Australian

Signpost MATHS

5

Mentals

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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 to 9) review the terms essential to success in the course.
- **Measurement examples** and **tables** (page 84 and inside back cover) are provided so that students can estimate effectively.

Mixed-topic Questions

The units present questions in a mixed-topic format.

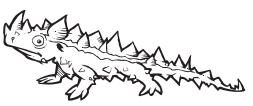
- This is essential for thorough understanding and continuous review.
- In real life, similar questions don't often occur together.
- It allows the teacher to discover weaknesses that could otherwise pass unnoticed.
- It provides a real test of understanding.

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.

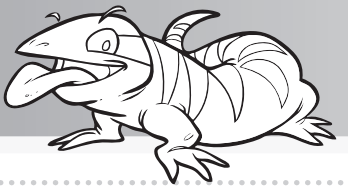
- Important concepts from **Number and Algebra** and **Measurement and Geometry** are explored.

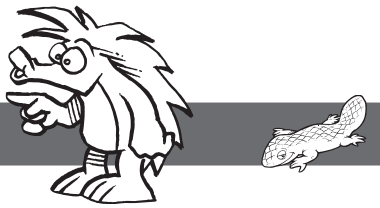
- **Measurement** concepts and activities are introduced and investigated.

- **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.

5 Contents





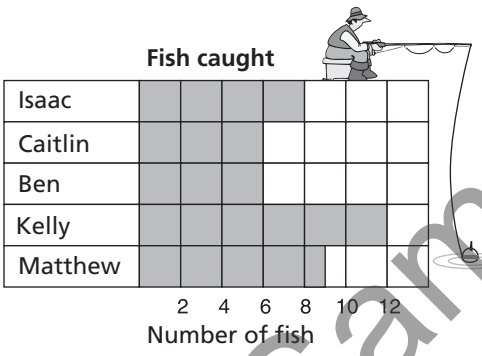
Unit Activities

Unit	Content	Extra Activity	Unit	Content	Extra Activity
1:1/2 **1:3/4**	× 2, × 4 Personal measures	× tables Measure	**20:1/2** **20:3/4**	÷ 3, ÷ 6 Compass directions	÷ tables Concept
2:1/2 **2:3/4**	× 10, × 5 – 3, – 7	× tables – tables	**21:1/2** **21:3/4**	2D Space Problem Solving	Concept Strategy time
3:1/2 **3:3/4**	× 3, × 4 Problem Solving	× tables Strategy time	**22:1/2** **22:3/4**	Area and perimeter Language	Strategy time ID Card C
4:1/2 **4:3/4**	× 3, × 6 Problem Solving	× tables Strategy time	**23:1/2** **23:3/4**	÷ 7, ÷ 8 Roman numerals	÷ tables Concept
5:1/2 **5:3/4**	× 7 Division	× tables ÷ tables	**24:1/2** **24:3/4**	– 3, – 5, – 9 Division	– tables ÷ tables
6:1/2 **6:3/4**	× 8 Division	× tables ÷ tables	**25:1/2** **25:3/4**	× 3, × 6 Problem Solving	× tables Strategy time
7:1/2 **7:3/4**	× 9 Language	× tables ID Card A	**26:1/2** **26:3/4**	× 9, × 7 Problem Solving	× tables Strategy time
8:1/2 **8:3/4**	– 6, – 8 Problem Solving	– tables Strategy time	**27:1/2** **27:3/4**	Perimeter Language	Measure ID Card A
9:1/2 **9:3/4**	Problem Solving Rounding off	Strategy time Concept	**28:1/2** **28:3/4**	Perimeter Number patterns	Measure Concept
10:1/2 **10:3/4**	Factors × 2, × 5, × 4, × 10, × 0, × 1	Concept × tables	**29:1/2** **29:3/4**	Perimeter × 6, × 7, × 8	Measure × tables
11:1/2 **11:3/4**	Problem Solving × 10, × 5	Strategy time × tables	**30:1/2** **30:3/4**	Is this game fair? Language	Chance ID Card D
12:1/2 **12:3/4**	Dot plots Language	Data ID Card D	**31:1/2** **31:3/4**	× 3, × 5, × 9 Codes	× tables Concept
13:1/2 **13:3/4**	Dot plots Area	Data Measure	**32:1/2** **32:3/4**	÷ 2, ÷ 4 Magic squares	÷ tables Concept
14:1/2 **14:3/4**	Division with remainders × 3, × 6	Concept × tables	**33:1/2** **33:3/4**	Language Roman numerals	ID Card B Concept
15:1/2 **15:3/4**	Division with remainders – 9, – 5	Concept – tables	**34:1/2** **34:3/4**	Comparing chance × 9, ÷ 9	Chance ×, ÷ tables
16:1/2 **16:3/4**	Chance as a fraction 15 -, 16 -	Chance – tables	**35:1/2** **35:3/4**	Rounding money Mass	Concept Strategy time
17:1/2 **17:3/4**	Using a graph Language	Concept ID Card B	**36:1/2** **36:3/4**	× 4, × 9 Problem solving	× tables Strategy time
18:1/2 **18:3/4**	The jump strategy × 7, × 8	Strategy time × tables	**37:1/2** **37:3/4**	Language Personal measures	ID Card C Measure
19:1/2 **19:3/4**	Compass points × 8, × 6	Concept × tables	**Answers**	These can be found in the middle of this book on pages A1 to A12.	

5:1 ____ out of 16

1. 5×2 _____
2. $11 - 6$ _____
3. 7×4 _____
4. $18 \div 9$ _____
5. $9 + 10$ _____
6. 2×5 _____
7. 3×4 _____
8. Add 5 and 8. _____
9. Take 4 from 9. _____
10. 41×2 _____

11. Write the numeral for:
    - **a** 50 000 + 3 000 + 200 + 5 _____
    - **b** 20 000 + 300 + 80 + 1 _____
12. One hour later than 6:35 am. _____
13. **a** Is 173 closer to 100 or 200? _____
    - **b** Is $1.49 closer to $1 or $2? _____
14. Metres in one kilometre. _____
15. 400 000 + 300 + 50 + 2 _____
16.



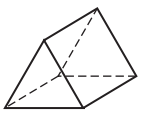
    - **a** What is the difference between the number of fish caught by Kelly and the number caught by Caitlin? _____
    - **b** Who caught 9 fish? _____

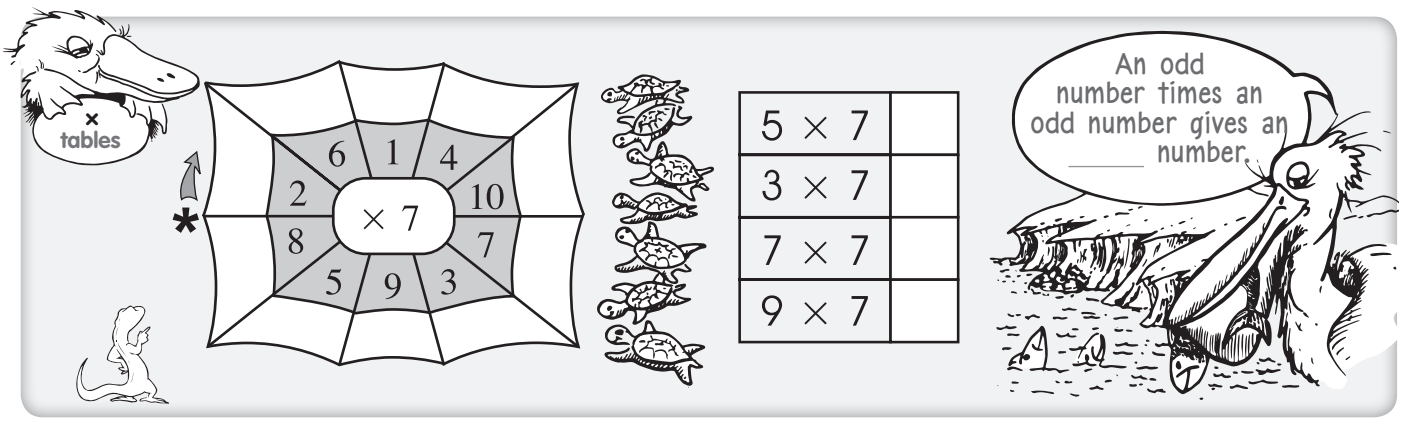
5:2 ____ out of 20

1. $7 + 9$ _____
2. $24 \div 6$ _____
3. $20 - 14$ _____
4. 4×8 _____
5. $43 + 15$ _____
6. 6×9 _____
7. $18 + 6$ _____
8. $49 \div 7$ _____
9. 8×5 _____
10. $96 - 50$ _____

11. What is the value of the 9 in 197 273? _____
12. Write the numeral for 300 000 + 90 000 + 5 000 + 300 + 90 + 2. _____
13. Share 20 between 4. _____ each
14. Kilometres in 7 000 m. _____
15. Write the numeral one million, nine hundred thousand two hundred and forty-seven. _____
16. Circle the larger number:

    2 951 623 2 951 633
17. 4 297 m = _____ km _____ m
18. Is 3 289 closer to 3 200 or 3 300? _____
19. **a** Hours from 2 pm to 6 pm. _____
    - **b** Hours from 9 am to 3 pm. _____
20. This is a: _____





5:3 ☐ out of 12

1. 312 + 231 + 15

2. 27 + 150 + 212

3. 341 + 25 + 112

4. Write in order from largest to smallest.
3 359 574, 3 395 637, 3 392 035

_____

5. Share 28 books among 4 girls.
One share = _____

6. Days in one leap year. _____

7. **a** Round off 437, correct to the nearest hundred. _____

   b If a number is rounded off to 500, what could it have been? _____

8. Metres in one kilometre. _____

9. What is the time 29 minutes after 4:12? _____

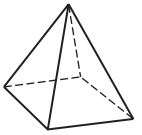
10. In which season is February? _____

11. Round 2 457 372 to the nearest million. _____

12. On a square pyramid, how many:

    a faces? _____

    b edges? _____



Extension

5:4 ☐ out of 6

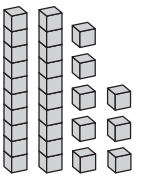
1. Months in $7\frac{1}{4}$ years? _____

2. 'am' means: _____

3. How many days in summer? _____

4. **a** 3×28 _____

   b 4×28 _____



5. If this pattern continued, what would the 35th shape look like?

▲, ●, ■, △, ○, □, ▲, ●, _____

6. 

Every 4 minutes a dove flies away. How long would it take the doves to leave? _____

Challenge

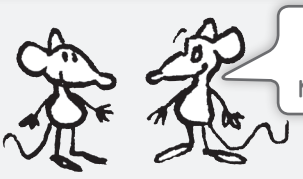
Represent and label at least two mixed numbers.

	÷ 2	÷ 4	÷ 1
8			

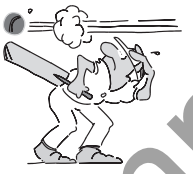
	÷ 2	÷ 12	÷ 6	÷ 3
12				

	÷ 6	÷ 9	÷ 3
18			

	÷ 2	÷ 6	÷ 4	÷ 8
24				

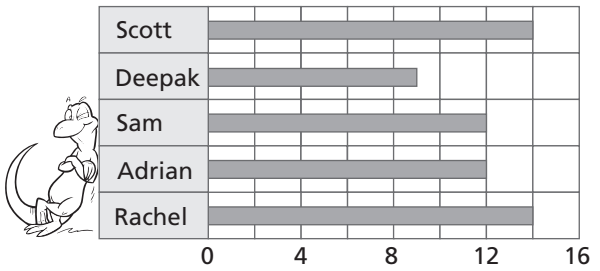


6:1 ____ out of 19

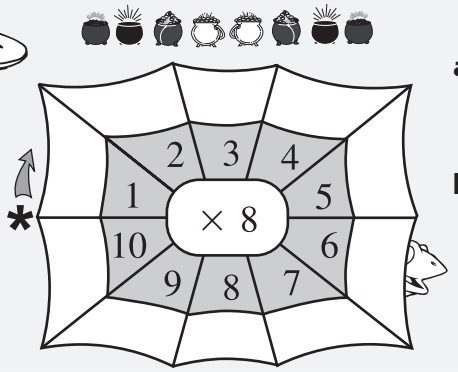
1. 9 + 6 ____
2. 4 × 3 ____
3. 6 + 8 ____
4. 7 – 2 ____
5. 51 + 8 ____
6. 12 minus 8. ____
7. Double 4. ____
8. Half of 16. ____
9. 8 ÷ 2 ____
10. 7 + 32 ____
11. Make the smallest number you can using all of the digits:
    5 2 8 7 ____
12. 10 000 + 2 000 + 50 + 9 ____
13. Days in 1 year. ____
14. Share 8 cakes among 4 people.
    One share = ____
15. Days in 1 fortnight. ____
16. Is the length of a cricket bat closer to 30 cm, 1 m or 1 km?
    
    ____
17. 4 bags of 20 balls. ____ balls
18. Use < or > in:
    a 19 704 ____ 19 695
    b 38 431 ____ 38 507
19. Write the numeral six million twenty-three thousand four hundred and three. ____

6:2 ____ out of 16

1. 11 – 3 ____
2. 4 × 6 ____
3. 2 + 13 ____
4. 2 × 3 ____
5. 4 × 2 ____
6. Half of 20. ____
7. 48 + 3 ____
8. 9 + 4 + 2 ____
9. Add 7 and 6. ____
10. 96 c – 13 c ____
11. Write in order from largest to smallest.
    8 781 344, 8 768 367, 8 780 033
    ____
12. Share 15 books among 3 people.
    One share = ____
13. The winter months. ____
    ____
14. Round off 888 to the nearest hundred. ____
15. 500 metres is ____ of a kilometre.
16. **Number of hours worked**



    a For how long did Adrian work? ____
    b How many hours were worked altogether? ____



a Greg had 7 sheets of stickers. 8 were on each sheet. How many stickers were there? ____

b Each of the 6 pictures on our ties come in 8 colours. How many different ties do we have? ____

6:3 ☐ out of 10

1. H T U

   5 6 9
   + 1 3 3

2. H T U

   1 6 7
   + 2 4 3

3. Share 21 toys among 3 children. One share = _____

4. 9072 m = _____ km _____ m

5. Write 2 km 87 m as metres. _____ m

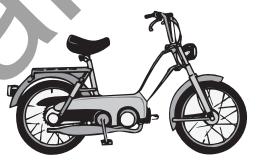
6. **a** 5 minutes before 1:05? _____

   b 10 minutes before 1:05? _____

7. 2 m, 10 cm, 20 cm, 45 cm
   Which of these would be about the width of your head? _____

8. Estimate your height. _____

9. My trip took 34 minutes. When did I arrive if I left home at 8:30 am? _____



10. Round 5 687 940 to the nearest million. _____

6:4 Extension ☐ out of 7

1. I bought 6 pens for $24. How much would it cost for:

   a one? _____ **b** two? _____

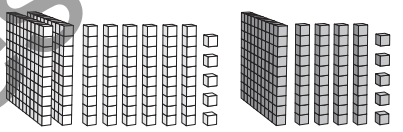
2. Mum swam 1 kilometre. Evan swam a quarter of this distance. How far did Evan swim?

   _____

3. ☐ + 32 = 81 ☐ = _____

4. Four lots of $1\frac{1}{2}$. _____

5. **a** 265 + 145 _____



   b 265 – 145 _____

6. In every space made by a row of 6 trees, we planted 8 flowers. How many flowers did we plant? _____

7. **a** Centuries in 2 000 years. _____

   b Decades in 700 years. _____

Challenge

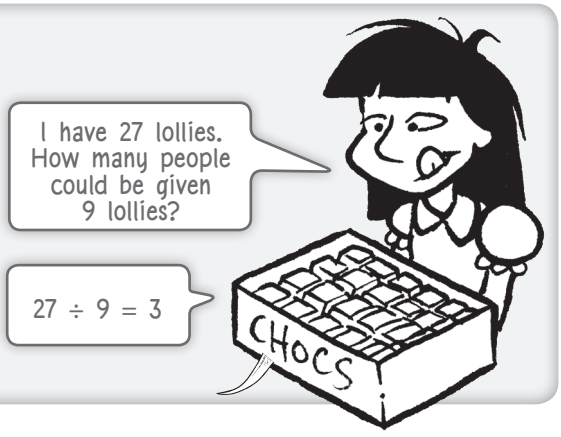
Draw a 2D shape and describe it.

	÷ 5	÷ 10	÷ 2
10			

	÷ 3	÷ 1	÷ 9
27			

	÷ 6	÷ 5	÷ 2
30			

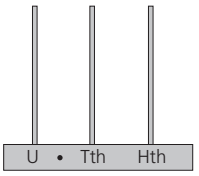
	÷ 2	÷ 6	÷ 7
42			



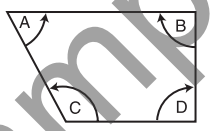
17:1 ____ out of 17

1. 13 + 5 ____
2. 7 × 7 ____
3. 14 – 6 ____
4. 18 ÷ 3 ____
5. $\begin{array}{r} 11 \\ \times\ 4 \\ \hline \end{array}$
6. 2 × 5 ____
7. 15 – 15 ____
8. 6 plus 73. ____
9. 2 groups of 12. ____
10. $\begin{array}{r} 38\text{m} \\ -\ 21\text{m} \\ \hline \end{array}$

11. Show 8·07 on this abacus.



12. Does 1 hectare = 10 000 m^2? ____
13. Which ordinal number comes:
    - **a** before 73rd? ____
    - **b** two after 73rd? ____
14. Find the number of pencils in one share if 3 people share 18 pencils. ____
15. Which angle is:



    - **a** an acute angle? ____
    - **b** an obtuse angle? ____
16. Is 30° acute, obtuse or reflex? ____
17. Write the numeral:
    - **a** thirty-three point seven ____
    - **b** eighty point five two ____

17:2 ____ out of 16

1. 45 + 25 ____
2. 6 × 4 ____
3. 28 – 9 ____
4. 4 × 3 ____
5. $\begin{array}{r} 1270 \\ +\ 650 \\ \hline \end{array}$
6. 90 – 82 ____
7. 80 take away 11. ____
8. 2 times 8. ____
9. 74 plus 6. ____
10. $\begin{array}{r} 1754 \\ +\ 689 \\ \hline \end{array}$

11. Complete the following:

    216·93 = ____ hundreds
    ____ tens
    ____ units
    ____ tenths
    ____ hundredths
12. Hectares in 20 000 m^2. ____
13. The total value of these notes.

    ____
14. **a** Write the digital time shown.

    ____

    b Write the analogue time shown.

    ____ to ____
15. How many 20 cent coins placed end to end, would reach 30 cm? ____
16. Square metres in 5 ha. ____

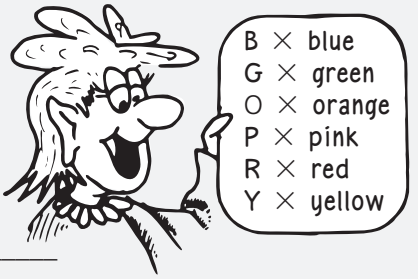
Using a graph

Crosses or dots can be used on a graph.

Draw a graph of these colour choices made by students.

B, R, R, G, P, B, O, R, B, R,G, P, O, R

G, B, P, O, Y, Y, R, B, O, G, G, B, B, P



- **a** Which is the favourite colour? ____
- **b** How many students chose green? ____
- **c** How many more chose red than pink? ____