

Australian



Signpost NSW

MATHS

Sample pages



Mentals

Introduction

Using the Mentals Books

Each unit of the Mentals Book is programmed to review Student Book content for the previous two weeks (based on the Suggested Program in the Teacher's Book). For example, Unit 15 of the Mentals Book can be set as homework to review weeks 13 and 14 of the Student Book while week 15 is being taught.

Presentation

- The content of the strands Number and Algebra, Measurement and Geometry, and Statistics and Probability is covered thoroughly.
- Essential skills are explained.
- Language, problem solving, graphs and tables are given a high profile.
- Mathematics is applied to real-life situations wherever possible.
- The **Arithmetic Card** (page 5) is an exciting teaching tool for practising basic number skills.
- **ID Cards** (pages 6–8) review the terms essential to success in the course.
- **Measurement examples and tables** (pages 9 and 84) are provided so that students can estimate effectively.

Mixed-topic Questions

The units present questions in a mixed-topic format.

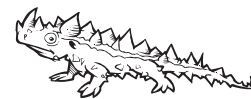
- This is essential for thorough understanding and continuous review.
- In real life, similar questions don't often occur together.
- It allows the teacher to discover weaknesses that could otherwise pass unnoticed.
- It provides a real test of understanding.

Graded Questions

- Column 1: easier
- Columns 2 and 3: harder
- Column 4: Extension and Challenge

Motivation

- Cartoons make mathematics more appealing.
- There are two lizards hidden on each page for students to find.



Extra Activities



- Problem-solving **strategies** are introduced in a carefully planned sequence throughout the series.



- Important concepts from **Number and Algebra** and **Measurement and Geometry** are explored.



- **Measurement** concepts and activities are introduced and investigated.



- **Statistics and Probability** concepts (Data and Chance) are presented for revision and extension.



- A **tables** program for each of the four operations is included.
- It is important for students to try to learn addition and multiplication tables by heart.



Arithmetic Card	5	Units	10–83
ID Cards	6–8	Tables of Number and Measurement	84
Examples of Measurements	9	Answers	A1–A12 (middle pages)

Unit Activities



Unit	Content	Extra Activity
1:1/2 1:3/4	+ 2, + 3, + 4 Personal measures	+ tables Measure
2:1/2 2:3/4	+ 5, + 10, + 6 Language	+ tables ID Card C
3:1/2 3:3/4	$\times 10$, $\times 5$ Time	\times tables Measure
4:1/2 4:3/4	+ 8, + 9, + 7 Time	+ tables Measure
5:1/2 5:3/4	$\times 2$, $\times 4$ Number line division	\times tables Concept
6:1/2 6:3/4	$\times 10$, $\times 5$ $\times 4$	\times tables \times tables
7:1/2 7:3/4	$\times 2$, $\times 5$, $\times 4$, $\times 10$, $\times 0$, $\times 1$ Language	\times tables ID Card C
8:1/2 8:3/4	Time Rounding (nearest 5)	Measure Concept
9:1/2 9:3/4	– 5, – 10, – 4 Chance	– tables Chance
10:1/2 10:3/4	– 6, – 7 + and – linked	– tables Concept
11:1/2 11:3/4	– 8, – 9 Chance	– tables Chance
12:1/2 12:3/4	$\times 2$, $\times 4$, $\times 8$, $\times 5$, $\times 10$ Column graph	\times tables Data
13:1/2 13:3/4	$\times 4$, $\times 8$ Change from \$2	\times tables Concept
14:1/2 14:3/4	$\times 4$, $\times 8$ Language	\times tables ID Card B
15:1/2 15:3/4	Patterns Crossnumber puzzle	Concept Concept
16:1/2 16:3/4	$\times 3$, $\times 6$ Problem solving	\times tables Strategy Time
17:1/2 17:3/4	Chance $\times 3$, $\times 6$	Chance \times tables
18:1/2 18:3/4	$\times 9$ Division strategies	\times tables Concept
19:1/2 19:3/4	$\times 9$ $\times 3$, $\times 6$	\times tables \times tables

Unit	Content	Extra Activity
20:1/2 20:3/4	$\times 7$ $\times 6$, $\times 8$	\times tables \times tables
21:1/2 21:3/4	$\times 7$, $\times 8$ Fractions	\times tables Concept
22:1/2 22:3/4	$\times 6$, $\times 8$ Area	\times tables Measure
23:1/2 23:3/4	Area Problem solving	Measure Strategy Time
24:1/2 24:3/4	Chance Roman numerals	Chance Concept
25:1/2 25:3/4	$\times 6$, $\times 7$ Language	\times tables ID Card C
26:1/2 26:3/4	Roman numerals Problem solving	Concept Strategy Time
27:1/2 27:3/4	Length Compass directions	Measure Concept
28:1/2 28:3/4	Multiplication tables Language	\times tables ID Card B
29:1/2 29:3/4	Language Problem solving	ID Card A Strategy Time
30:1/2 30:3/4	$\times 7$, $\times 8$ \div tables	\times tables Concept
31:1/2 31:3/4	\times and \div linked $\div 2$, $\div 4$	Concept \div tables
32:1/2 32:3/4	$\times 6$, $\times 9$ $\div 5$, $\div 10$	\times tables \div tables
33:1/2 33:3/4	\times and \div linked $\div 3$, $\div 6$	Concept \div tables
34:1/2 34:3/4	$\div 7$, $\div 8$ Language	\div tables ID Card A
35:1/2 35:3/4	$\div 9$, $\times 4$, $\times 7$, $\times 9$ Factors	\div and \times tables Concept
36:1/2 36:3/4	Language $\times 11$	ID Card A \times tables
37:1/2 37:3/4	Language Personal measures	ID Card B Measure
Answers	These can be found in the middle of this book on pages A1 to A12.	

2:1

out of 20

2:2

out of 15

- 1 $2 + 3$ _____
- 2 $5 + 6$ _____
- 3 $6 - 2$ _____
- 4 $8 - 5$ _____
- 5 $\begin{array}{r} 2 \\ + 5 \\ \hline \end{array}$
- 6 4×2 _____
- 7 5×5 _____
- 8 Add 7 and 4. _____
- 9 3 less than 8. _____
- 10 $\begin{array}{r} 8 \\ - 1 \\ \hline \end{array}$

- 11 100, 90, 80, 70, _____, _____, _____
- 12 The number after 69. _____



What part is shaded? _____ out of _____

- 14 8 tens + 9 ones _____
- 15 $50c + 20c + 10c + 5c$ _____

- 16 Which Australian coins are coloured gold? _____

- 17 Colour two quarters of this shape.



- 18 Are 10, 16, 28 and 32 even numbers? _____

- 19 The change from \$20 if you buy something worth \$15. _____

- 20 Sue's team scored 11 goals in a game of soccer. If they scored 4 in the first half, how many goals did they score in the second half? _____

- 1 $8 + 8$ _____
- 2 $21 + 7$ _____
- 3 $20 - 6$ _____
- 4 $10 - 5$ _____
- 5 $\begin{array}{r} 16 \\ + 4 \\ \hline \end{array}$
- 6 5×1 _____
- 7 9 times 2 _____
- 8 $10 \div 2$ _____
- 9 19 subtract 12 _____
- 10 $\begin{array}{r} 17 \\ - 2 \\ \hline \end{array}$



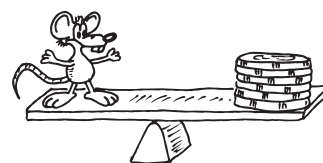
- 11 Which of these objects have only flat surfaces? _____



- 12 What is the time shown on this clock face? _____ past _____



- 13 A mouse was balanced by 6 coins. A book was balanced by 12 coins.



How many mice would balance the book? _____

- 14 The change from \$1.00, if I buy an ice block worth 35c? _____

- 15 In a cupboard there were 18 cups, 10 bowls, 16 saucers and 13 plates.

How many more cups were there than plates? _____

2:3

out of 12

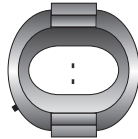
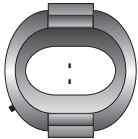
1	Tens	Ones
	6	5
	+ 3	1

2	Tens	Ones
	8	4
	- 6	4

3 Write the digital time for:

a quarter past 3

b half past 3



4 From the numbers 1, 4, 8, 30 and 50, choose the best estimate for the length of a car in metres.

5 What is the change from \$2 if you spend:

a 35 cents?

b 70 cents?

6 Ten less than 87.

7 I live 100 m from school. How far do I walk to school and back in one school week?

8 Colour $\frac{3}{4}$.

9 a How many vertices on a square?

b How many sides on a hexagon?

10 Write 17 minutes past 3 in digital time.

11 Days in June.

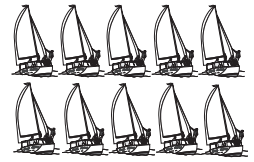
12 Jim had 63 stamps. He gave 10 to his sister. How many did he have left?



2:4

out of 6

1 How many full weeks in 3 years?

2 $85 - 15 - 15 - 15$ 3 Colour $\frac{3}{5}$ of these boats blue and $\frac{2}{5}$ of the boats red.

4 The total quantity of drink held in these containers.



5 How many 60c stamps could you buy for \$2?

6 $38 + 23$

38

Challenge

Draw and label some fractions of your own.



Turn to ID Card C on page 8.

Give the answers for these numbers.

(4) _____ (5) _____

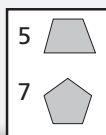
(6) _____ (7) _____

(11) _____ (12) _____

(13) _____ shapes (14) _____ shapes

Make up a study card for any mistakes.

Make a study card:
Put questions on one
side and answers on
the other.

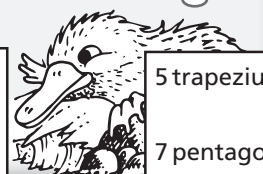


5

7

5 trapezium

7 pentagon



3:1

out of 17

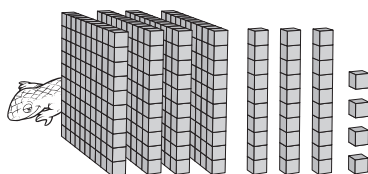
3:2

out of 15

- 1 $8 + 4$ _____
- 2 $5 + 9$ _____
- 3 $9 - 7$ _____
- 4 $8 - 4$ _____
- 5 $\begin{array}{r} 16 \\ + 2 \\ \hline \end{array}$
- 6 6×0 _____
- 7 1×3 _____
- 8 Add 6 and 3. _____
- 9 Take 3 from 8. _____
- 10 $\begin{array}{r} 14 \\ - 2 \\ \hline \end{array}$

- 11 What number is ten more than 43? _____
- 12 Complete this number pattern.
11, 13, 15, 17, _____, _____, _____
- 13 Write 39 in words.

- 14 Change from \$1 if I spend 50 cents? _____
- 15 What number is modelled here? _____



- 16 Write six past nine in digital time. _____
- 17 Colour 3 fifths of this rectangle red.



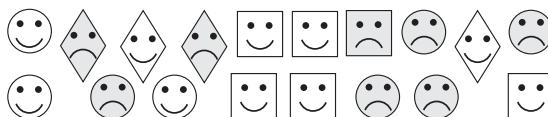
- 1 $5 + 10$ _____
- 2 $16 + 4$ _____
- 3 $18 - 1$ _____
- 4 $20 - 9$ _____
- 5 $\begin{array}{r} 32 \\ + 6 \\ \hline \end{array}$
- 6 4×2 _____
- 7 5 groups of 2. _____
- 8 6×2 _____
- 9 14 shared by 7. _____
- 10 $\begin{array}{r} 5 \\ \times 9 \\ \hline \end{array}$

- 11 Colour 9 out of 13.
- 12 30, 35, 40, 45, _____, _____, _____
- 13 What is the digital time? _____

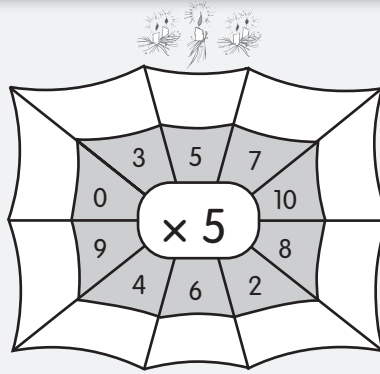
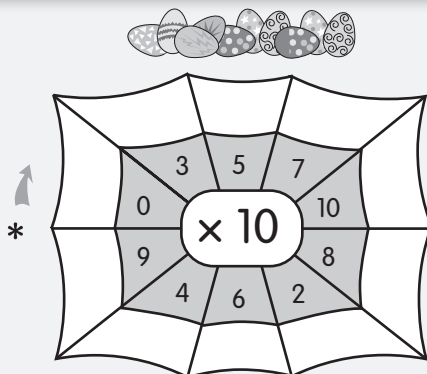
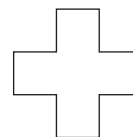


- 14 Complete this two-way table for these faces.

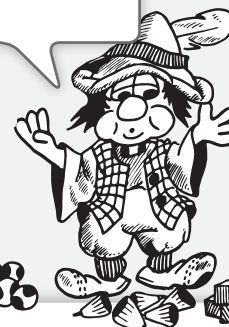
Smiley Face	Circle	Square	Rhombus
Happy			
Sad			



- 15 Draw 4 axes of symmetry.



3 lots of 5.



3:3

out of 9

Extension

3:4

out of 5

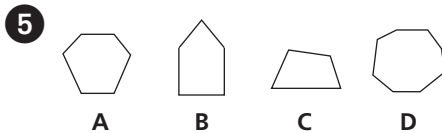
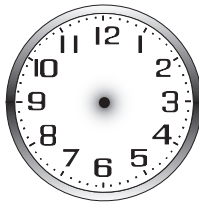
1	Tens	Ones
	\$5	3
	+\$3	5

2	Tens	Ones
	\$7	6
	-\$3	2

3 a 7, 14, 21, _____, _____, _____, _____

b 8, 16, 24, _____, _____, _____, _____

4 Draw the analog time for 7:15 on this clock face.

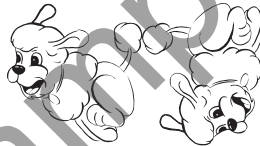


Which shape is a pentagon? _____

6 Estimate the number of times "e" is used on this page. Check by counting.

Estimate = _____ Number = _____

7 Is this a flip, slide or turn?



8 The digital time half an hour after three o'clock. _____

9 a What fraction is white? _____

b What fraction is shaded? _____



1 a Millilitres in $3\frac{1}{2}$ L. _____

b Centimetres in $4\frac{1}{2}$ m. _____

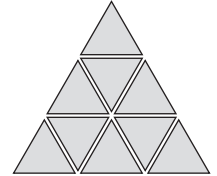
2 a $12 + 12 + 12 + 12$ _____

b $13 + 13 + 13 + 13$ _____

3 9 triangles have been used to make 3 rows of this pattern. How many triangles are needed to make:

a 4 rows? _____

b 6 rows? _____



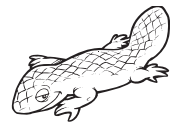
4 a Hours from 9 am till noon. _____

b Hours from noon till 7 pm. _____

5 For music notes (\bullet = 1, \circ = 2, \circ = 4) putting a dot after the symbols adds an extra half of its value. Write the value of:

a \bullet _____

b \circ _____



Challenge

Write your own number patterns and the rule for each.

How many minutes are in:

a one hour? _____ b half an hour? _____

c a quarter of an hour? _____

d three quarters of an hour? _____

For this clock, how many minutes:

e is it after 6 o'clock? _____

f is it before 7 o'clock? _____



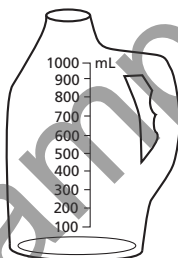
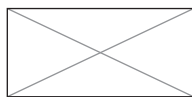
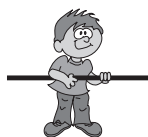
- 1 7×3 _____
- 2 $10 + 9$ _____
- 3 $6 - 4$ _____
- 4 $10 - 8$ _____
- 5 $\begin{array}{r} 28 \\ - 10 \\ \hline \end{array}$
- 6 8×6 _____
- 7 0×5 _____
- 8 Increase 8 by 2. _____
- 9 Triple 4. _____
- 10 $\begin{array}{r} 0 \\ + 0 \\ \hline \end{array}$



- 11 The total number of days in April, June and November. _____
- 12 The month before June. _____
- 13 Do the diagonals of a rectangle have the same length? _____
- 14 Do the diagonals above cut each other in half (bisect each other)? _____
- 15 Who is holding the horizontal line? _____

Emma

Jon



- 16 Show the level if 700 mL of water is put into this container. _____
- 17 Draw three axes of symmetry on this shape. _____

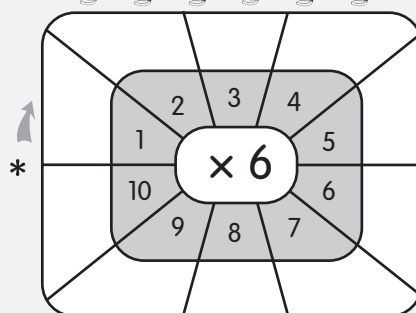
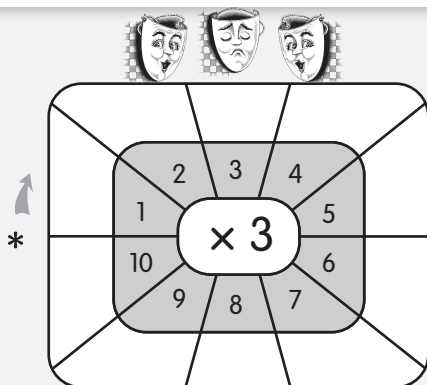


- 1 $9 + 6$ _____
- 2 $18 - 9$ _____
- 3 9×3 _____
- 4 10×5 _____
- 5 $\begin{array}{r} 33 \\ - 4 \\ \hline \end{array}$
- 6 4 times 6. _____
- 7 6 groups of 8. _____
- 8 $20 \div 4$ _____
- 9 $50 \div 10$ _____
- 10 $\begin{array}{r} 5 \\ \times 8 \\ \hline \end{array}$



- 11 Which 3 consecutive months have the smallest total of days? _____
- 12 Would you use L or mL to measure the capacity of a: _____
- a bucket? _____
- b tablespoon? _____
- c bath tub? _____
- 13 Draw a hexagon in this space. _____

- 14 A line drawn from one vertex of a polygon to another is called a _____. _____
- 15 $5 \times 3 = 15$ so $5 \times 6 =$ _____
- 16 a Millilitres in 2 litres. _____
- b Centimetres in 5 metres. _____
- 17 $\frac{1}{9}, \frac{2}{9}, \frac{3}{9},$ _____, _____, _____, _____



Rows of 6.



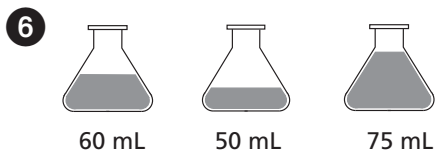
1	Tens	Ones
	2	2
	— 1	3

2	Tens	Ones
	\$3	5
	— \$1	7

3 m is the abbreviation for _____.

4 Our 23 turkeys hatched 64 chicks.
How many birds all together? _____

5 $4 \times 3 = 12$ so $4 \times 6 =$ _____



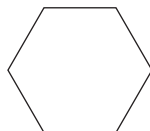
How many mL all together? _____

7 a Name this shape. _____

In this shape, how many:

b sides? _____

c angles? _____



8 Draw all of the diagonals
for this rectangle.



9 3 girls had 4 birds each.
How many birds all together? _____

10 $0, \frac{1}{4}, \frac{2}{4},$ _____, $1,$ _____

11 Use the short form to write:

a 500 millilitres _____

b 80 litres _____

c 1.5 metres _____

1 In how many ways can you
make 35 cents using 5c, 10c,
and 20c coins? _____

2 How many hours in 3 days? _____

3 Shelby bought four 2 000 mL
containers of milk. How many
litres did she buy all together? _____

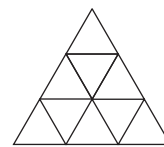
4 What fraction of \$1 is:
a 30c? _____

b 75c? _____

5 a $53 + 12 + 21 + 12$ _____

b $23 + 12 + 42 + 11$ _____

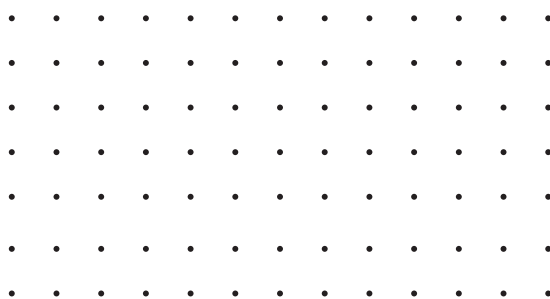
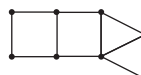
6 This figure has triangles
of different size. How
many triangles
all together? _____



Challenge

Draw as many different
composite shapes as you can
using two squares and two triangles.

Example:



Friends are in a line holding hands.
How many hands are held if there are:

a 2 children? _____ b 3 children? _____

c 4 children? _____ d 7 children? _____

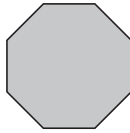
e 10 children? _____ f 20 children? _____



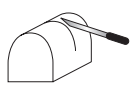
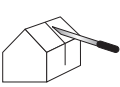
- 1 $9 + 6$ _____
- 2 $10 - 3$ _____
- 3 7×10 _____
- 4 $20 - 14$ _____
- 5 $\begin{array}{r} 14 \\ + 11 \\ \hline \end{array}$
- 6 8×5 _____
- 7 $10 + 7$ _____
- 8 $20c - 10c$ _____
- 9 $3 + 3 + 3 + 3$ _____
- 10 $\begin{array}{r} 16 \\ - 10 \\ \hline \end{array}$



- 11 Would you use litres or millilitres to measure the water in a cup? _____
- 12 For this octagon:
 a how many sides? _____
 b how many diagonals? _____



- 13 Draw the cross-section of each shape.



- 14 Would a cup hold more or less than 1 litre? _____
- 15 How many grams in 9 kilograms? _____
- 16

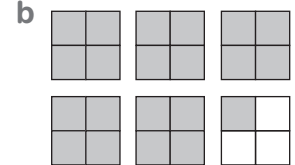
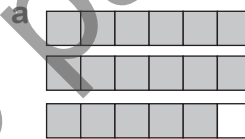


The total value of these coins in decimal form. _____

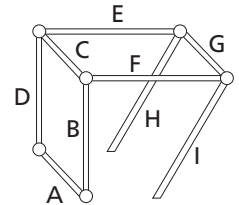
- 17 How many days in April? _____
- 18 a Litres in 2000 mL. _____
 b Millilitres in 3 L. _____

- 1 $14 + 7$ _____
- 2 $20 - 7$ _____
- 3 2×6 _____
- 4 3×4 _____
- 5 $\begin{array}{r} 30 \\ + 15 \\ \hline \end{array}$
- 6 5 groups of 6. _____
- 7 7×8 _____
- 8 $10 \div 2$ _____
- 9 8 shared by 2. _____
- 10 $\begin{array}{r} 8 \\ \times 6 \\ \hline \end{array}$

- 11 Millilitres in 2 litres. _____
- 12 I did 30 minutes of homework each night for 4 nights. How much time did I spend on homework? _____
- 13 Natasha bought 3 rings. Each cost \$2.00. How much did she pay? _____
- 14 Write the improper fraction for the shaded part.



- 15 Write 3 litres in short form. _____
- 16 How many kilograms in 3000 g? _____
- 17 Which pipes are:
 a horizontal? _____
 b vertical? _____
 c sloping? _____
 d not horizontal? _____



Place the letters in order, from *least likely* to *most likely*.

The first animal I see tomorrow will be a:

A	B	C	D	E	F
cat	rabbit	horse	cow	mouse	dog

least likely

most likely

Explain why you chose your order.

