Australian

Signpost MATHS

4

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Short Contents

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What is Australian Signpost Maths?

Australian Signpost Maths is a mathematics activity book series for students from Foundation to Year 6. The series has been written to meet the requirements of the Australian Curriculum.

The components of the series include Student Books, Teacher's Books, Mentals Books and an interactive Website. Teachers can select an appropriate program for every student from the rich and varied material provided.

The content has been carefully sequenced within each year level and across the series to take into account students' likely mathematical development.

Student Books

Teacher's Books

Mentals Books

Website

The Structure of Australian Signpost Maths

Australian Signpost Maths emphasises the curriculum's syllabus content as well as problem-solving strategies, language development and the use of technology.

The syllabus is organised into three content strands and four proficiency strands:

Content Strands

- Number and Algebra
- Measurement and Geometry
- Statistics and Probability

Proficiency Strands (see page v)

- Understanding
- Fluency
- Problem Solving
- Reasoning

The curriculum's **general capabilities** are developed throughout the Australian Signpost Maths program. These are:

- literacy
- numeracy
- information and communication technologies (ICT)
- critical and creative thinking.

Australian Signpost Maths also provides opportunities to develop other general capabilities, such as personal and social competence and intercultural understanding.

The cross-curriculum dimensions of the syllabus – 'Aboriginal and Torres Strait Islander histories and cultures', 'Asia and Australia's engagement with Asia' and 'Sustainability' – are embedded in the program.

To maximise the benefits of the program, the Student Book, Teacher's Book, Mentals Book and Website should be used together.

The structure of the **Student Book** allows teachers to determine both the order and the extent of content covered. Strands are organised separately so that the teacher, not the Student Book, decides the content of the next lesson. However, a suggested term program (see page x of this book) and a detailed program (see the Teacher's Book and Website) are also provided.

The **Teacher's Book** also provides lesson plans for each page of the Student Book and blackline masters to assist teachers in implementing the program.

The **Mentals Book** mixes examples from all strands. It revises the content covered in the Student Book. Each content strand is thoroughly covered, with the proficiency strands incorporated within each section. A special feature woven throughout the Mentals Book is the tables program in the four operations.

The innovative **Website** help teachers to bring mathematics alive with technology. The website provides interactive maths tools, games and practice opportunities as well as relevant resource masters and worksheets for all year levels. These can be used for whole-class, small-group and individual learning. The website also includes **Concept Check-In**, a new diagnostic screener.

Student Book pages are colour-coded by section.

Number and Algebra A	Measurement and Geometry A	Statistics and Probability
Number and Algebra B	Measurement and Geometry B	Answers

Australian Curriculum Proficiency Strands

The proficiency strands of the Australian Curriculum describe how content is explored or developed – that is, the 'thinking and doing' of mathematics.

Understanding

Learning the concepts

*Students build a robust knowledge of adaptable and transferable mathematical concepts. They make connections between related concepts and progressively apply the familiar to develop new ideas. They develop an understanding of the relationship between the 'why' and the 'how' of mathematics.**

Conceptual understanding of maths ideas includes the explanation of a concept using text and diagrams. This occurs throughout Australian Signpost Maths at the top of many pages and is indicated by the Concepts icon.

Fluency

Using the concepts

*Students develop skills in choosing appropriate procedures, carrying out procedures flexibly, accurately, efficiently and appropriately, and recalling factual knowledge and concepts readily.**

The practice of maths skills to build fluency occurs on every page of Australian Signpost Maths.

Problem Solving

Applying concepts and strategies to develop solutions to problems

*Students develop the ability to make choices, interpret, formulate, model and investigate problem situations, and communicate solutions effectively.**

Problem solving provides opportunities for students to use strategies and skills such as investigating and questioning, to collaborate with others and to communicate their findings to different audiences. Such activities are often indicated throughout Australian Signpost Maths by the Activity and Investigation icons.

Reasoning

Coherent and logical thought

*Students develop an increasingly sophisticated capacity for logical thought and actions, such as analysing, proving, evaluating, explaining, inferring, justifying and generalising.**

Students require opportunities to explain their mathematical thinking and can do so through both diagrams and written explanations. Reasoning questions are located throughout Australian Signpost Maths.

* The Australian Curriculum: Mathematics, v1.2 – Content structure

Special Features of Australian Signpost Maths

- **Traffic Light** system allows students to reflect on their work and highlight any units that they are having trouble understanding. They tick the red for units they feel they still don't understand, and green for those they feel they understand fully.

- Exercises are **well graded**. New work is reinforced in the Mentals Book.
- **Answers** are supplied in the back of this book as well as in the Teacher's Book.
- **Concept Check-In** diagnostic screener (on the Website) provides a snapshot of the class' conceptual understandings to aid in classroom management. It also allows teachers to measure progress over time.
- The eight **Diagnostic Tests** (now also in the back of this book) allow the teacher to discover each student's strengths and weaknesses, and the cross-references direct students to the pages where that work is treated. Answers are supplied in the Teacher's Book.
- The **Dictionary** at the beginning of this Student Book will help students to learn the language of mathematics.
- **ID Cards** (in the Mentals Book, Teacher's Book and Website) review the language of mathematics by asking students to identify common terms, shapes and symbols.
- Important **rules and concepts** are clearly highlighted.
- **Worked examples** and explanations are given throughout the Student Book where new concepts are introduced.
- The use of **colour** makes emphasis clear and is highly motivating.
- **Cartoons** give instruction and friendly advice.
- **Interactive activities** are provided on the website for whole-class, small-group and individual learning.

Australian Signpost Icons

Signpost icons are used throughout the book as cues to the essential nature of exercises and activities, and as a guide to ways of engaging with them. These icons often indicate alternative or more concrete approaches to dealing with concepts.

This icon highlights **important rules and concepts** occurring throughout the book. It often appears with worked examples.

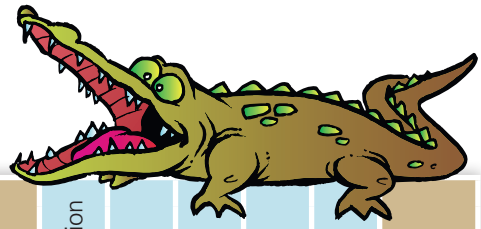
Activities provide **applications and enrichment**. These activities usually involve the use of concrete materials and partner or group work.

These enjoyable activities are used to **motivate and involve** students in mathematical pursuits. They usually involve games and puzzles.

Investigations allow students to **explore and discover** maths concepts.

This icon indicates the use of computers, calculators or other **information and communications technology**.

4 Contents and Syllabus Overview



KEY

- Number & Algebra
- Measurement & Geometry
- Statistics & Probability

Number and Algebra A			Sub-strand	Number and place value	Fractions and decimals	Patterns and algebra	Content	Counting and numeration	Place value	Fractions	Decimals	Number patterns	Suggested Progress
Page	Unit	Title											
1	1:01	Fractions			●					●			Term 1
2	1:02	Hundredths			●					●			
3	1:03	Decimals			●					●	●		
4	1:04	Numbers to 9 999		●				●	●				
5	1:05	Numbers to 9 999		●		●		●				●	
6	1:06	Solving Problems with Place Value		●				●	●				
7	1:07	Place Value to 10 000		●				●	●				T1, T2*
8	1:08	Rounding Off		●				●	●				
9	1:09	Expanded Notation		●				●	●				
10	1:10	Comparing Fractions			●					●			Term 2
11	1:11	Equivalent Fractions			●					●			
12	1:12	Equivalent Fractions			●					●			
13	1:13	Equivalent Fractions			●	●				●		●	
14	1:14	Improper Fractions and Mixed Numbers			●	●				●		●	T3, T4*
15	1:15	Mixed Numbers			●	●				●		●	
16	1:16	Numbers to 99 999		●				●	●				
17	1:17	Numbers to 99 999		●				●	●				
18	1:18	Equivalent Fractions			●					●			
19	1:19	Fractions and the Number Line			●	●				●		●	
20	1:20	Place Value in Decimals			●				●	●	●		Term 3
21	1:21	Tenths			●	●				●	●	●	
22	1:22	Comparing Decimals			●						●		
23	1:23	Place Value in Decimals			●				●		●		
24	1:24	Ordering Numbers to 99 999		●				●	●				T5, T6*
25	1:25	Reading and Writing Numbers		●				●	●				
26	1:26	Place Value to Hundredths		●	●				●		●		
27	1:27	Reading and Writing Decimals		●	●						●		
28	1:28	Reading and Writing Numbers		●				●	●				Term 4
29	1:29	Numbers to 999 999		●				●	●				
30	1:30	Place Value		●				●	●				
31	1:31	Rounding Off		●				●	●				T7, T8*
32	1:32	Fractions			●					●			
33	1:33	Fraction Patterns			●	●				●		●	
34	1:34	One Million		●				●	●				

* Suggested progress for Diagnostic Tests 1 to 8 is found in the Teacher's Book.
The first of each pair of tests covers the first half of the period.

Number and Algebra B			Sub-strand					Content								Suggested Progress
Page	Unit	Title		Number and place value	Money and financial mathematics	Patterns and algebra			Addition	Subtraction	Multiplication	Division	Place value	Number patterns	
35	2:01	Number Sequences		■		■					●			●	Term 1
36	2:02	Multiplication Tables Revision		■							●				
37	2:03	Multiplication Using Pictures		■							●				
38	2:04	Number Facts, × 2, × 4		■							●				
39	2:05	Number Facts, × 2, × 4		■							●				
40	2:06	Addition to 99, No Trading		■					●				●		
41	2:07	Addition, No Trading		■					●				●		
42	2:08	Addition to 99 with Trading		■					●				●		
43	2:09	Addition to 99 with Trading		■					●				●		
44	2:10	Addition with 2-Digit Numbers		■					●				●		T1, T2*
45	2:11	Addition Involving Hundreds		■					●				●		
46	2:12	Number Facts, × 8		■							●				Term 2
47	2:13	Number Facts, × 2, × 4, × 8		■		■					●			●	
48	2:14	Subtraction, No Trading		■						●					
49	2:15	Subtraction with Trading		■						●			●		
50	2:16	Subtraction with Trading to 99		■						●			●		
51	2:17	Subtraction with Trading to 99		■						●			●		
52	2:18	Subtraction with Trading to 99		■						●			●		
53	2:19	Addition Problems to 99		■					●				●		
54	2:20	Number Facts, × 3, × 6		■							●			●	
55	2:21	Number Facts, × 3, × 6		■		■					●				T3, T4*
56	2:22	Number Facts, × 9		■							●			●	
57	2:23	Number Facts, × 9		■							●			●	
58	2:24	Number Facts, × 7		■							●				
59	2:25	Multiplication Tables Review		■							●				
60	2:26	Addition to 999		■					●				●		
61	2:27	Addition to 999		■					●				●		
62	2:28	Writing the Addition Algorithm		■					●				●		
63	2:29	Finding Missing Numbers				■			●	●	●	●			
64	2:30	Subtraction without Trading to 999		■						●			●		Term 3
65	2:31	Subtraction with Trading to 999		■						●			●		
66	2:32	Subtraction with Trading to 999		■						●			●		
67	2:33	Subtraction with Trading to 999		■						●			●		
68	2:34	Subtraction from Hundreds		■						●			●		
69	2:35	Subtraction from Hundreds Strategy		■						●			●		
70	2:36	Division as Repeated Subtraction		■								●			
71	2:37	Understanding Division		■								●			T5, T6*
72	2:38	Division Facts		■							●	●			
73	2:39	Division Facts		■							●	●			

Number and Algebra B

Page	Unit	Title	Sub-strand: Number and place value	Money and financial mathematics	Patterns and algebra	Content: Addition	Subtraction	Multiplication	Division	Place value	Number patterns	Suggested Progress
74	2:40	Division Facts	■					●	●			
75	2:41	Division Using the Multiplication Grid	■					●	●			
76	2:42	Money		■		●	●					
77	2:43	Counting Change		■		●	●					Term 4
78	2:44	Factors and Multiples			■			●	●		●	
79	2:45	Products and Factors			■			●	●		●	
80	2:46	Problem Solving			■	●	●	●	●			
81	2:47	Problem Solving			■	●	●	●	●			
82	2:48	Working with Numbers			■			●	●		●	T7, T8*
83	2:49	Number Patterns			■	●	●				●	
84	2:50	Using Odd and Even Numbers	■			●	●	●	●			
85	2:51	Rounding Off Money		■		●						
86	2:52	What's the Rule?			■	●	●	●	●		●	
87	2:53	Multiplication Using Place-Value Blocks	■					●		●		

Measurement and Geometry A

Page	Unit	Title	Sub-strand: Using units of measurement	Shape	Content: Length	Area	Volume	Capacity	Mass	Time	Temperature	Suggested Progress
88	3:01	Analogue Time								●		Term 1
89	3:02	Analogue Time	■							●		
90	3:03	The Calendar	■							●		
91	3:04	The Calendar	■							●		
92	3:05	Using Centimetres and Millimetres	■		●							
93	3:06	Using Millimetres	■		●							
94	3:07	Recording Length	■		●							
95	3:08	Using Measurement Scales	■		●				●			T1, T2*
96	3:09	Temperature	■								●	Term 2
97	3:10	Recording Temperature	■								●	
98	3:11	Using Millilitres	■					●				
99	3:12	Using Millilitres	■					●				
100	3:13	Area Using Informal Units	■	■		●						
101	3:14	The Square Centimetre	■	■		●						T3, T4*
102	3:15	Measuring Mass	■						●			
103	3:16	Measuring Mass	■						●			
104	3:17	The Square Centimetre	■	■		●						
105	3:18	The Square Centimetre	■	■		●						Term 3
106	3:19	The Square Metre	■	■		●						
107	3:20	The Square Metre	■	■		●						
108	3:21	Finding Area	■	■		●						
109	3:22	Finding Area	■	■		●						
110	3:23	Analogue and Digital Time	■							●		
111	3:24	Time	■							●		

Measurement and Geometry A

Page	Unit	Title	Sub-strand: Using units of measurement	Sub-strand: Shape	Content: Length	Content: Area	Content: Volume	Content: Capacity	Content: Mass	Content: Time	Content: Temperature	Suggested Progress
112	3:25	Volume					●	●				T5, T6*
113	3:26	Finding Volume	■				●					
114	3:27	The Cubic Centimetre	■				●					
115	3:28	Timetables	■							●		
116	3:29	Comparing Measurements	■		●							Term 4
117	3:30	Personal Benchmarks	■		●			●	●			
118	3:31	Analogue and Digital Time	■							●		
119	3:32	am and pm Time	■							●		
120	3:33	Recording Length	■		●							T7, T8*
121	3:34	Using Millilitres	■					●				
122	3:35	Using Grams	■						●			

Measurement and Geometry B

Page	Unit	Title	Sub-strand: Shape	Sub-strand: Location and transformation	Sub-strand: Geometric reasoning	Content: 2D Space	Content: 3D Space	Content: Location	Content: Transformations	Content: Angles	Suggested Progress
123	4:01	Flip, Slide and Turn	■	■		●			●		Term 1
124	4:02	Angles and Plane Figures	■		■	●				●	
125	4:03	Comparing Angles			■					●	
126	4:04	3D Objects	■			●	●				
127	4:05	Prisms and Pyramids	■			●	●				T1, T2*
128	4:06	Surfaces of Prisms and Pyramids	■			●	●				
129	4:07	Drawing Prisms and Pyramids	■				●				Term 2
130	4:08	Drawing Angles			■					●	
131	4:09	Angles as Half and Quarter Turns			■					●	T3, T4*
132	4:10	Investigating Polygons	■		■	●				●	
133	4:11	Visualising Shapes	■		■	●					
134	4:12	Maps		■				●			
135	4:13	Creating a Map		■				●			
136	4:14	Cones, Cylinders and Spheres	■				●				Term 3
137	4:15	Views of 3D Objects	■			●	●				
138	4:16	Compass Directions		■				●			
139	4:17	Compass Directions		■			●	●			T5, T6*
140	4:18	Describing Position		■		●	●	●			
141	4:19	Using Position in Maps		■		●		●			
142	4:20	Visualising Shapes	■		■	●					
143	4:21	Acute and Obtuse Angles			■					●	Term 4
144	4:22	Horizontal and Vertical			■	●	●			●	T7, T8*
145	4:23	Tessellations		■		●			●		
146	4:24	Tangrams		■		●			●		

* Suggested progress for Diagnostic Tests 1 to 8 is found in the Teacher's Book.
The first of each pair of tests covers the first half of the period.

Statistics and Probability			Sub-strand	Chance	Data representation and interpretation	Content	Chance	Investigation	Data representation	Suggested Progress
Page	Unit	Title								
147	5:01	Drawing Tables			■			●	●	Term 1
148	5:02	Chance		■			●			
149	5:03	Chance		■			●			
150	5:04	Using Graphs			■				●	T1, T2*
151	5:05	Reading Graphs			■				●	
152	5:06	Ordering Events		■			●	●		Term 2
153	5:07	Chance Used in Games		■			●			T3, T4*
154	5:08	Surveys			■			●		
155	5:09	Tally Marks			■			●	●	Term 3
156	5:10	Constructing Spinners		■	■		●	●		
157	5:11	Unequal Outcomes		■	■		●	●	●	T5, T6*
158	5:12	Collecting Information						●		
159	5:13	Graphing Data					●	●	●	Term 4
160	5:14	Chance Experiments		■	■		●	●	●	T7, T8*
161	5:15	Carry Out Your Own Survey			■			●	●	
162	5:16	Chance Experiments		■	■		●	●	●	

* Suggested progress for Diagnostic Tests 1 to 8 is found in the Teacher's Book.
The first of each pair of tests covers the first half of the period.

Suggested Program

It is assumed that there are 10 weeks in each term.

	Weeks 1–10	Weeks 11–20	Weeks 21–30	Weeks 31–end
Number and Algebra A	1:01–1:09	1:10–1:19	1:20–1:27	1:28–1:34
Number and Algebra B	2:01–2:11	2:12–2:29	2:30–2:42	2:43–2:53
Measurement and Geometry A	3:01–3:08	3:09–3:16	3:17–3:28	3:29–3:35
Measurement and Geometry B	4:01–4:06	4:07–4:13	4:14–4:20	4:21–4:24
Statistics and Probability	5:01–5:05	5:06–5:08	5:09–5:12	5:13–5:16

The eight Diagnostic Tests are found in the Teacher's Book.
See the Contents and Syllabus Overview on pages vi–x for suggested placement of each test.

Contents Cross-reference

Number and Algebra

		Pages	Australian Curriculum Reference
1	**Whole numbers**		
	Four-, five- and six-digit numbers, and place value	4, 5, 6, 7, 8, 9, 16, 17, 24, 25, 28, 29, 30, 31, 34	Recognise, represent and order numbers to at least tens of thousands (ACMNA072); Apply place value to partition, rearrange and regroup numbers to at least tens of thousands to assist calculations and solve problems (ACMNA073)
	Odd and even numbers	84	Investigate and use the properties of odd and even numbers (ACMNA071)
	Rounding	8, 31, 60, 61, 85	Recognise, represent and order numbers to at least tens of thousands (ACMNA072); Apply place value to partition, rearrange and regroup numbers to at least tens of thousands to assist calculations and solve problems (ACMNA073)
	'is less than', 'is greater than'	10, 11, 12, 25	Recognise, represent and order numbers to at least tens of thousands (ACMNA072); Investigate equivalent fractions used in contexts (ACMNA077); Use equivalent number sentences involving addition and subtraction to find unknown quantities (ACMNA083)
2	**Addition**		
	Mental strategies	35, 63, 77	Apply place value to partition, rearrange and regroup numbers to at least tens of thousands to assist calculations and solve problems (ACMNA073); Investigate number sequences involving multiples of 3, 4, 6, 7, 8, and 9 (ACMNA074); Solve problems involving purchases and the calculation of change to the nearest five cents with and without digital technologies (ACMNA080); Use equivalent number sentences involving addition and subtraction to find unknown quantities (ACMNA083)
	Written strategies	40, 41, 42, 43, 44, 45, 53, 60, 61, 62, 85	Apply place value to partition, rearrange and regroup numbers to at least tens of thousands to assist calculations and solve problems (ACMNA073)
	Problem solving	40, 41, 43, 53, 62, 80, 81, 85	Apply place value to partition, rearrange and regroup numbers to at least tens of thousands to assist calculations and solve problems (ACMNA073); Use equivalent number sentences involving addition and subtraction to find unknown quantities (ACMNA083)
3	**Subtraction**		
	Mental strategies	49, 50, 52, 69, 77	Apply place value to partition, rearrange and regroup numbers to at least tens of thousands to assist calculations and solve problems (ACMNA073); Solve problems involving purchases and the calculation of change to the nearest five cents with and without digital technologies (ACMNA080)
	Written strategies	48, 49, 50, 51, 52, 64, 65, 66, 67, 68, 69	Apply place value to partition, rearrange and regroup numbers to at least tens of thousands to assist calculations and solve problems (ACMNA073); Use equivalent number sentences involving addition and subtraction to find unknown quantities (ACMNA083)
	Problem solving	49, 52, 64, 68, 80, 81, 85	Apply place value to partition, rearrange and regroup numbers to at least tens of thousands to assist calculations and solve problems (ACMNA073); Use equivalent number sentences involving addition and subtraction to find unknown quantities (ACMNA083)
4	**Multiplication**		
	Multiplication tables	36, 38, 39, 46, 47, 54, 55, 56, 57, 58, 59, 79	Investigate number sequences involving multiples of 3, 4, 6, 7, 8, and 9 (ACMNA074); Recall multiplication facts up to 10 × 10 and related division facts (ACMNA075); Explore and describe number patterns resulting from performing multiplication (ACMNA081)

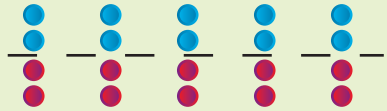
2:05 Number Facts, × 2, × 4

CONCEPT

The × 4 tables are double the × 2 tables.

5 × 2 = 10

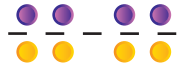
5 × 4 = 20



5 × 4 is double 5 × 2.

1 The top line of pictures shows the two times tables. Double this to find the four times tables.

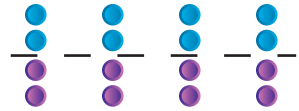
a



2 × 2 = ☐

2 × 4 = ☐

b



4 × 2 = ☐

4 × 4 = ☐

c

3 × 2 = ☐

3 × 4 = ☐

d

6 × 2 = ☐

6 × 4 = ☐

2 Use your answers for × 2 to find the answers for × 4.

a 1 × 2 = ☐

1 × 4 = ☐

b 7 × 2 = ☐

7 × 4 = ☐

c 10 × 2 = ☐

10 × 4 = ☐

d 8 × 2 = ☐

8 × 4 = ☐

3 Complete the × 2 tables first. Use your answers for the × 2 tables to answer the × 4 tables.

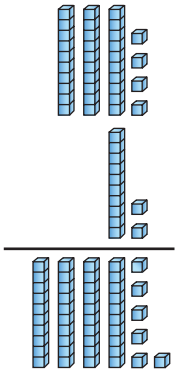
×	6	4	2	8	1	5	0	10	3	7	9
2											
4											

FUN SPOT

Circle Tables Challenge

- Students sit in a circle. One student stands behind someone in the circle.
- The student standing challenges the student sitting in front of them to multiply the number on a dice by 4. The dice is then thrown.
- The first one to answer correctly continues around the circle, standing behind the next person in the circle to challenge them. Dotted dice can be used to help students. Use your two times tables to help you.

2:06 Addition to 99, No Trading

I Show	I Think	I Write
	3 tens and 4 ones + 1 ten and 2 ones = 4 tens and 6 ones	Tens Ones 3 4 + 1 2 4 6

CONCEPT

1 Use the split strategy or place-value blocks to answer these.

a

Tens	Ones
9	2
+	6

b

Tens	Ones
4	2
+ 5	1

c

Tens	Ones
3	5
+ 6	2

d

Tens	Ones
1	5
+ 2	3

e

Tens	Ones
8	1
+ 1	2

f

Tens	Ones
1	4
+ 2	4

g

Tens	Ones
1	7
+ 3	0

h

Tens	Ones
5	0
+ 2	7

i

Tens	Ones
$5	0
+ $1	9

j

Tens	Ones
$2	3
+ $1	5

k

Tens	Ones
$4	4
+ $4	4

l

Tens	Ones
$2	7
+ $5	1

2 **a** 7 tens and 2 ones
+ 2 tens and 3 ones

b 6 tens and 0 ones
+ 2 tens and 9 ones

c 3 tens and 2 ones
+ 5 tens and 6 ones

d 3 tens and 4 ones
+ 1 ten and 2 ones

e 5 tens and 3 ones
+ 2 tens and 5 ones

f 2 tens and 1 one
+ 4 tens and 8 ones

3 **a** I paid $23 for a shirt and $56 for pants.
How much did I spend? ☐

b There are 14 boys and 13 girls in our class.
How many in our class? ☐

c 14 horses and 32 cows are on our farm.
How many animals altogether? ☐

d I saved $41. Alana saved $37.
How much did we save? ☐

2:19 Addition Problems to 99

Problem Solving

How many pencils does Molly have if she has 24 in her bag and 47 in her desk?

Find: How many pencils?

Number sentence: 24 + 47 = ☐

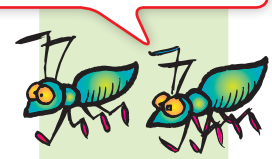
Answer: Molly has 71 pencils.

Working

Tens	Ones
1	
2	4
+ 4	7
7	1

1 Answer these questions, setting them out as shown above.

Use these blanks for working. Work in pencil so they can be reused.



a Luke's test had 27 mistakes. Naomi's had 22 mistakes. How many mistakes do they have together? ☐ mistakes

b Brianna had 56 pet ants. Jordan caught 8 more and gave them to her. How many did she have then? ☐ ants

c Wen, an ancient Chinese king, began the first zoo 3000 years ago. He received 56 animals from the north and 27 from the south. How many animals did he receive altogether? ☐ animals

d At night, an owl can see about 100 times better than a human. In one week an owl caught 53 mice. In the next week it caught 38. How many mice did it catch altogether? ☐ mice

e At a waterhole, Michelle photographed 31 magpie geese, 12 Burdekin ducks and 8 pied herons. How many birds did she photograph altogether? ☐ birds

f A family of 18 bandicoots lived near 13 possums and 6 native cats. How many animals were there altogether? ☐ animals

Tens Ones

Tens Ones

Tens Ones

2 **a** Alan saw three varieties of finch in one paddock. There were 35 zebra finches, 15 double-bar finches and 27 spice finches. How many were there altogether? ☐ finches

b On Phillip Island, 37 penguins came ashore before 6 pm. In the next hour 8 more arrived. How many had arrived by 7 pm? ☐ penguins

c Consecutive numbers follow one after the other. Find the sum of the consecutive numbers 28, 29 and 30. ☐ is the sum

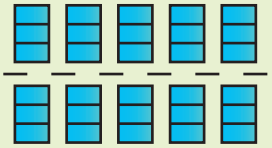
d In a Test cricket series, Eric batted three times. His scores were 44, 28 and 19. What was his total score? ☐ runs

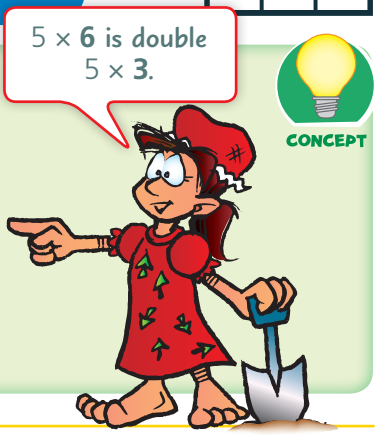
2:20 Number Facts, × 3, × 6

The **× 6** tables are double the **× 3** tables.

5 × 3 = 15

5 × 6 = 30

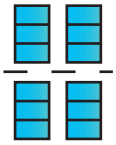




CONCEPT

1 The top line of pictures shows the × 3 tables. Double this to find the × 6 tables.

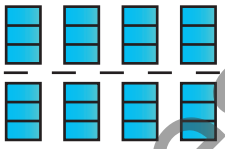
a



2 × 3 = ☐

2 × 6 = ☐

b



4 × 3 = ☐

4 × 6 = ☐

c

3 × 3 = ☐

3 × 6 = ☐

d

7 × 3 = ☐

7 × 6 = ☐

2 Use your answers for × 3 to find the answers for × 6.

a 1 × 3 = ☐ 1 × 6 = ☐

b 10 × 3 = ☐ 10 × 6 = ☐

c 8 × 3 = ☐ 8 × 6 = ☐

d 11 × 3 = ☐ 11 × 6 = ☐

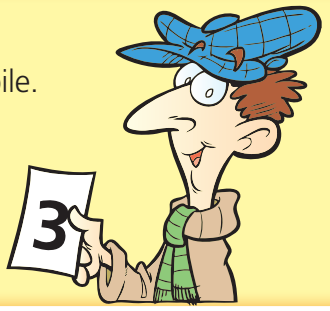
3 Complete the × 3 tables first. Use your answers for the × 3 tables to answer the × 6 tables.

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

The answers in the × 6 row are multiples of 6.

Table Cards

- 2–4 players use cards marked 0–10, placed face down in a pile.
- A card is turned. The first student to multiply the card by 3 keeps the card. The person with the most cards wins.
- **Extension**: Multiply the cards by 6.



FUN SPOT

2.52 What's the Rule?

CONCEPT

14, 11, 8, ...

The next number would be 5.

2, 6, 18 ...

The next number would be 54.

1 Write the next number in each pattern.

a 2, 4, 6,		**b** 1, 5, 9,		**c** 20, 18, 16,	
d 3, 6, 12,		**e** 27, 9, 3,		**f** 1, 5, 25,	
g 99, 98, 97,		**h** 9, 16, 23,		**i** 80, 40, 20,	

2 Write the rule for each part of Question 1.

a	**b**	**c**
d	**e**	**f**
g	**h**	**i**

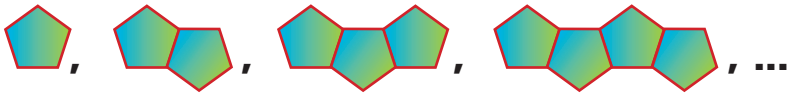
3 Continue each pattern by following the rule.

a Add 7.	0, , , ,	**b** Subtract 5.	26, , , ,		
c Multiply by 4.	1, , , ,	**d** Divide by 2.	88, , , ,		
e Add 11.	23, , , ,	**f** Subtract 9.	47, , , ,		
g Multiply by 2.	6, , , ,	**h** Divide by 3.	27, , , ,		

4 Write the pattern for the number of lines used in the pictures and write the rule used (like 'add 3').

a 

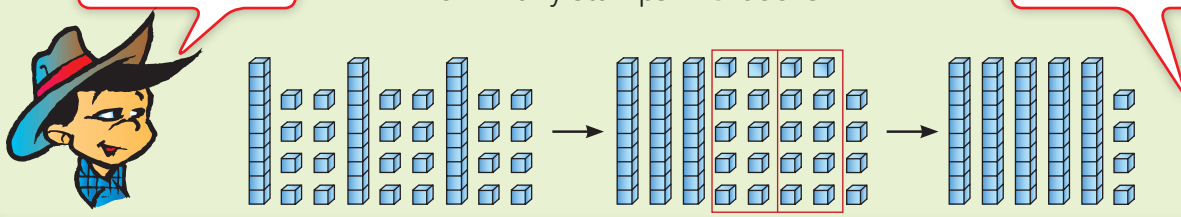
Pattern: 4, , , , … Rule:

b 

Pattern: , , , , … Rule:

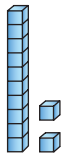
2:53 Multiplication Using Place-Value Blocks

CONCEPT



Make an estimate, then use place-value blocks to find:

1

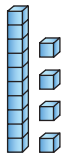


a 2 × 12 = ☐ **b** 3 × 12 = ☐ **c** 4 × 12 = ☐

d 5 × 12 = ☐ **e** 6 × 12 = ☐ **f** 7 × 12 = ☐

g 8 × 12 = ☐ **h** 9 × 12 = ☐ **i** 10 × 12 = ☐

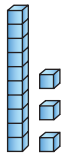
2



a 3 groups of 14 apples = ☐

b 5 rows of 14 candles = ☐

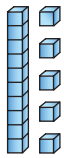
c 8 lots of 14 pencils = ☐



d 2 groups of 13 caps = ☐

e 5 rows of 13 fish = ☐

f 4 lots of 13 pins = ☐



g 4 groups of 15 trains = ☐

h 9 rows of 15 nails = ☐

i 3 lots of 15 frogs = ☐

Ancient Egyptian Multiplication

ACTIVITY

This method involves doubling and adding.

A 1 group of 16 = **16**
B 2 groups of 16 = 32
C 4 groups of 16 = **64**
D 8 groups of 16 = **128**
E 16 groups of 16 = 256

To multiply by 13 we would add **D**, **C** and **A** (because 8 + 4 + 1 = 13).

13 × 16 = **128** + **64** + **16**
= 208

3 Use this method and rows **A** to **E** to complete:

a 20 × 16 = ☐ **b** 18 × 16 = ☐ **c** 12 × 16 = ☐

d 21 × 16 = ☐ **e** 24 × 16 = ☐ **f** 28 × 16 = ☐

Use a calculator to check your answers.