litre (L)

1000 litres (L) = 1 kilolitre (kL)



Converting between litres and millilitre.

(4) 7L = _____ mL (6) _____ L = 9000mL

(5) 9.4L = _____ mL (7) _____ L = 7300mL

Converting between litres and kilolitres.

(8) 6000L = _____ kL (10) _____ L = 9kL

(9) 5400L = _____ kL (11) _____ L = 7.6kL

- (12) How many litres of juice is 2500mL?



- (13) How many millilitres of medicine in a 1.2L bottle?

When adding and subtracting volume measurement, the 'units' must be the same.

Sam has two tins of paint, one holds 750mL and the other holds 8L.

What is the total volume of paint in litres? Answer: 0.75L + 8L = 8.75L



Add or subtract these volume units.

(14) 7000mL + 2.5L = ? (answer in litres)

(15) 4.3L + 2100mL = ? (answer in millilitres)

(16) 9.5kL - 3700L = ? (answer in kilolitres)

(17) 9.2L - 7800mL = ? (answer in millilitres)

(18) 8600mL - 5.2L = ? (answer in litres)

(19) 7.6L - 5200mL = ? (answer in millilitres)

(20) 1.2kL + 400L + 1500mL = ? (answer in litres)

(21) 820L x 6 = ? (answer in kilolitres)

(22) 4900mL ÷ 7 = ? (answer in litres)



The aim of this activity sheet is to introduce the 'litre', the standard unit for measuring volume. Units for measuring more or less volume are also introduced.

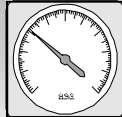
Suggested HOME activity:

Using some containers or measuring jugs, demonstrate how much liquid is needed to fill a 1 litre container. Using different sized containers, ask your child which unit for volume would be the best unit to use.

Ask your child to convert between units as above in Q4 to Q13 and add or subtract volumes presented in different units, such as in Q14 to Q22.

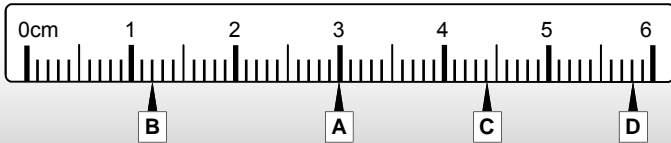
Sign when completed: _____

All measurement instruments have a **scale**. Being able to read the scale correctly is an important skill.



What measurement unit is on this ruler?

What measurements are given by the pointers A to D?

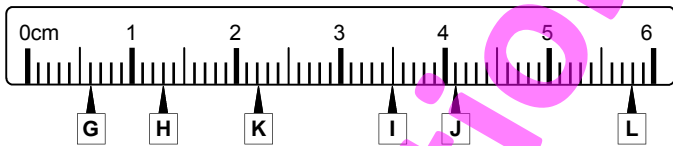


The measuring unit is centimetres (cm).

Answers: A = 3.0cm, B = 1.2cm, C = 4.4cm, D = 5.8cm

Look at this ruler below.

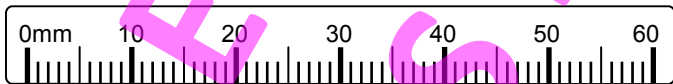
- (1) Name the units on the ruler below ...
millimetres or centimetres (circle one)



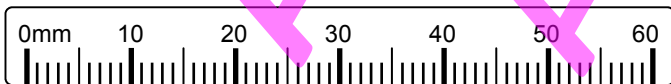
- (2) What are the measurements given by the pointers G to L?
Example: 2.4cm, 3.9cm etc.

G = _____ J = _____
H = _____ K = _____
I = _____ L = _____

- (3) Mark and label the points of A to F on this ruler.

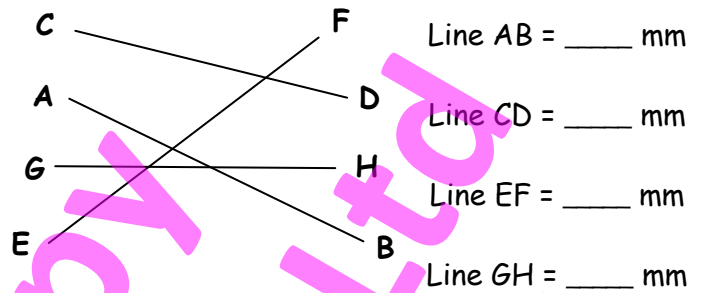


A = 35mm, B = 13mm, C = 48mm
D = 0.7cm, E = 2.4cm, F = 5.9cm



- (4) How long is this pencil? Answer in mm & cm.
_____ mm is the same as _____ cm

- (5) Measure these lines to the nearest millimetre.

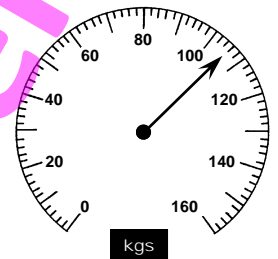


- (6) Draw a 67mm line in the space below starting at point A.



This diagram of a weighing machine's scale shows the weight of a heavy object.

- (7) What are the units on this scale?



- (8) How heavy is the object?

- (9) Draw an arrow on this scale to show 48kg.

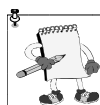
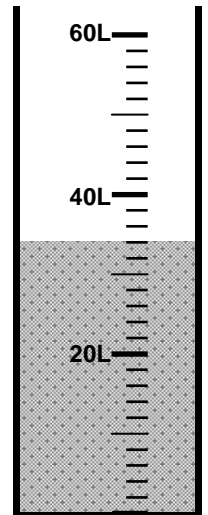
This diagram of a water storage container has some water in it.

- (10) What are the units on the scale on this container?

- (11) What is the volume of water in the container?

- (12) Another 16L of water is added to the container.

Draw the new water level.



The aim of this activity sheet is learn to read scales and measure the length of small objects. Remember to measure from zero on the ruler, not the end.

Suggested HOME activity:

Find a collection of objects from around the house that can be measured using a ruler or tape measure, kitchen or bathroom scales, or measuring jugs. Ask your child to measure various objects using the appropriate instruments.

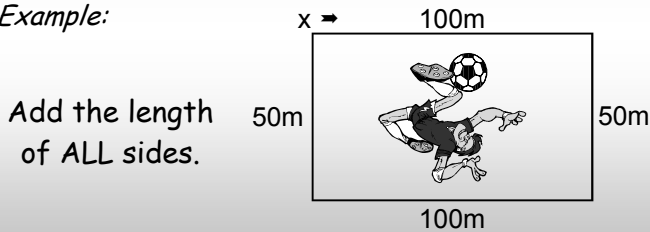
Example: The width of a door is about 800mm, a cup holds 250mL ...

Sign when completed: _____

Distance around the outside.

Imagine you are at the corner of a soccer field. If you walk along each side and back to your starting point, the distance you have walked is called the **perimeter** of the field.

Example:



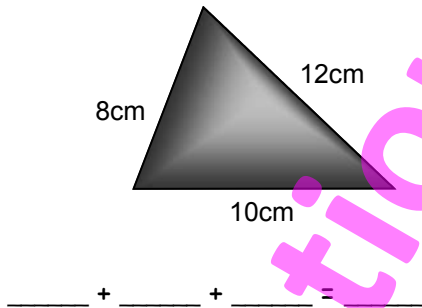
Add the length of ALL sides.

Answer: $100\text{m} + 50\text{m} + 100\text{m} + 50\text{m} = 300\text{m}$

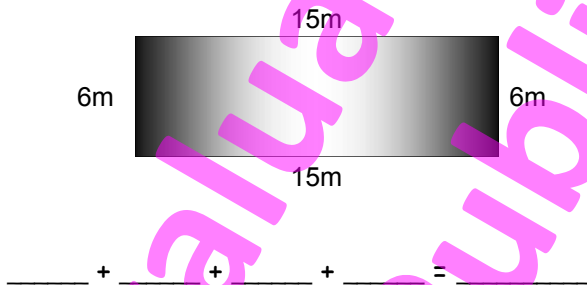
Look at each shape below and **work out** the **perimeter**. Remember to include all sides.



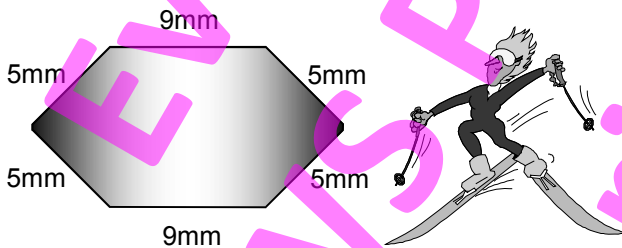
(1)



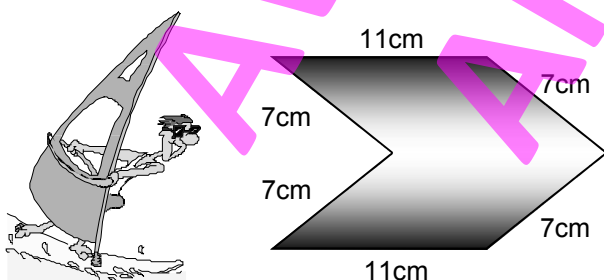
(2)



(3)

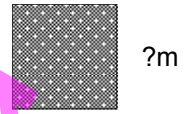


(4)



(5)

All sides of a square are the same length. If the perimeter of a square is 36 metres, how long is each side?



Words problems

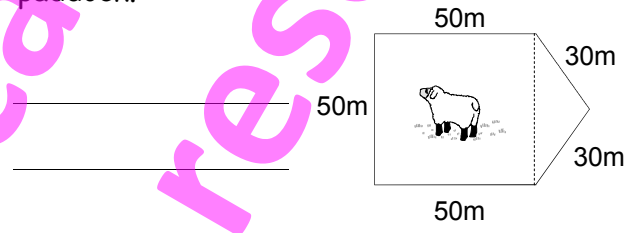
(6)

A new fence, the shape of a rectangle, is to be built around a swimming pool. If the sides are 4 and 10 metres long, what is the perimeter of the fence?



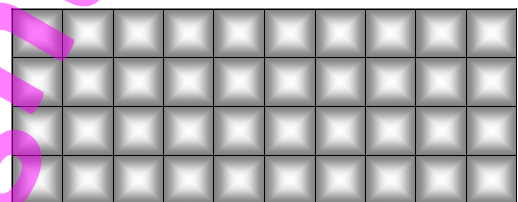
(7)

This diagram shows the fences around a paddock. Work out the perimeter of this paddock.



(8)

A courtyard has been built using 1 metre concrete squares, as shown in this diagram. Work out the perimeter of the courtyard.



The aim of this activity sheet is to introduce perimeter, 'the distance around the outside'. All closed 2D shapes, with the starting and finishing point the same, have a perimeter.

Suggested HOME activity:

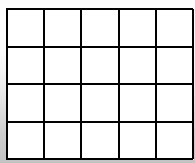
Find some shapes around your house, for which you can work out the perimeter.

Example: The edge of a table, the boundaries of your properties, etc. where the starting and finishing points are in the same place.

Ask your child to measure ALL sides of the shape using a tape measure, ruler or their own feet. By adding up all measurements, you are working out the perimeter of each shape.

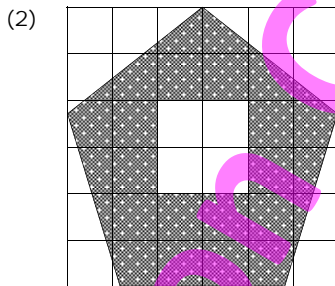
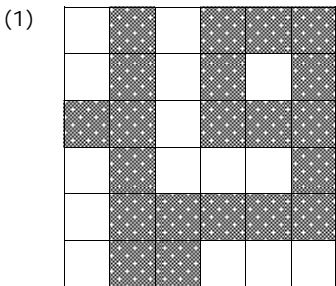
Sign when completed: _____

"If you can paint it, it has AREA," said Robert.
This shape has been divided up into squares.



Count the number of squares to work out the area of this shape.
Answer: 20 squares

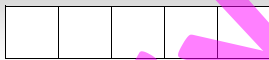
Work out the area of these shaded shapes by counting the 'whole' squares and estimating the area of the 'partly' shaded squares.



(3) Draw two different shapes in the grid below that both have an area of 12 squares.



This shape is made up of 1 row of 5 squares.



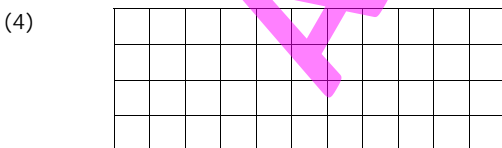
What is the area?

If the shape was made up of 4 rows of 5 squares, what would the area be?



Answers: 5 square units, $4 \times 5 = 20$ square units

Work out the area of this rectangles by first counting the number of squares in ONE row.



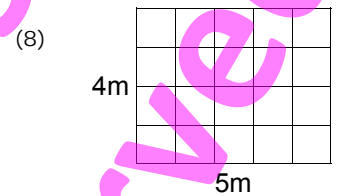
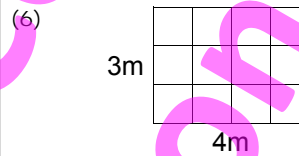
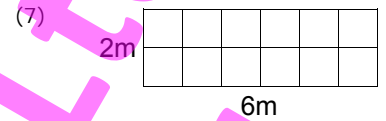
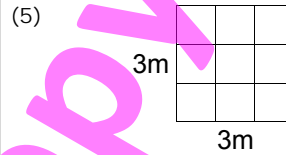
1 row = _____ squares

Area = _____ rows of _____ = _____ sq units

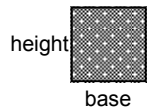
The diagrams below are not drawn to scale, but imagine that each square is 1 square metre.

The units for your answers will be 'square m'.
(Could be written as 'sq m' or m^2)

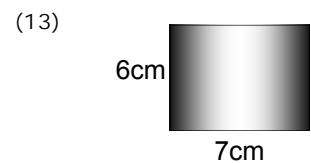
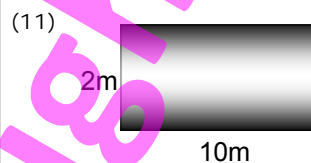
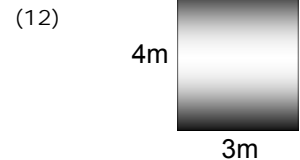
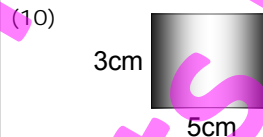
Work out the area of each rectangle or square.



(9) How can you work out the area of these shapes without having to count all squares?



Work out the area of each rectangle ($A = bh$).



The aim of this activity sheet is to revise the concept of area. For squares or rectangles, area is the length of the base multiplied by the length of the height.

Suggested HOME activity:

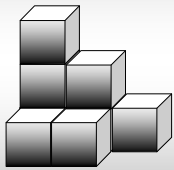
Draw shapes on maths paper and ask your child to work out each area by counting or estimating the number of squares.

Ask your child to work out the area of a shape given how many squares in ONE row and how many rows. Such a shape is called a rectangle or square.

Example: If 1 row is 5 squares long, what is the area of a rectangle made up of 3 rows. $5 + 5 + 5 = 15$ square units.

Sign when completed: _____

"If you can fill it, it has VOLUME," said Steve.
 "How many cubes in this pile?" asked Steve.



Remember to count the ones you cannot see.
 Answer: 8 cubes (2 you cannot see)



This shape is said to have a volume of 8 cubes.

Work out the **volume** of each pile of cubes.
 Remember to include cubes you cannot see.

(1) _____ cubes

(2) _____ cubes

This big box is to be filled with smaller boxes (cubes).
 The bottom layer has already been filled.

- (3) How many small cubes are in the bottom layer? _____ cubes
- (4) How many layers of cubes will this box hold? _____ layers
- (5) Work out how many small cubes this big box will hold.
 _____ cubes
- (6) In a second box, the bottom layer can hold 20 cubes.
 If there are 5 layers, how many cubes can this box hold?
 _____ cubes



Using 'lego', or similar blocks, build some shapes with the following volumes:

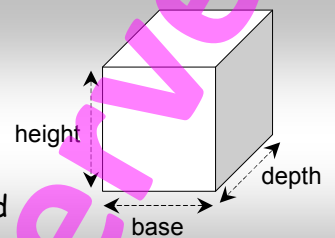
- (7) 8 cubes
- (8) 18 cubes
- (9) 25 cubes
- (10) 34 cubes
- (11) 40 cubes

small blocks have a volume of 1 cube.

large blocks have a volume of 2 cubes.



For this 3D shape, the volume can be worked out if we know three measurements ...
 the **base**, the **height** and the **depth** ($V = bhd$).



For the next two questions, have a supply of small lego blocks to model each question, if required.

- (12) Work out the number of blocks needed to make a shape that has ...
 a base of 3 blocks,
 a height of 5 blocks,
 a depth of 4 blocks.
-
- _____
- (13) Work out the number of blocks needed to make a shape that has ...
 a base of 6 blocks,
 a height of 4 blocks,
 a depth of 3 blocks.
-
- _____

The aim of this activity sheet is to revise the concept of volume. The volume of simple 3D shapes can be worked out if you know the base, height and depth.

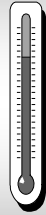
Suggested HOME activity:
 Have a selection of blocks and ask your child to build something with a known volume, as above. Note that different structures can have the same volume if they contain the same number of blocks.

Sign when completed: _____

"Yesterday was the hottest day this year," said Joe. "The temperature was 41°C."

The special unit for measuring temperature is called **degrees**.

Degrees centigrade or **degrees celsius**. Example: 10°C, -3°C

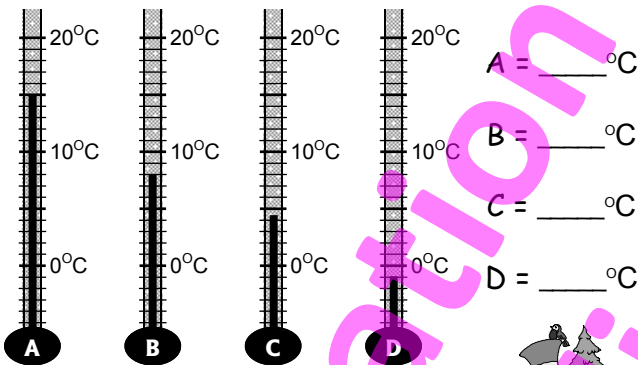


Water freezes at 0°C and boils at 100°C.

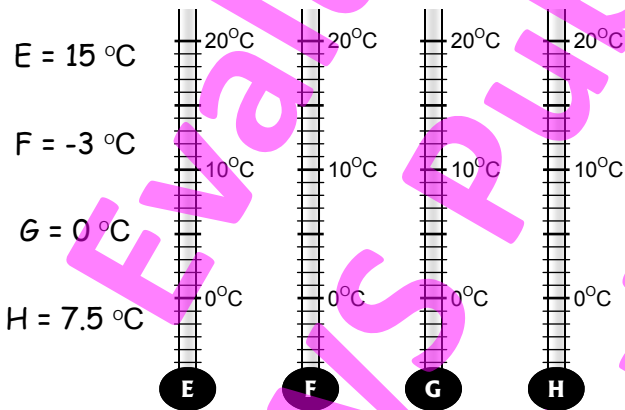
- (1) What is the name of the instrument used to measure temperature?



- (2) What is the **temperature** shown on each thermometer diagram A to D below?



- (3) Draw each temperature on the thermometers E to H below.



- (6) In Toby's living room the temperature is 17°C. When he turns on the heat pump, the temperature raises by 6°C.

What is the temperature in Toby's living room now?



- (7) The temperature of David's milo drink is 91°C. When the temperature dropped by 45°C it was cool enough to drink.

What is the temperature of David's milo drink now?



In the table below are winter temperatures recorded at 7:00 a.m. for one week.



- (8) What was the recorded temperature on Friday?

- (9) What was the coldest recorded temperature?

- (10) What was the warmest recorded temperature?

- (11) On Thursday by 10:00 a.m. the temperature had gone up by 7°C. What is the new temperature?

- (12) At 2:00 p.m. on Saturday, the temperature was still only 4°C. Since 7:00 a.m., by how many degrees had the temperature gone up?

Day	°C
Sunday	3°C
Monday	-2°C
Tuesday	1°C
Wednesday	7°C
Thursday	-1°C
Friday	0°C
Saturday	-5°C

Use one of the temperature scales above to help you answer the questions below.

- (4) If the temperature was 15°C then rises 6°C, what is the new temperature?

- (5) If the temperature was 13°C then falls 8°C, what is the new temperature?



The aim of this activity sheet is to revise the units for measuring temperature and how to read a thermometer and work out temperature changes.

Suggested HOME activity:

If you have a weather thermometer at home place it in different situations and record the change in temperature over time. Watch the weather report on TV and record the temperatures of the cities throughout NZ over a 3 to 5 day period. Work out the change in temperature between days for each city.

Example: Nelson: Monday 24°C, Tuesday 28°C rise of 4°C

Sign when completed: _____

The time on this analogue clock is 10 past 8.

Not all clocks have hands.

Some clocks use only numbers and are called digital clocks.

This is 10 past 8 on a digital clock ...



08:10

When writing 24hr digital time, 12 is added to all times in the afternoon.

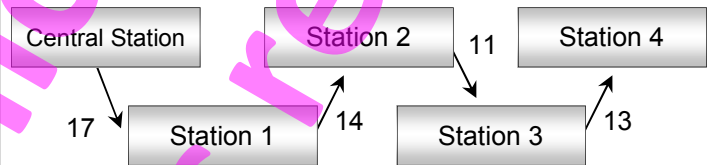
Example: 2:45 a.m. would be written as 0245, whereas 2:45 p.m. is written as 1445.

Write in the missing times, a.m., p.m. or 24hr.

a.m or p.m. time		24hr time
5:12 a.m.	→	(7)
(8)	←	0950
7:46 p.m.	→	(9)
(10)	←	1527
11:55 p.m.	→	(11)
(12)	←	1906
12:25 p.m.	→	(13)



The numbers of this diagram show the time (minutes) it takes for a train to travel between stations.

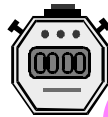


(14) If the train leaves at 8:45 a.m, use this table to work out the time the train arrives at each station.

Station	Time
Central Station	8:45 a.m.
Station 1	
Station 2	
Station 3	
Station 4	

(15) How long is the trip from Station 1 to Station 4? _____

Draw the hands on the analogue clock or show the time on a digital clock or write the time in words.



(1) Time : *twenty past seven*

(2) Time :

(3) Time : *10:20*

What is the new time?



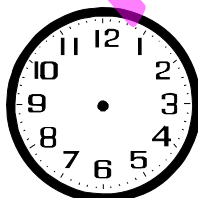
(4) A roast chicken takes $3\frac{1}{2}$ hours to cook. If it went into the oven at 3:50, when will it be ready? (answer in words)



(5) If a 50 minute TV programme finished at 20 past 7, at what time did it start. (answer as digital time)



(6) The school play lasted for $1\frac{3}{4}$ hours and finished at five past eight. At what time did it start? (answer on this clock face)



The aim of this activity sheet is to work with time, convert between analogue and digital time, describe time as a.m. or p.m., 24hr time and prepare a timetable of events.

Suggested HOME activity:

Use both analogue time and digital time, ask your child to convert between a.m. / p.m. time and 24hr time.

Example: 10 past 5 in the morning is the same as 5:10 a.m. or 05:10
Make up a timetable for a bus or train route. Ask your child to work out how long it takes to get between stops.

Example: How long is the travel time if I get on the bus at 7:56 a.m. and get off at 9:07 a.m.?

Sign when completed: _____

(1) Name these 2D shapes using the words on the box below.

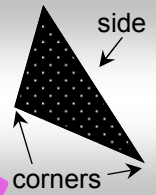


Shape	Name of shape

circle, oval, triangle, square, rectangle, diamond or rhombus, pentagon, hexagon, octagon

"What shape has three corners and three straight sides?" asked Jasmine.

Answer: a triangle



Imagine you are talking to someone on the telephone.



Write down what you would say, as you describe each of these shapes. Use words such as side, corner, straight and curved.

(4)



(5)



(6)



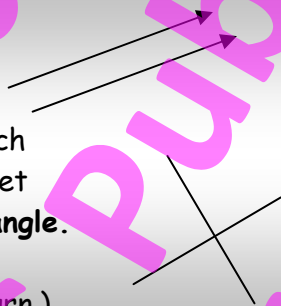
Parallel lines are the same distance apart.

Example:

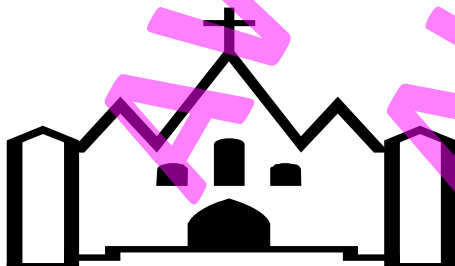
Perpendicular lines cross each other at right angles, or meet each other forming a right angle.

Example:

(A right angle is a quarter turn.)



(2) On this diagram below, draw a circle around a pair of parallel lines and label them with an A.



(3) On the same diagram above, draw a circle around a pair of perpendicular lines and label them with a B.

What are some of the differences between shapes A & B and what do they have in common?



(7)



The aim of this activity sheet is to be able to recognise, name, draw and describe various 2D shapes.

Suggested HOME activity:

Select one of the 2D shapes on this activity sheet. Describe the shape by its features and ask your child to draw and name the shape.

Example: I have four corners, all my four sides are the same length. (Answer: It could be a square or a rhombus)

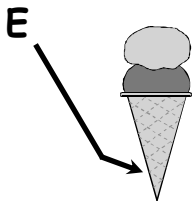
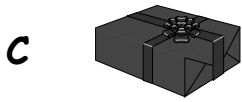
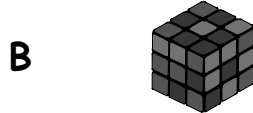
Sign when completed: _____

The many 3D objects are based on a simple 2D shape.

Example: A cylinder is based on a circle. If you stacked some 50c coins on top of each other, it would look like a cylinder.



(1) Name these 3D objects (A to E) using the words in the box below.

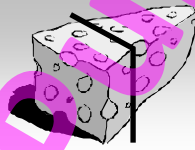


3D object names:
cylinder,
cone,
cube,
rectangular box,
sphere (ball)

This block of cheese has been sliced as shown.

What shape would the sliced end look like?

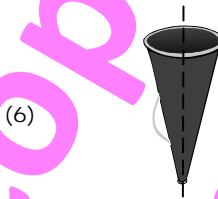
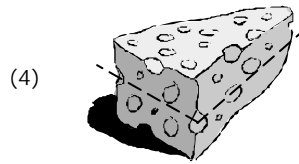
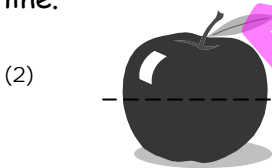
Answer: a rectangle



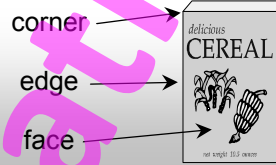
sliced here

If you cut through an object, you see a **cross-section** of the object.

Look at these objects and describe what 2D shape you would see if they were sliced along the dotted line.



"This object has 8 corners, 12 edges and 6 faces. Opposite faces are shaped like rectangles and the same size.



What shape am I?" asked Alister.

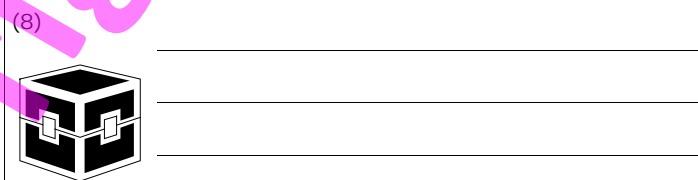
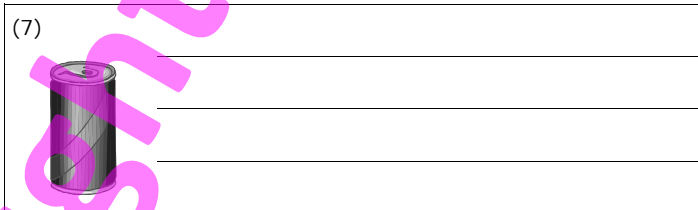
Answer: a rectangular prism

Imagine you are talking to someone on the telephone.

Write down what you would say as you describe each of these objects.



Use words such as top, bottom, end, side, opposite, corner, edge, face, straight, curved and 2D shape names.



The aim of this activity sheet is to describe various 3D objects by their features and then determine what 2D shape the 3D object was derived from.

Suggested HOME activity:

Play a game of 'I spy' by describing a 3D object using the words on this worksheet and ask your child to name the object.

Example: "I have a top, a bottom and 4 sides, all of which are the same size. What 3D object am I?"

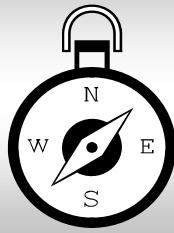
Sign when completed: _____

If you are map reading, knowing the compass directions will be helpful.

What compass point is opposite west?

What compass point is opposite south?

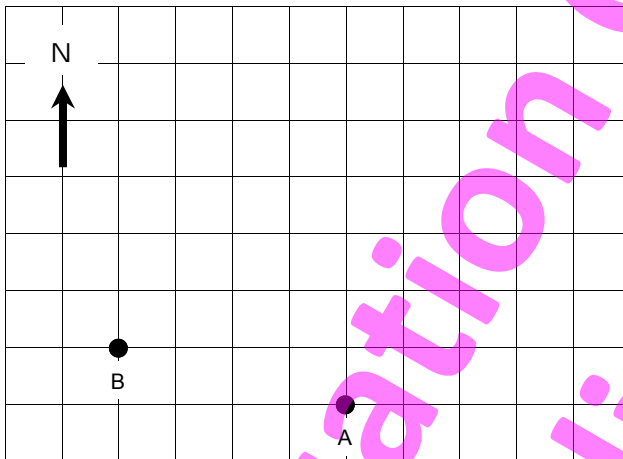
Answers: east and north.



(1) What do the letters on the compass stand for?

N = _____, S = _____

E = _____, W = _____



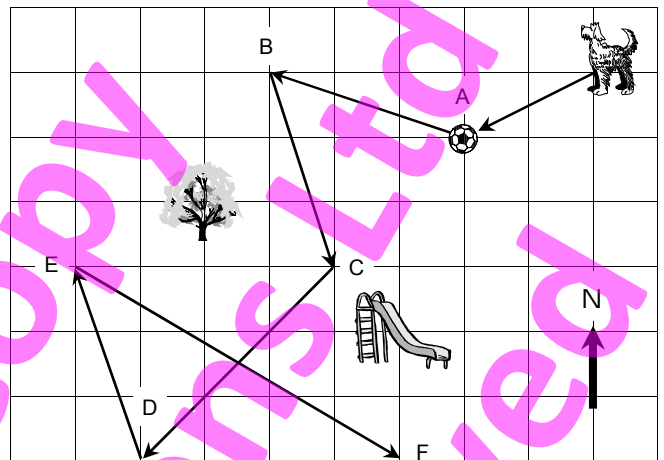
(2) Starting at point A, describe how to get to point B and draw a line from A to B.

On the grid above, follow each instruction below and draw the position of each dot, B to F and a line to join each pair of dots as you go.

- (3) Starting at point B, go 3 squares north. Draw a dot and mark with a letter C.
- (4) Starting at point C, go 2 squares north, then 4 squares east. Draw in dot D.
- (5) Starting at point D, go 2 squares south, then 4 squares east. Draw in dot E.
- (6) Starting at point E, go 3 squares south and draw in dot F.
- (7) Join dot F to dot A and describe how you get from dot F to dot A.

(8) Name the shape you have drawn.

Below is a map of a playground. The path drawn on the map is that of Tom's dog Bella chasing a ball. Each square is 1 metre across.



Bella ran to the ball. To do this, she ran 2 metres west / 1 metre south.

(9) Describe the distance in metres and the direction using the words north, east, south and west to describe how Bella chased the ball around the playground ... A to B

... B to C ...

... C to D ...

... D to E ...

... E to F ...

(10) If Bella finally chased the ball 4 metres north / 3 metres east, draw the final resting place of the ball and mark it with the letter G. Join point F and G with a line.



The aim of this activity sheet is to follow directional instructions to find or create pathways and understand the four points of the compass.

Suggested HOME activity:

Draw a maze or a map of your home, inside or outside. Create a series of instructions that create pathways that can be drawn on your maze or map or create instructions that your child can physically follow as they walk around your home. Use compass directions as well.

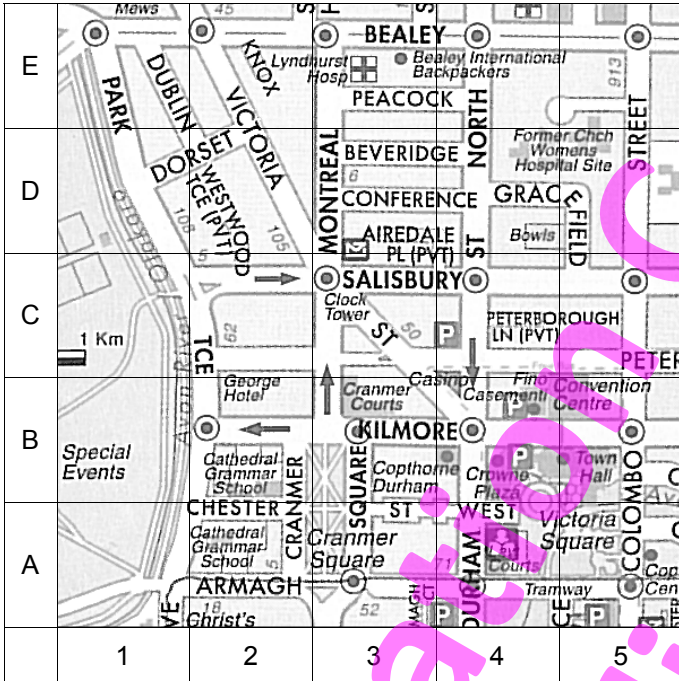
Example: Starting at this tree facing north, take 4 steps towards the shed, turn anti-clockwise west, then take 6 more steps ... etc.

Sign when completed: _____

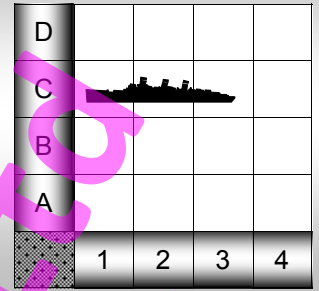
"Where is Cranmer Square?" asked Joe. The map below is divided up into squares. Along the sides of the map are numbers and letters. By using these numbers and letters, you can find a place on the map.



Answer: Cranmer Square is in the square 3A. 3A is called a grid reference.



Battleships is a game played on a grid, using grid references to find where ships have been placed on the grid.

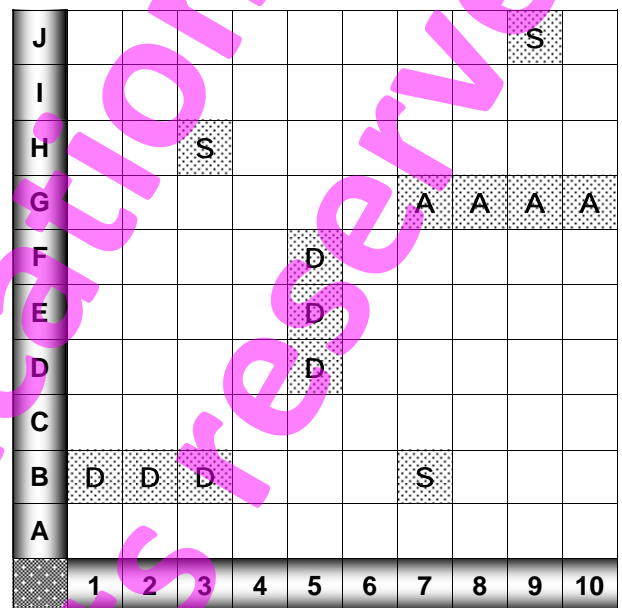


On what squares is this battleship placed?

Answer: 1C, 2C and 3C

Below is a battleship grid where ...

- S = submarine (1 square),
- D = destroyer (3 squares),
- A = aircraft carrier (4 squares)



Use the grid references on this map above to find these streets or places. Some answers may be more than one grid reference.

- (1) Name the square that Knox Street is in.

- (2) Name the square that the Town Hall is in.

- (3) Colombo Street starts in square 5E. Name the other squares that Colombo Street passes through.

- (4) Name the four squares that Salisbury Street passes through.

- (5) Name the hotel in square 2B.

- (6) Name the school in square 2A.

- (7) Name the sport that can be played in 4D.

- (8) Mark these squares on the grid with an X. 4A, 7H, 10E, 3B, 8E, 5J, 9I, 1F, 2B, 6G, 1B
- (9) Name any ship you have crossed out.

- (10) Write the grid reference for where the aircraft carrier and submarines are placed on the grid.

The aim of this activity sheet is to learn how to locate places on a map that has been divided up into squares or grids. The numbers / letters along the side are called grid references.

Suggested HOME activity:
Using a city street map or country map, ask your child to locate various places using a grid reference.
Create your own maps divided into squares or grids on which points can be located or play a game of battleships as above.

Sign when completed: _____

When talking about **rotation**, we use words such as **clockwise**, **anti-clockwise** ...



... **quarter** turn and **half** turn to describe how an object has been moved.

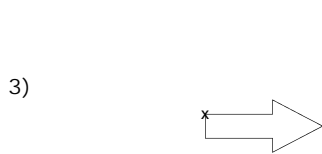


Use the **rotation** words above to **describe** how each arrow has been moved.

The shaded arrow is the new position.



Draw which way the arrow will be pointing after it has been turned or rotated about point x.



quarter turn
anti-clockwise

half turn clockwise

Some alphabet cards have been used to create these patterns using rotation.

Draw the next 2 letters for each pattern and **describe** how each pattern was created.



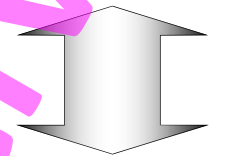
When you look in a mirror, you see your reflection.



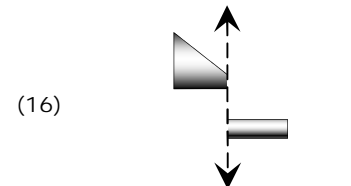
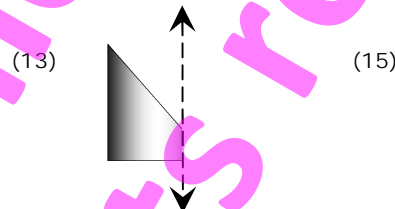
Everything looks the same, except it is back to front.

To **reflect** this picture, the **mirror line** would be placed on the **arrowed** line.

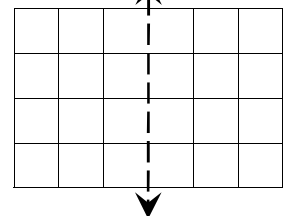
Draw a line(s) to show where the **mirror line(s)** would go to reflect these pictures or shapes.



Half of **each** shape is missing. The arrow is the **mirror line**. **Draw** the complete shape, after it has been reflected.



(17) **Draw** a design that shows you understand reflection. The arrow is the mirror line.



The aim of this activity sheet is to revise rotation and reflection. Rotations can be described using various words and reflections require a mirror line.

Suggested HOME activity:

Looking around your home, ask your child to point out designs that have been created by either rotating a pattern or reflecting a pattern.

Example: Wallpaper or floor tile patterns.

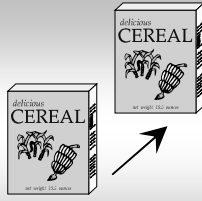
Ask your child to create their own designs using rotation or reflection and have them describe how they created their design.

Sign when completed: _____

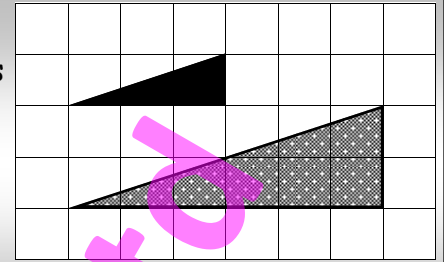
This cereal box has been moved by sliding it along a table top.

The cereal box has not been turned around or flipped over.

Such a movement is called a **translation**.



Sam used maths paper to draw this small black triangle twice as big (grey colour).



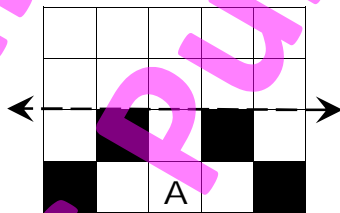
Each side of the triangle is twice as long.

Each group of pictures below have been lined up to make a pattern.

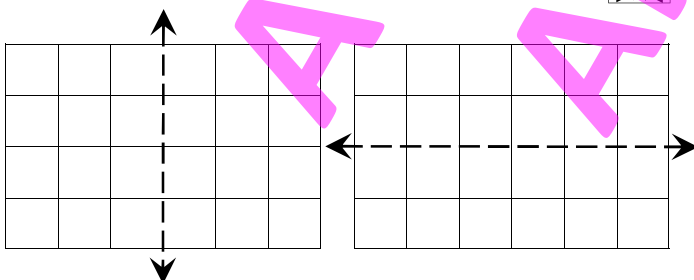
Write under each group of pictures, how the patterns were created by translation, reflection or rotation.

- (1)
- (2)
- (3)
- (4)

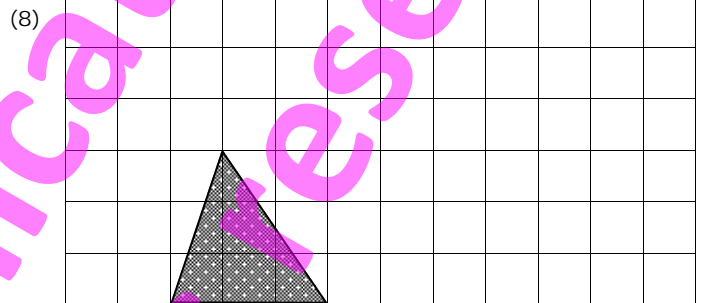
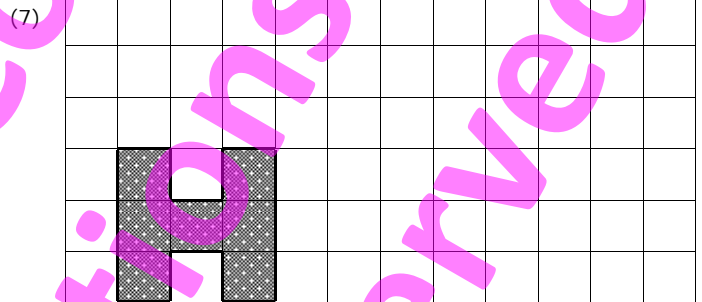
(5) Translate this pattern to the opposite side of the arrow, without turning the pattern around or over.



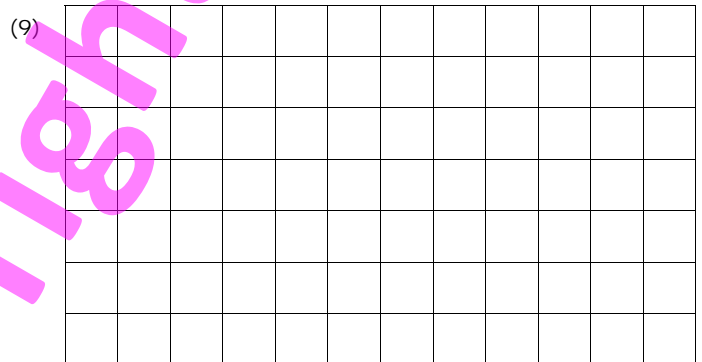
(6) Draw two designs to show you understand translation. The same pattern should be on each side of the arrow.



Redraw each shape so that all sides are twice as long.



Draw a small shape that you can redraw twice as large, to show you understand enlargement.



The aim of this activity sheet is to revise translation and enlargement. Translation involves sliding the same object to a new position. For enlargement, the shape changes size but does not slide, flip or rotate.

Suggested HOME activity:

Looking around your home, ask your child to point out groups of objects that demonstrate translation or enlargement.

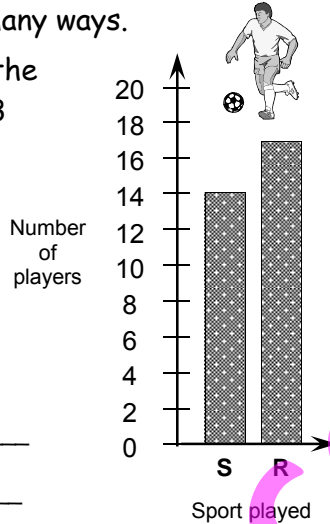
Example: A picket fence, strips of wallpaper, a line of bottles in a row.

Draw various patterns that involve sliding or translation and using maths paper, draw designs involving enlargement.

Sign when completed: _____

Data can be displayed in many ways.

This **column graph** shows the number of pupils in Room 3 who play soccer (S) and rugby (R) on Saturdays.

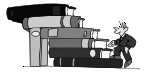


- (1) How many play soccer and how many play rugby?

soccer (S) = _____

rugby (R) = _____

This table shows the number of vowels used in the first 50 words of a novel.



	a	e	i	o	u
Total	48	44	34	24	18

- (7) Complete this pictogram using the data in the table.

a: A A A A A A A A A A A A

e: _____

i: _____

o: _____

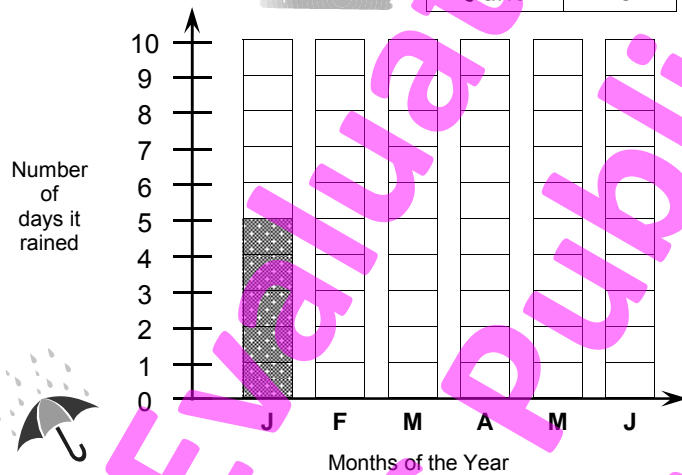
u: _____

Key: 1 picture = 4 vowels

This table shows the number of days it rained during the first six months of a year.

	Total
January	5
February	4
March	7
April	6
May	8
June	10

- (2) Complete this column graph using the data in the table.



- (3) On how many days in May was it raining? _____
- (4) In which month did it rain 4 times? _____
- (5) On how many days altogether did it rain during these months? _____

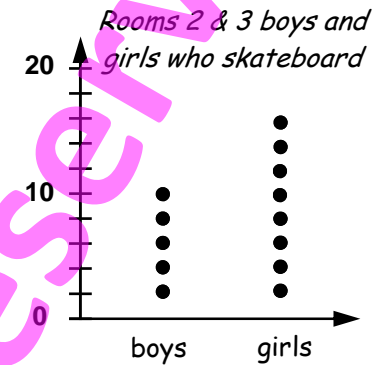
This **pictogram** shows the number of pet cats and dogs Room 5 pupils have.



Key: 1 picture = 2 pets

- (6) How many pet cats and pet dogs do they have?
cats = _____
dogs = _____

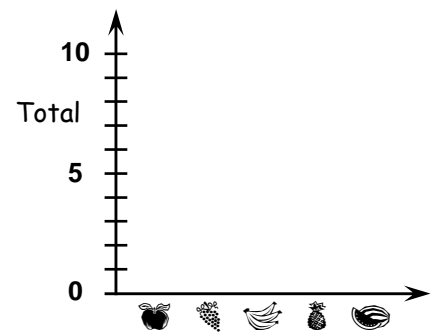
This **dot plot graph** shows the number of boys and girls in Rooms 2 & 3 who like skate boarding.



- (8) How many boys and how many girls skateboard?
boys = _____
girls = _____

- (9) Draw a dot plot graph for the data in the table below.

Fruit	Total
	5
	10
	3
	7
	9



The aim of this activity sheet is to create three different data displays - a column graph, a pictogram and a dot plot graph, and answer questions appropriate to the data.

Suggested HOME activity:

Using data collected from around your home or the data in the tally charts in Worksheet 34, have your child create some column graphs or pictograms. For pictograms involving large groups of data, each picture can be worth more than one.

Example: If there were 30 items, by making each picture worth 5, only 6 pictures would be drawn.

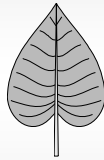
Sign when completed: _____

A **stem and leaf graph** looks a bit like a leaf.

Example: Jacqui counted the number of red jelly beans in 12 large packets.

29, 31, 28, 42, 38, 27, 35, 33, 41, 34, 36, 26

As these numbers are in the 20's, 30's and 40's, the numbers **2, 3** and **4** go in the '**stem**' part of the graph.

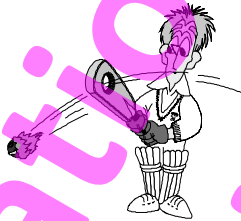


2	9, 8, 7, 6
3	1, 8, 5, 3, 4, 6
4	2, 1

The second numbers form the '**leaf**' part of the graph and are added to the graph in the order listed.

Matthew recorded the number of runs each batsman scored in a cricket match, in a **stem and leaf graph**.

1	7, 9
2	3, 9, 4
3	6, 8
4	2, 0, 5
5	9



(1) If the first 2 scores are 17 and 19, what are the other scores shown in this stem and leaf graph?

(2) What was the highest score? _____

(3) What was the lowest score? _____

(4) How many runs did the team score altogether? _____

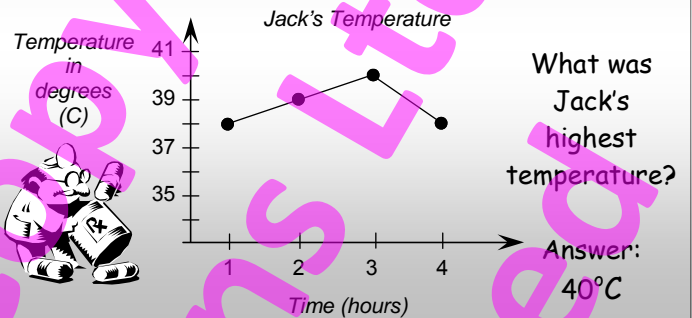


(5) Draw a stem and leaf graph for the numbers in this box.

63, 59,
87, 71,
55, 76,
69, 65,
70, 64,
80, 73

Data that changes with time can be graphed on a **time-series graph**.

Example: Jack has been unwell. He recorded his temperature every hour for 4 hours. These results are shown on the graph.

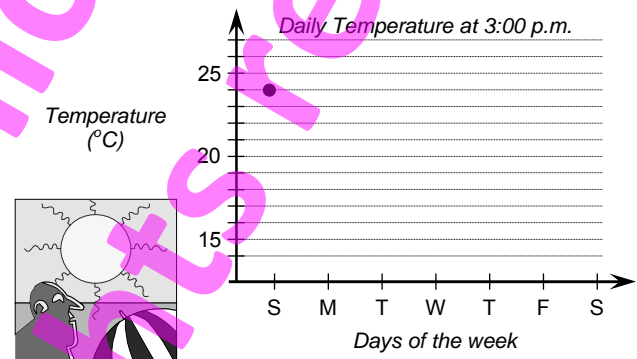


Each day for a week, starting on Sunday, the air temperature (°C) at the airport at 3:00 p.m. was recorded. These were the results.

24°C	25°C	18°C	15°C	26°C	22°C	17°C
------	------	------	------	------	------	------



(6) Complete the time series graph by plotting the data in the table, joining each point with a straight line.



(7) What was the temperature on Tuesday? _____

(8) What was the difference in temperature between the hottest and coldest days?



The aim of this activity sheet is to understand and draw stem & leaf graphs and time series graphs.

Suggested HOME activity:

Collect or make up data that can be presented as a stem & leaf graph. This is normally a list of data numbers that have been collected by counting or measuring something. Create some stem & leaf graphs. Collect or make up data that can be presented as a time series data. Time series data change over time, such a temperature, heights of plants or the weight of a pet etc. Create some time series graphs.

Sign when completed: _____

"Which sport do pupils in Room 5 like to play more, soccer or rugby?" asked Sam.

To answer this question, Sam conducted an investigation by asking a simple question ...

"Do you prefer to play soccer or rugby?"

Consider this question ...

"Which is the most popular singing group that pupils in your class listen to?"



- (1) As you investigate this question, how would you collect, record and organise your data?



- (2) What data displays or graphs could you use to display your results?

- (3) Draw the table that you would use to collect the data and either collect some data or make up some data.

- (4) Draw a column graph, pictogram or dot plot to the display your results in Q3.

- (5) Write one statement about your results.

Westmorland Primary School investigated ...

"Where will we go on a school outing?"



A = go to a movie

B = go to the zoo

C = go to the park

D = go to the beach



C	C	A	D	C	B	B	C	D	C	A	D	C
B	C	D	C	C	A	A	D	B	C	A	D	C
B	C	D	C	D	B	C	D	A	C	D	B	C
A	C	D	B	D	B	A	C	B	B	B	D	C

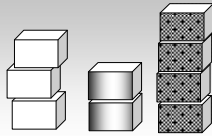
- (5) Look at the results of their investigation. Write 4 points based on these results.

The aim of this activity sheet is to look at ways a simple investigation can be conducted and at the ways data can be collected and displayed.

Suggested HOME activity:
 Make up an investigation. Ask your child to come up with questions that could be asked, who is going to be asked and how the data is to be collected and displayed.
Example: What is the most popular holiday place in New Zealand?

Sign when completed: _____

Here are three piles of blocks.
If all piles had the same number of blocks, how many blocks would there be in each pile?



Add the number of blocks in all piles ($3 + 2 + 4 = 9$), then divide your answer by the number of piles ($9 \div 3 = 3$).
Answer: 3 blocks in each pile.

By doing this, you are finding out the 'mean' or average number of blocks in each pile.

In a running race, the fastest time was 29 minutes and the slowest time was 42 minutes.



The difference between the fastest and slowest time is called the **range**.

Example: $42 - 29 = 13$ minutes.

In this running race, the **range** of the times was 13 minutes. (Range = largest number - smallest number)

Work out the mean or average of each group of numbers.

Question 1 has been done for you.

Add up all 4 numbers, then divide your answer by 4.



(1) 8, 4, 5, 7 $8 + 4 + 5 + 7 = 24, 24 \div 4 = 6$

(2) 7, 9, 5

(3) 4, 8, 9, 7

(4) 2, 9, 5, 6, 8

(5) 11, 3, 8, 10, 3

(6) 13, 9, 11, 7

(7) 23, 19, 21

(8) 103, 97

(9) 11, 13, 8, 2, 11

(10) 43, 61, 16

Joe likes to play soccer after school everyday. Last week he played for 2, 3, 1, 2 and 2 hours.



(11) How many days in a row did Joe play soccer? _____

(12) How many hours in total did Joe play soccer last week? _____

(13) What is the **mean** number of hours per day Joe played soccer? _____

In one week the pupils in Room 3 each read some books, as shown below.

3, 1, 2, 4, 1, 3, 2, 1, 2, 1, 3, 1



(14) **Work out the mean number of books read by these pupils.**

Work out the range of each group of numbers.

Question 1 has been done for you. $9 - 1 = 8$

(15) 8, 4, 5, 7, 9, 5, 6, 3, 1 $9 - 1 = 8$

(16) 9, 14, 18, 3, 7, 9, 5, 6, 9

(17) 23, 65, 82, 14, 67, 10, 54

(18) 96, 14, 53, 12, 84, 63, 76

(19) 64, 18, 120, 53, 42, 37

(20) 84, 27, 19, 34, 61, 85, 29

Some of the pupils in Room 8 have had their heights measured in centimetres, as shown below.



152, 148, 160, 138, 143, 135, 139, 132, 145

(21) **Work out the range of height for these pupils.** _____

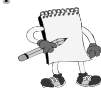
The highest daily temperature for a week is shown in the table below.



25°C, 23°C, 19°C, 27°C, 34°C, 26°C, 31°C

(22) **Work out the range of these temperatures.** _____

The aim of this activity sheet is to work out the mean or average for a list of numbers or scores and work out how spread out the scores are, called the range.



Suggested HOME activity:

Collect or create a list of scores (numbers) and using these scores, work out the mean (average) and range of the scores.

Example: The hours spent playing computer games etc.

We sometimes call the **mean** the 'average', but there are two more types of 'averages' called the **medium** and the **mode**, that you will learn about on the next worksheet.

Sign when completed: _____

Another type of 'average' is called the **median**. The **median** is the middle score, once the scores have been placed in **order** from smallest to largest.



Example: 2, 3, 5, 6, 7, 8, 12, 20, 30

As these scores are in order, start counting one score off each end until you reach the middle.

The **median** (middle) score for this list is 7.

Work out the median for each list of scores.

Remember the score **MUST** be in order from smallest to largest.

- (1) 1, 3, 6, 9, 11 _____
- (2) 6, 8, 9, 15, 19, 21, 23 _____
- (3) 21, 29, 35, 37, 48, 53, 67 _____
- (4) 1, 4, 6, 9, 10, 11, 16, 18, 20 _____
- (5) 3, 3, 3, 4, 4, 4, 5, 5, 5, 6, 8 _____

If there is an even number of scores, there will be two scores left in the middle. The **median** is half way between these scores.

Example: 3, 6, 8, 12 *median* = 7
(6 & 8 are in the middle, halfway is 7)



Work out the median for each list of scores

- (6) 9, 10, 14, 21 _____
- (7) 6, 9, 15, 17, 21, 27 _____
- (8) 21, 24, 26, 30, 38, 45, 53, 65 _____
- (9) 8, 15, 42, 68, 72, 91 _____
- (10) 8, 9, 14, 15, 16, 18, 21, 28 _____

In one week the pupils in Room 7 each read some books, as shown below.



3, 1, 2, 4, 1, 3, 2, 1, 2, 1, 3, 1, 3

(11) **Work out the median** number of books read?

Another type of 'average' is called the **mode**. The **mode** is the most common score.

Example: This list shows the shoe size of shoes sold this week.

7, 9, 8, 9, 6, 10, 9, 8, 9, 10, 9, 7, 9



What is the most common size sold?

The most common size was 9, therefore the **mode** for these scores is 9.

There can be more than one mode for a list.

Work out the mode for each list of scores.

There may be more than one answer.

- (12) 2, 2, 3, 3, 3, 4, 4, 6, 7, 7, 8 _____
- (13) 9, 9, 8, 7, 3, 8, 9, 6, 8 _____
- (14) 12, 6, 8, 9, 6, 7, 6, 9, 12, 9, 6 _____
- (15) 3, 4, 6, 8, 3, 5, 3, 7, 5, 3, 5, 3 _____
- (16) 10, 7, 9, 8, 7, 6, 7, 5, 7, 2, 10, 5 _____

Every time a T-shirt is sold, its size is noted. Below is a list of the sizes sold.



8, 10, 10, 8, 12, 8, 12, 10, 8, 8, 12, 8

(17) **Work out the mode** size for the T-shirt sales. _____

(18) Why would it be helpful for a shop keeper to collect this data? _____

(19) **Work out the median** T-shirt size? _____



The aim of this activity sheet is to work out two different types of 'averages' - median and the mode. The median is the middle score, given the scores are in order. The mode is the most common score (there may be more than one).

Suggested HOME activity:

Collect or create a list of scores (numbers) and using these scores, work out the median and mode of the scores.

Example: The height of people in your family or their shoe sizes.

Depending on what you are dealing with, one type of 'average' will be more suitable than another.

Sign when completed: _____

An **outcome** is what happens when you have a choice.



Sometimes finding all possible outcomes can be difficult. Using a **box** or **grid** can help.

Example: Two coins are tossed in the air.

	Head (H)	Tail (T)
Head (H)	HH	HT
Tail (T)	TH	TT

How many outcomes are there?



Answer: four ... HH = head/head, HT = head/tail, etc.

This grid shows the choices Peter had as to when he would go to the movies and what type of movie he would see.



	Saturday (Sa)	Sunday (Su)
Horror (H)	H / Sa	H / Su
Comedy (C)	C / Sa	C / Su
Action (A)	A / Sa	A / Su

- If Peter's choice was C / Su, what does it mean?
- How many choices (outcomes) does Peter have? _____

For lunch, Ryan has a choice of either a ham roll (HR), a salad roll (SR) and a choice of either an apple (A), an orange (O), a pear (P) or a banana (B).

- Guess how many possible food choices or outcomes you think Ryan has for lunch? _____
- Use this **table** to work out what Ryan can eat at lunchtime. (Write letters only)

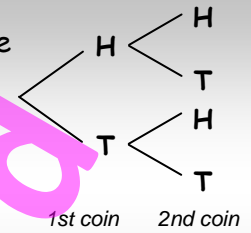
		A	O	P	B
	HR				
	SR				

- What does SR/O mean? _____
- List all possible choices.

- How many choices (outcomes) does Ryan have? _____

Tree diagrams are another way of working out all possible outcomes.

Example: Two coins are tossed in the air, list all possible outcomes.

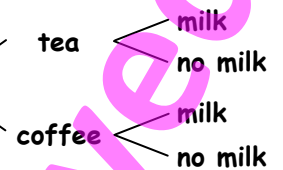


By following each **branch** of the tree, you can work out all outcomes.

Answer: HH, HT, TH, TT (4 outcomes)



Carol has a choice of tea or coffee, with or without milk.

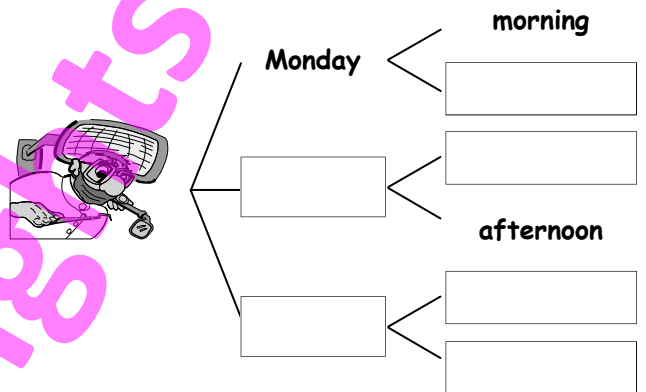


- Use the tree diagram to list all possible choices or outcomes

Andrew has to make a dentist's appointment for either Monday, Tuesday or Friday, either in the morning or the afternoon.



- Write in the missing words to complete this tree diagram to show all possible outcomes.



- How many possible outcomes are there? _____



The aim of this activity sheet is to work out all possible outcomes given an event using grids or tree diagrams. The **event** can be as simple as tossing a coin, where there are two possible **outcomes**, heads or tails.

Suggested HOME activity:

Create events that involve choices which your child can use grids or tree diagrams to name all possible outcomes.

Example: You are allowed two jelly beans from this packet. List all the possible colours the jelly beans could be, i.e. red/black, red/white.

Sign when completed: _____

In Adam's club there are 30 members. What **chance** or **probability** does he have of being club captain?



As there are 30 members in his club and only one of him, he has **1 chance in 30** of being club captain.

Written as **1 out of 30** or $\frac{1}{30}$.

These number cards are to be used for a game of memory.



2	3	1	3	5	2	5	2
1	2	2	4	1	5	1	3
4	1	5	3	1	2	5	2
2	4	1	3	5	1	4	2
1	2	5	4	1	4	5	1

- If a coin is tossed in the air, what is the chance that it lands on heads?
_____ out of _____ or _____
- Fred has been selling raffle tickets. If there are 200 tickets, what is the chance of winning first prize?
_____ out of _____ or _____
- Miri has bought 10 tickets in a raffle. If there are 500 tickets, what is the chance of her winning a prize?
_____ out of _____ or _____
- If you bought 2 tickets in a raffle and have a 1 out of 200 chance of winning a raffle, how many tickets are in the raffle?

- If you roll a six sided die (dice), what is the chance that ...
... the number 6 comes up?
_____ out of _____ or _____
... a number 1, 2 or 3 comes up?
_____ out of _____ or _____
... the number 7 comes up?
_____ out of _____ or _____



- How many number 4 cards are there? _____
- How many number 2 cards are there? _____
- How many number 5 cards are there? _____
- How many number 1 cards are there? _____
- How many cards are there altogether? _____
- What is the chance of turning over a number 2 card?
_____ out of _____ or _____
- What is the chance of turning over a number 5 card?
_____ out of _____ or _____
- The card you have just turned over had a chance of $\frac{5}{40}$ or $\frac{1}{8}$ of being selected. What number was on the card? _____
- Why do you have a greater chance of turning over a number 1 card than a number 4 card?

- In a bag there are 60 marbles. If the chance of taking a red marble out of the bag is $\frac{1}{3}$ how many red marbles are in the bag?

- If the chance of taking a blue marble out of the bag is $\frac{1}{6}$ how many blue marbles are in the bag?



The aim of this activity sheet is to investigate simple probability, working out the chance of something happening. Probability can be expressed as a fraction, such as $\frac{1}{4}$, which means one out of four.

Suggested HOME activity:

Create similar questions as on this activity sheet to reinforce simple probability.

Example: Place 5 red, 3 green and 2 white blocks in a bag.

Ask your child to select a particular coloured block and describe the chance of selecting that block ... 2 out of 10 chances (a white block).

Sign when completed: _____

Curriculum Strand Worksheet Answers

1

(1)

		2	4						
		3							
1	4	7			5	6	0	2	
6			9	0	4				
9					2	5	7	0	
8				6	1		3		
7	3	5	2	0					
				5					
8				3	4	8			
9	2			1	9			1	
0		6	5	9	3			6	
1				5	4	9	6	3	
6	9	2	1	4	0				8

(2) sixty-five

(3) eighty-three

(4) three hundred and sixteen

(5) one thousand and ninety-seven

(6) eight thousand, three hundred and two

(7) fifteen thousand, three hundred and sixty

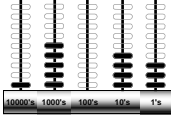
(8) seventy-six thousand and two

2

(1) 10000's = 1, 1000's = 3, 100's = 6, 10's = 2, 1's = 4
Number = 13624

(2) 10000's = 8, 1000's = 3, 100's = 4, 10's = 3, 1's = 6
Number = 83436

(3) 10000's = 4, 1000's = 0, 100's = 4, 10's = 9, 1's = 4
Number = 40494

(4) 

(5) 10's 30

(6) 1000's 7000

(7) 1's 3

(8) 100's 500

(9) 1000's 1000

(10) 10000's 60000

(11) 10's 80

(12) 1000's 9000

(13) 100's 600

(14) 1000's 8000

(15) 100's 300

(16) 29504

(17) 13876

(18) 300489

(19) 19317

(20) 98135

3

(1)

3	1	8	•	4	6				
•									
5	9	•	2	4	6			6	
7			•	4				1	
1		1	0	8	•	4	8		
		8						•	
6	•	3	2	4				7	
		7	1	5	•	6	9		
		3	4	9	•	3	7	2	
1			0	7				•	
•		5	•	4	0	9	6		
3								3	
6	1	7	•	2	0	5	4		
8				7					

(2) six point four

(3) five point zero two

(4) eighty-nine point six

(5) forty-three point eight seven

(6) three hundred and fifty point one three

(7) eighteen point zero one nine

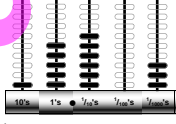
(8) fifty-eight point five one three

4

(1) 10's = 1, 1's = 3, 1/10's = 4, 1/100's = 8, 1/1000's = 4
Number = 13.484

(2) 10's = 2, 1's = 5, 1/10's = 2, 1/100's = 3, 1/1000's = 8
Number = 25.238

(3) 10's = 3, 1's = 0, 1/10's = 0, 1/100's = 2, 1/1000's = 4
Number = 30.024

(4) 

(5) 1/100's 0.03

(6) 10's 70

(7) 1/1000's 0.003

(8) 1/10's 0.5

(9) 1's 2

(10) 10's 40

(11) 1/100's 0.08

(12) 1/1000's 0.009

(13) 1/100's 0.06

(14) 1/10's 0.8

(15) 1/1000's 0.003

(16) 19.752

(17) 24.143

(18) 987.68

(19) 0.8261

(20) 123.856

5

(1) 100 + 11 = 111

(2) 100 + 40 = 140

(3) 1000 + 49 = 1049

(4) 2000 + 500 + 26 = 2526

(5) 60 + 60 + 5 = 125

(6) 70 + 70 + 5 = 145

(7) 100 + 100 + 9 = 209

(8) 200 + 200 + 43 = 243

(9) 80 + 23 = 103

(10) 30 + 155 = 185

(11) 240 + 33 = 273

(12) 50 + 526 = 576

(13) 300 + 100 + 60 + 30 + 2 + 7 = 499

(14) 100 + 500 + 40 + 20 + 5 + 4 = 669

(15) 200 - 100 + 60 - 20 + 7 - 4 = 143

(16) 500 - 200 + 30 - 10 + 9 - 6 = 323

(17) 170 - 6 + 5 = 169

(18) 320 - 9 + 6 = 317

(19) 430 - 8 + 2 = 424

(20) 530 - 7 + 1 = 524

(21) 1 + 30 + 4 = 35

(22) 2 + 20 + 5 = 27

(23) 3 + 40 + 2 = 45

(24) 1 + 10 + 7 = 18

(25) 3 + 60 + 8 = 71

6

(1) 60 - 5 = 55

(2) 190 - 1 = 189

(3) 470 - 6 = 464

(4) 260 - 2 = 258

(5) 26 + 56 = 82

(6) 49 + 44 = 93

(7) 58 + 56 = 114

(8) 67 + 178 = 245

(9) 118 + 223 = 341

(10) 65 - 30 = 35

(11) 187 - 70 = 117

(12) 279 - 40 = 239

(13) 358 - 100 = 258

(14) 422 - 90 = 332

(15) 79

(16) 34

(17) 61

(18) 50

(19) 33

(20) 46

(21) 191

(22) 15

(23) 48

(24) 174

(25) 128

(26) 52

(27) 212

(28) 132

7

(1) 0.95, 1.56, 3.45, 8.04, 12.6, 18.3

(2) 23.71m

(3) 23.37m

(4) 23.65m

(5) 23.71, 23.65, 23.52, 23.48, 23.37

(6) 6

(7) 3

(8) 30.1, 31.9, 32.9

(9) 30.1, 31.9, 32.9, 33.4, 34.4, 35.8, 36.3, 37.7

(10) 0.987kg

(11) 1.036kg

(12) 1.012kg

(13) 1kg

(14) 0.987, 0.996, 1.012, 1.023, 1.036

(15) 14.9572, 14.9725, 14.9752, 15.000, 15.2479, 15.2497, 15.4279

8

(1) \$60 (6) \$640

(2) \$80 (7) \$790

(3) \$100 (8) \$270

(4) \$70 (9) \$570

(5) \$150 (10) \$920

(11) 300 (16) 700

(12) 800 (17) 800

(13) 200 (18) 500

(14) 400 (19) 300

(15) 200 (20) 800

(21) 3.5 (26) 17.3

(22) 7.6 (27) 28.8

(23) 1.9 (28) 124.8

(24) 3.8 (29) 133.7

(25) 1.6 (30) 813.2

(31) \$80 + \$80 = \$160

(32) \$160 + \$50 = \$210

(33) \$100 - \$60 = \$40

(34) \$230 - \$70 = \$160

(35) \$300 + \$700 = \$1000

(36) \$600 + \$400 = \$1000

(37) \$1100 - \$500 = \$600

(38) \$2400 - \$1000 = \$1400

(39) \$7.70 + \$8.30 = \$16.00

(40) \$9.50 + \$3.90 = \$13.40

(41) \$16.80 - \$9.50 = \$7.30

(42) \$20.00 - \$8.40 = \$11.60

9

- (1) 7, 14, 21, 28, 35,
42, 49, 56, 63, 70
- (2) 28 is the same as $7 \times 4 = 28$
- (3) 49 is the same as $7 \times 7 = 49$
- (4) 35 is the same as $7 \times 5 = 35$
- (5) 14 is the same as $7 \times 2 = 14$
- (6) 56 is the same as $7 \times 8 = 56$
- (7) 21 is the same as $7 \times 3 = 21$
- (8) 63 is the same as $7 \times 9 = 63$
- (9) 42 is the same as $7 \times 6 = 42$
- (10) 70 is the same as $7 \times 10 = 70$
- (11) 7 (21) 2
- (12) 28 (22) 8
- (13) 42 (23) 3
- (14) 63 (24) 7
- (15) 70 (25) 6
- (16) 35 (26) 4
- (17) 14 (27) 1
- (18) 49 (28) 5
- (19) 21 (29) 10
- (20) 56 (30) 9
- (31) $\$8.00 \times 7 = \56.00
- (32) $\$4.00 \times 7 = \28.00
- (33) $\$56.00 \div 7 = \8.00

10

- (1) 8, 16, 24, 32, 40,
48, 56, 64, 72, 80
- (2) 32 is the same as $8 \times 4 = 32$
- (3) 56 is the same as $8 \times 7 = 56$
- (4) 40 is the same as $8 \times 5 = 40$
- (5) 16 is the same as $8 \times 2 = 16$
- (6) 64 is the same as $8 \times 8 = 64$
- (7) 24 is the same as $8 \times 3 = 24$
- (8) 72 is the same as $8 \times 9 = 72$
- (9) 48 is the same as $8 \times 6 = 48$
- (10) 80 is the same as $8 \times 10 = 80$
- (11) 8 (21) 2
- (12) 32 (22) 8
- (13) 48 (23) 3
- (14) 72 (24) 7
- (15) 80 (25) 6
- (16) 40 (26) 4
- (17) 16 (27) 1
- (18) 56 (28) 5
- (19) 24 (29) 10
- (20) 64 (30) 9
- (31) $\$9.00 \times 8 = \72.00
- (32) $\$5.00 \times 8 = \40.00
- (33) $\$64.00 \div 8 = \8.00

11

- (1) 28 shapes $\div 7 = 4$ groups
- (2) 49 shapes $\div 7 = 7$ groups
- (3) 21 shapes $\div 7 = 3$ groups
- (4) 35 shapes $\div 7 = 5$ groups
- (5) 7 shapes $\div 7 = 1$ group
- (6) 63 shapes $\div 7 = 9$ groups
- (7) 42 shapes $\div 7 = 6$ groups
- (8) 56 shapes $\div 7 = 8$ groups
- (9) 70 shapes $\div 7 = 10$ groups
- (10) 14 shapes $\div 7 = 2$ groups
- (11) 24 squares $\div 8 = 3$ groups
- (12) 48 squares $\div 8 = 6$ groups
- (13) 72 squares $\div 8 = 9$ groups
- (14) 32 squares $\div 8 = 4$ groups
- (15) 56 squares $\div 8 = 7$ groups
- (16) 16 squares $\div 8 = 2$ groups
- (17) 80 squares $\div 8 = 10$ groups
- (18) 64 squares $\div 8 = 8$ groups
- (19) 8 squares $\div 8 = 1$ group
- (20) 40 squares $\div 8 = 5$ groups
- (21) $\$42.00 \div 7 = \6.00
- (22) $\$24.00 \div 8 = \3.00
- (23) $\$72.00 \div 8 = \9.00

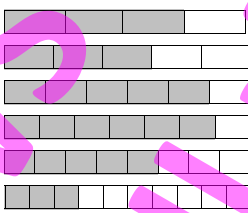
12

- (1) $(70 \times 5) + (5 \times 5)$
 $= 350 + 25 = 375$
- (2) $(60 \times 6) + (7 \times 6)$
 $= 360 + 42 = 402$
- (3) $(50 \times 7) + (4 \times 7)$
 $= 350 + 28 = 378$
- (4) $(100 \times 3) - (2 \times 3)$
 $= 300 - 6 = 294$
- (5) $(90 \times 4) - (4 \times 4)$
 $= 360 - 16 = 344$
- (6) $(400 \times 4) - (3 \times 4)$
 $= 1600 - 12 = 1588$
- (7) $(300 \times 6) - (8 \times 6)$
 $= 1800 - 48 = 1752$
- (8) $(600 \times 7) - (6 \times 7)$
 $= 4200 - 42 = 4158$
- (9) $(300 \times 8) + (9 \times 8)$
 $= 2400 + 72 = 2472$
- (10) $(700 \times 6) + (6 \times 6)$
 $= 4200 + 36 = 4236$
- (11) $8 \times 12 = 96$
- (12) $18 \times 10 = 180$
- (13) $10 \times 27 = 270$
- (14) $20 \times 14 = 280$
- (15) $4 \times 50 = 200$
- (16) 282 (19) 609
- (17) 344 (20) 4168
- (18) 414 (21) 1870

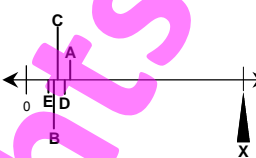
13

- (1) $(40 \div 4) + (24 \div 4)$
 $= 10 + 6 = 16$
- (2) $(100 \div 5) + (25 \div 5)$
 $= 20 + 5 = 25$
- (3) $(60 \div 6) + (42 \div 6)$
 $= 10 + 7 = 17$
- (4) $(70 \div 7) + (42 \div 7)$
 $= 10 + 6 = 16$
- (5) $(80 \div 8) + (40 \div 8)$
 $= 10 + 5 = 15$
- (6) $(600 \div 2) - (8 \div 2)$
 $= 300 - 4 = 296$
- (7) $(600 \div 6) - (12 \div 6)$
 $= 100 - 2 = 98$
- (8) $(1600 \div 8) - (16 \div 8)$
 $= 200 - 2 = 198$
- (9) $(800 \div 4) + (32 \div 4)$
 $= 200 + 8 = 208$
- (10) $(1400 \div 7) + (21 \div 7)$
 $= 200 + 3 = 203$
- (11) $72 \div 6 = 36 \div 3 = 12$
- (12) $96 \div 16 = 48 \div 8$
 $= 24 \div 4 = 6$
- (13) $840 \div 40 = 420 \div 20$
 $= 210 \div 10 = 21$
- (14) $456 \div 24 = 228 \div 12$
 $= 114 \div 6 = 57 \div 3 = 19$
- (15) $512 \div 32 = 256 \div 16$
 $= 128 \div 8 = 64 \div 4 = 16$
- (16) 28 (21) 138
- (17) 24 (22) 190
- (18) 15 (23) 123
- (19) 13 r4 (24) 125 r4
- (20) 12 r3 (25) 93 r6

14

- (1) one half (2) 1 out of 2
- (3) $\frac{1}{3}$ (4) 1 out of 3
- (5) one quarter (6) $\frac{1}{4}$
- (7) $\frac{1}{5}$ (8) 1 out of 5
- (9) one sixth (10) $\frac{1}{6}$
- (11) one tenth (12) 1 out of 10
- (13) $\frac{4}{5}$, $\frac{3}{6}$ or $\frac{1}{2}$, $\frac{5}{7}$, $\frac{3}{8}$,
 $\frac{4}{9}$, $\frac{5}{10}$ or $\frac{1}{2}$
- (14) 
- (15) 9 (as $3 \times \underline{9} = 27$)
- (16) 9 (as $5 \times \underline{9} = 45$)
- (17) 8 (as $7 \times \underline{8} = 56$)
- (18) 9 (as $54 \div 6 = \underline{9}$)
- (19) 9 (as $72 \div 8 = \underline{9}$)
- (20) 16 (as $160 \div 10 = \underline{16}$)
- (21) $8 \times 5 = 40$
- (22) $10 \times 6 = \$60$
- (23) $9 \times 7 = 63$

15

- (1) $\frac{1}{10}$, $\frac{1}{9}$, $\frac{1}{8}$, $\frac{1}{7}$,
 $\frac{1}{6}$, $\frac{1}{5}$, $\frac{1}{4}$, $\frac{1}{3}$
- (2) 
- (3) $\frac{1}{3}$, $\frac{2}{3}$, $\frac{3}{3}$, $\frac{4}{3}$, $\frac{5}{3}$,
 $\frac{6}{3}$, $\frac{7}{3}$, $\frac{8}{3}$, $\frac{9}{3}$
- (4) $\frac{1}{5}$, $\frac{2}{5}$, $\frac{3}{5}$, $\frac{4}{5}$, $\frac{5}{5}$,
 $\frac{6}{5}$, $\frac{7}{5}$, $\frac{8}{5}$, $\frac{9}{5}$, $\frac{10}{5}$,
 $\frac{11}{5}$, $\frac{12}{5}$, $\frac{13}{5}$
- (5) $\frac{1}{7}$, $\frac{2}{7}$, $\frac{3}{7}$, $\frac{4}{7}$, $\frac{5}{7}$,
 $\frac{6}{7}$, $\frac{7}{7}$, $\frac{8}{7}$, $\frac{9}{7}$, $\frac{10}{7}$,
 $\frac{11}{7}$, $\frac{12}{7}$, $\frac{13}{7}$, $\frac{14}{7}$
- (6) 18 (9) 25
- (7) 18 (10) 27
- (8) 24 (11) 30
- (12) $3000 \div 3 = 1000 \times 2 = 2000m$
- (13) $40 \div 4 = 10 \times 3 = 30$ minutes
- (14) $50 \div 5 = 10 \times 4 = 40$ rolls

16

- (1) a = 26 (11) k = 6
- (2) b = 26 (12) m = 9
- (3) c = 13 (13) n = 4
- (4) d = 29 (14) p = 3
- (5) e = 25 (15) q = 1100
- (6) f = 102 (16) r = 8
- (7) g = 87 (17) s = 5
- (8) h = 74 (18) t = 475
- (9) i = 47 (19) u = 5
- (10) j = 102 (20) v = 8
- (21) \$38.00
- (22) \$52.00
- (23) \$14.50
- (24) \$12.00
- (25) \$9.00
- (26) 14 chairs
- (27) 67 pages

17

(1) ... 27, 33, 39
Begin with 3, then add 6 to each new number

(2) ... 30, 37, 44
... 2, add 7

(3) ... 62, 58, 54
... 78, subtract 4

(4) ... 45, 36, 27
... 81, subtract 9

(5)

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

(6) 5, 9, 13, 17, 21, 25, 29, 33, 37, 41, 45, 49

(7) 12

(8) ... 48, 96, 192
... 3, multiply by 2

(9) ... 243, 729, 2187
... 3, multiply by 3

(10) ... 80, 160, 320
... 5, multiply by 2

(11) ... 60, 30, 15
... 480, divide by 2

(12) \$1.20, \$2.40, \$3.60, \$4.80, \$6.00

(13) 6

18

(1) Possible answers:
- distance around school grounds,
- height of a lamp post,
- length of a running track,
- lengths of material.

(2) distance between two cities, distance between two countries

(3) length of a pencil, size of a text book

(4) width of a pencil, thickness of a matchstick

(5) 2000 | (7) 6

(6) 7500 | (8) 4.2

(9) 600 | (11) 9

(10) 570 | (12) 8.4

(13) 1 | (15) 50

(14) 4.5 | (16) 69

(17) 3 | (19) 6000

(18) 9.1 | (20) 2700

(21) $4000 + 3500 = 7500\text{m}$

(22) $2.3 + 2.5 = 4.8\text{m}$

(23) $680 - 470 = 210\text{mm}$

(24) $730 - 620 = 110\text{cm}$

(25) $5.4 + 8.2 = 13.6\text{km}$

(26) $960 - 745 = 215\text{mm}$

(27) $130 + 54 + 25 = 209\text{cm}$

19

(1) Possible answers:
- a piece of fruit,
- a small plastic toy,
- a piece of bread,
- empty coffee cup,
- packet of biscuits

(2) a car, a truck

(3) an animal, a bag of potatoes

(4) a feather, a toothpick

(5) 7000 | (7) 9

(6) 5400 | (8) 4.7

(9) 8 | (11) 3000

(10) 7.2 | (12) 6100

(13) 4 | (15) 6000

(14) 7.6 | (16) 2100

(17) $4 + 4.5 = 8.5\text{kg}$

(18) $2300 + 3100 = 5400\text{mg}$

(19) $6.8 - 2.4 = 4.4\text{kg}$

(20) $9.2 - 7.8 = 1.4\text{t}$

(21) $7.3 - 4.7 = 2.6\text{kg}$

(22) $9600 - 7400 = 2200\text{mg}$

(23) $800 + 68 + 2.5 = 870.5\text{g}$

(24) $0.83 \times 6 = 4.98\text{kg}$

(25) $3200 \div 8 = 400\text{g}$

20

(1) Possible answers:
- water in a kitchen sink,
- paint in a tin,
- milk in a carton,
- petrol in a cars tank,
- water in an aquarium

(2) water in a lake, water in an ocean

(3) medicine on a spoon, coffee in a cup

(4) 7000 | (6) 9

(5) 9400 | (7) 7.3

(8) 6 | (10) 9000

(9) 5.4 | (11) 7600

(12) 2.5L

(13) 1200mL

(14) $7 + 2.5 = 9.5\text{L}$

(15) $4300 + 2100 = 6400\text{mL}$

(16) $9.5 - 3.7 = 5.8\text{kL}$

(17) $9200 - 7800 = 1400\text{mL}$

(18) $8.6 - 5.2 = 3.4\text{L}$

(19) $7600 - 5200 = 2400\text{mL}$

(20) $1200 + 400 + 1.5 = 1601.5\text{L}$

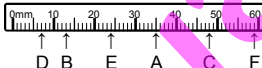
(21) $0.82 \times 6 = 4.92\text{kL}$

(22) $4.9 \div 7 = 0.7\text{L}$

21

(1) centimetres

(2) G = 0.6cm
H = 1.3cm
I = 3.5cm
J = 4.1cm
K = 2.2cm
L = 5.8cm

(3) 


(4) 44mm is the same as 4.4cm

(5) Line AB = 43mm
Line CD = 32mm
Line EF = 50mm
Line GH = 32mm
All the above answers could be $\pm 1\text{mm}$

(6) Draw a 67mm line

(7) kilograms

(8) 106kgs

(9) 

(10) litres

(11) 34L

(12) 50L

22

(1) $10 + 12 + 8 = 30\text{cm}$

(2) $6 + 15 + 6 + 15 = 42\text{m}$

(3) $5 + 9 + 5 + 5 + 9 + 5 = 38\text{mm}$

(4) $11 + 7 + 7 + 11 + 7 + 7 = 50\text{cm}$

(5) 9m

(6) 28m

(7) 210m

(8) 28m

23

Please Note: due to estimating some squares, your answers may vary by one or two.

(1) 21 square units

(2) 21 square units

(3) Own shapes

(4) 1 row = 11 squares
Area = 4 rows of 11 = 44 sq units

(5) 9m^2

(6) 12m^2

(7) 12m^2

(8) 20m^2

(9) base x height = area ²

(10) 15cm^2

(11) 20m^2

(12) 12m^2

(13) 42cm^2

24

(1) 16

(2) 16

(3) 9

(4) 3

(5) 27

(6) 100

(7) to No answers supplied

(11)

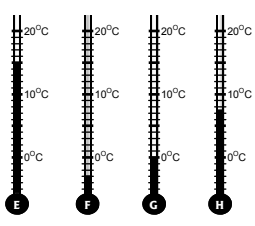
(12) 60 blocks

(13) 72 blocks

25

(1) thermometer

(2) A = 15°C
B = 8°C
C = 4.5°C
D = -1°C

(3) 

(4) 21°C

(5) 5°C

(6) 23°C

(7) 46°C

(8) 0°C


(9) -5°C


(10) 7°C


(11) 6°C

(12) 9°C

26


(1)  7:20
20 past 7

(2)  3:33
27 to 4

(3)  10:20
20 past 10

(4) twenty past seven

(5) 6:30

(6) 

(7)

a.m. or p.m. time	24hr time
5:12 a.m.	→ (7) 0512
(8) 9:50 a.m.	← (7) 0950
7:46 p.m.	→ (9) 1946
(10) 3:27 p.m.	← (11) 1527
11:55 p.m.	→ (11) 2355
(12) 7:06 p.m.	← (13) 1906
12:25 p.m.	→ (13) 1225

to

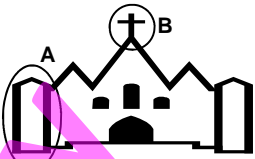
(13)

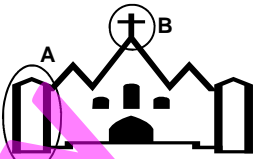
Station	Time
Central Station	8:45 a.m.
Station 1	9:02 a.m.
Station 2	9:16 a.m.
Station 3	9:27 a.m.
Station 4	9:40 a.m.

(14) 38 minutes

27

(1) circle, triangle, square, octagon, rectangle, oval, hexagon, pentagon, diamond (rhombus)

(2) and 

(3) 

(4) 8 corners, 8 sides, all sides are straight lines and same length - this shape is an octagon.

(5) 5 corners, 5 sides, all sides are straight lines and same length - this shape is a pentagon.

(6) 6 corners, 6 sides, all sides are straight lines and same length - this shape is a hexagon.

(7) A and B have 4 sides and 4 corners. Opposite sides are equal length. All angles in A are equal but not in B, although opposite angles in B are equal.

28

(1) A = sphere (ball)
B = cube
C = rectangular box
D = cylinder
E = cone

(2) circle

(3) rectangle

(4) triangle

(5) oval

(6) triangle

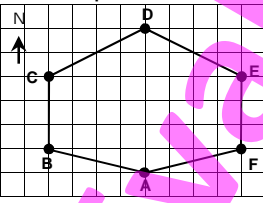
(7) Top and bottom of this object are the shape of a circle, both the same size, a curved face between the two circles. Two edges but no corners - this object is a cylinder.

(8) 8 corners, 12 edges, 6 faces, all faces are squares of the same size - this object is a cube.

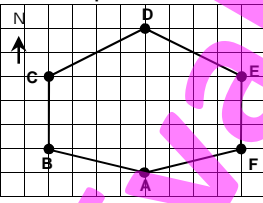
29

(1) N = North, S = South
E = East, W = West

(2) 4 squares west then 1 square north

(3) 

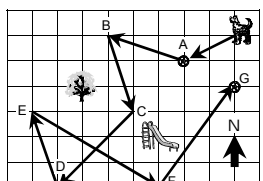
to

(6) 

(7) 1 square south, 4 squares west

(8) hexagon

(9) 3m west then 1m north,
3m south then 1m east,
3m south then 3m west,
3m north then 1m west,
5m east then 3m south.

(10) 

30

(1) 2E

(2) 5B

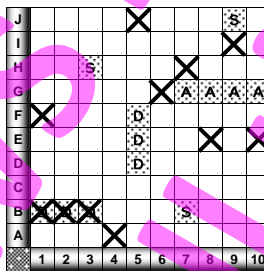
(3) 5D, 5C, 5B, 5A

(4) 2C, 3C, 4C, 5C

(5) George Hotel

(6) Cathedral Grammar School

(7) Bowls

(8) 



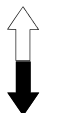
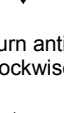
(9) destroyer

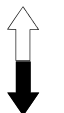
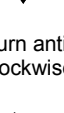
(10) S = 9J
S = 3H
S = 7B
D = 5D, 5E, 5F
A = 7G, 8G, 9G, 10G



31



(1) 1/4 turn clockwise



(2) 1/2 turn



(3)    



(4)  



(5)   1/4 turn anti-clockwise



(6)   1/2 turn



(7)   1/4 turn clockwise



(8)   1/2 turn



(9)  



(10)  



(11)  

(12)  

(13)  

(14)  

(15)  

(16)  

(17) Own design

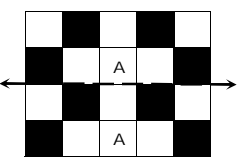
32

(1) rotation

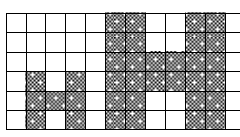
(2) translation

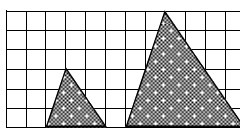
(3) reflection

(4) translation

(5) 

(6) Own designs

(7) 

(8) 

(9) Own enlargement

33

(1)

# of pets	Tally	Total
0	IIII	4
1	HHH II	7
2	HHH HHH	10
3	HHH HHH I	11
4	HHH I	6
5	HHH	5
6	I	1
		44

(2) 10
 (3) 5
 (4) 2 & 3
 (5) 6
 (6) 0
 (7) 44

(8)

# of caterpillars per plant	Tally	Total
4	III	3
5	HHH III	8
6	HHH HHH	10
7	HHH HHH I	11
8	HHH IIII	9
9	HHH HHH	10
10	HHH	5
		56

(9) 7
 (10) 4
 (11) 56

34

(1) (S) = 14
 (R) = 17

(2)

(3) 8
 (4) F = February
 (5) 40
 (6) cats = 12
 dogs = 10

(7)

a: AAAAAAAAAAAAAA
 e: EEEEEEEEEEEEEE
 i: IIIIIIIIIIIIIII
 o: OOOOOOO
 u: UUUUUU

Key: 1 picture = 4 vowels

(8) boys = 10
 girls = 16

(9)

35

(1) 23, 29, 24, 36, 38,
 42, 40, 45, 59

(2) 59
 (3) 17
 (4) 372

(5)

5	9, 5
6	3, 9, 5, 4
7	1, 6, 0, 3
8	7, 0

(6)

(7) 18°C
 (8) 26°C - 15°C = 11°C

36

There may be more than one possible answer to these exercises, the following are some possible examples to use.

(1) Collect data by asking each classmate either verbally or written, which singing group they listen to. Record and organise the data in a tally chart or dot plot.

(2) column graph
 pictogram
 dot plot

(3) Own answer
 (4) Own answer
 (5) - 52 people surveyed,
 - most people want to go to the park,
 - the least amount of people want to go to a movie,
 - the second most important thing people want to do is to go to the beach.

37

(1) 24 ÷ 4 = 6
 (2) 21 ÷ 3 = 7
 (3) 28 ÷ 4 = 7
 (4) 30 ÷ 5 = 6
 (5) 35 ÷ 5 = 7
 (6) 40 ÷ 4 = 10
 (7) 63 ÷ 3 = 21
 (8) 200 ÷ 2 = 100
 (9) 45 ÷ 5 = 9
 (10) 120 ÷ 3 = 40
 (11) 5 days
 (12) 10 hours
 (13) 2 hours per day
 (14) 2
 (15) 9 - 1 = 8
 (16) 18 - 3 = 15
 (17) 82 - 10 = 72
 (18) 96 - 12 = 84
 (19) 120 - 18 = 102
 (20) 85 - 19 = 66
 (21) 160 - 132 = 28
 (22) 34 - 19 = 15°C

38

(1) 6
 (2) 15
 (3) 37
 (4) 10
 (5) 4
 (6) 12
 (7) 16
 (8) 34
 (9) 55
 (10) 15.5
 (11) 2
 (12) 3
 (13) 8, 9
 (14) 6
 (15) 3
 (16) 7
 (17) 8
 (18) To work out the most popular size sold
 (19) 8, 8, 8, 8, 8, 8,
 10, 10, 10, 12, 12, 12
 median = 9

39

(1) Peter would see a comedy movie on Sunday.

(2) 6
 (3) 8

(4)

	A	O	P	B
HR	HR/A	HR/O	HR/P	HR/B
SR	SR/A	SR/O	SR/P	SR/B

(5) salad roll and orange
 (6) HR/A, HR/O, HR/P, HR/B, SR/A, SR/O, SR/P, SR/B
 (7) 8
 (8) tea/milk,
 tea/no milk,
 coffee/milk,
 coffee/no milk
 (9)

```

  graph TD
    Monday --> M_morning[morning]
    Monday --> M_afternoon[afternoon]
    Tuesday --> T_morning[morning]
    Tuesday --> T_afternoon[afternoon]
    Friday --> F_morning[morning]
    Friday --> F_afternoon[afternoon]
  
```

(10) 6 outcomes

40

(1) 1 out of 2
 or $\frac{1}{2}$
 (2) 1 out of 200
 or $\frac{1}{200}$
 (3) 10 out of 500
 or $\frac{10}{500}$ or $\frac{1}{50}$
 (4) 400 tickets
 (5) 1 out of 6 or $\frac{1}{6}$
 3 out of 6 or $\frac{3}{6}$ or $\frac{1}{2}$
 0 out of 6 or $\frac{0}{6}$
 (6) 20 red marbles
 10 blue marbles
 (7) 6
 (8) 10
 (9) 8
 (10) 11
 (11) 40
 (12) 10 out of 40
 or $\frac{10}{40}$ or $\frac{1}{4}$
 (13) 8 out of 40
 or $\frac{8}{40}$ or $\frac{1}{5}$
 (14) 3
 (15) Because there are more number 1 cards than number 4 cards.