Australian

Signpost MATHS

5

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Short Contents

Come in and crunch some numbers.

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**

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 iv)

- 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.

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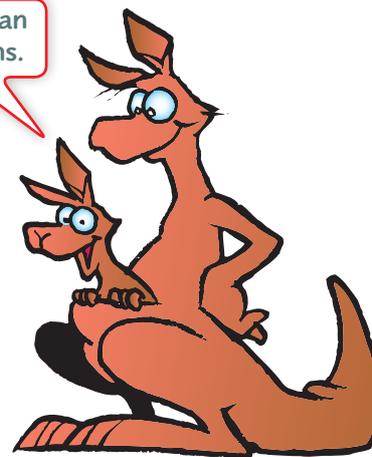
To maximise the benefits of the program, the Student Book, Teacher's Book, Mentals Book and Website should be used together.

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 xii 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.

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* The Australian Curriculum: Mathematics, v8.3 – 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 introduced. 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 ideas 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.

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

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

FUN SPOT — These enjoyable activities are used to **motivate and involve** students in mathematical pursuits. They include games and puzzles.

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

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

KEY

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

Page	Unit	Title	Number and place value	Fractions and decimals	Patterns and algebra	Counting and numeration	Place value	Fractions	Decimals	Number patterns	Suggested progress
		Number and Algebra A	Sub-strand			Content					
1	1:01	Numbers to One Million	■			●	●				Term 1
2	1:02	Numbers Above One Million	■			●	●				
3	1:03	Powers of Ten	■				●				
4	1:04	Hundredths		■				●	●		
5	1:05	Fractions		■				●			
6	1:06	Unit Fractions		■				●			T1, T2*
7	1:07	Tenths		■				●	●		Term 2
8	1:08	Decimals		■				●	●		
9	1:09	Place Value in Decimals	■	■			●	●	●		
10	1:10	Place Value to Thousandths	■	■			●	●	●		
11	1:11	Reading and Writing Decimals	■	■			●		●		T3, T4*
12	1:12	Comparing Decimals	■	■			●		●		
13	1:13	Place Value to Thousandths	■	■			●	●	●		
14	1:14	Addition of Fractions		■				●			Term 3
15	1:15	Subtraction of Fractions		■				●			
16	1:16	Addition and Subtraction of Fractions		■				●			
17	1:17	Addition and Subtraction of Fractions		■				●			
18	1:18	Addition and Subtraction of Fractions		■				●			
19	1:19	Comparing Decimal Measurements		■					●		T5, T6*
20	1:20	Using Decimals		■	■				●	●	
21	1:21	Patterns with Fractions and Decimals		■				●	●	●	
22	1:22	Equivalent Fractions		■				●			
23	1:23	Equivalent Fractions		■				●			
24	1:24	Equivalent Fractions		■				●			Term 4
25	1:25	Percentages		■				●			T7, T8*
26	1:26	Using Percentages		■				●			

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

Number and Algebra B

Page	Unit	Title	Number and place value	Money and financial mathematics	Patterns and algebra	Addition	Subtraction	Multiplication	Division	Place value	Number patterns	Suggested progress
27	2:01	Number Facts, ×2, ×3, ×4, ×5, ×10	■					●				Term 1
28	2:02	Number Facts, ×6, ×7, ×8, ×9	■					●				
29	2:03	Learning your Multiplication Tables	■					●				
30	2:04	Division Facts	■		■				●			
31	2:05	Rounding	■							●		
32	2:06	Addition to 999	■			●						
33	2:07	Addition to 999	■			●						
34	2:08	Subtraction Without Trading to 999	■				●					
35	2:09	Writing the Addition Algorithm	■			●						
36	2:10	Subtraction with Trading to 999	■				●					
37	2:11	Subtraction with Trading to 999	■				●					
38	2:12	Multiples	■					●				
39	2:13	Factors	■					●	●			T1, T2*
40	2:14	Addition of Money	■			●						
41	2:15	Subtraction of Money	■				●					
42	2:16	Shopping	■			●	●					Term 2
43	2:17	Using Strategies to Solve Problems			■			●	●		●	
44	2:18	Division with Remainders	■						●			
45	2:19	Division of 2-Digit Numbers	■						●			
46	2:20	Using Division Facts	■						●			
47	2:21	Number Patterns			■	●	●				●	
48	2:22	Subtraction with Trading to 999	■	■			●					
49	2:23	Subtraction from Hundreds	■	■			●					
50	2:24	Addition to 9 999	■	■		●						
51	2:25	Addition to 9 999	■	■		●						
52	2:26	Subtraction with Trading to 9 999	■				●					
53	2:27	Four-Digit Subtraction from Thousands	■				●					
54	2:28	Subtraction from Thousands Strategy	■	■			●					
55	2:29	Mental Strategies	■			●	●					T3, T4*
56	2:30	Factors and Multiples	■					●	●			
57	2:31	Factors and Multiples	■					●	●			
58	2:32	Dividing 2-Digit Numbers	■						●			
59	2:33	Dividing 2-Digit Numbers	■						●			
60	2:34	Dividing 2-Digit Numbers	■						●			
61	2:35	Dividing 3-Digit Numbers	■						●			

Sub-strand · Content

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
62	2:36	Multiplying Tens		■	■					●				Term 3
63	2:37	Multiplying Tens or Hundreds		■						●				
64	2:38	Dividing 3-Digit Numbers by 10		■							●			
65	2:39	Division Involving Zeros in Answers		■							●			
66	2:40	Divisibility		■		■					●			
67	2:41	Factors and Multiples		■						●	●			
68	2:42	Averages		■				●			●			
69	2:43	Averages		■				●			●			
70	2:44	Using Factors in Multiplication		■						●				
71	2:45	Mental Strategies for Multiplication		■						●				
72	2:46	Number Patterns				■							●	
73	2:47	Number Patterns											●	
74	2:48	Multiplying 2-Digit Numbers		■						●				
75	2:49	Introducing Extended Multiplication		■						●				T5, T6*
76	2:50	The Extended Form of Multiplication		■						●				
77	2:51	The Extended Form of Multiplication		■						●				
78	2:52	Estimating by Rounding		■				●	●			●		
79	2:53	Estimating Products		■						●				
80	2:54	The Contracted Form of Multiplication		■	■					●				
81	2:55	The Contracted Form of Multiplication		■	■					●				
82	2:56	Using Algorithms to Solve Problems		■				●	●					Term 4
83	2:57	Problems Involving Change of Units		■				●	●	●	●			
84	2:58	Estimation by Rounding		■				●	●	●	●			
85	2:59	Estimating Products		■						●				
86	2:60	Making a Budget		■	■			●						
87	2:61	Shopping		■	■			●	●					
88	2:62	Using Operations to Solve Problems		■	■			●	●	●	●			T7, T8*
89	2:63	Strategies for Multiplication		■						●				
90	2:64	Finding Missing Numbers		■		■		●	●	●	●		●	
91	2:65	Finding Missing Numbers		■		■		●	●	●	●		●	
92	2:66	Using Strategies to Solve Problems		■									●	
93	2:67	Problem Solving		■	■			●					●	
94	2:68	Number Machines		■		■		●	●	●			●	

Sample pages

Measurement and Geometry A			Sub-strand	Using units of measurement	Content	Length	Area	Volume	Capacity	Mass	Time	Temperature	Suggested progress
Page	Unit	Title											
95	3:01	Time Units		●							●		Term 1
96	3:02	Kilometres		●		●							
97	3:03	Kilometres and Metres		●		●							
98	3:04	Perimeter		●		●							
99	3:05	Perimeter		●		●							T1, T2*
100	3:06	Calculating Area		●			●						Term 2
101	3:07	Square Metres		●			●						
102	3:08	Hectares		●			●						
103	3:09	Area		●			●						
104	3:10	Cubic Centimetres		●				●					T3, T4*
105	3:11	Cubic Centimetres		●				●					
106	3:12	24-Hour Time		●							●		Term 3
107	3:13	Using 12- and 24-Hour Time		●							●		
108	3:14	Cubic Metres		●				●					
109	3:15	Volume of Rectangular Prisms		●				●					
110	3:16	Millimetres		●		●							
111	3:17	Perimeter		●		●							T5, T6*
112	3:18	24-Hour Time		●							●		
113	3:19	Problems Involving Time		●							●		
114	3:20	Tonnes		●						●			Term 4
115	3:21	Grams and Kilograms		●						●			
116	3:22	Using Measurement Scales		●		●			●	●		●	
117	3:23	Converting Measurements		●		●							T7, T8*
118	3:24	Stopwatches		●							●		
119	3:25	Exploring Perimeter, Area and Volume		●		●	●	●					

* 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.

Page	Unit	Title	Shape	Location and transformation	Geometric reasoning	2D Space	3D Space	Location	Transformations	Angles	Suggested progress
120	4:01	Review of 3D Space	■				●				Term 1
121	4:02	Prisms and Pyramids	■				●				
122	4:03	Translations, Reflections and Rotations		■					●		
123	4:04	Translations, Reflections and Rotations		■		●			●		
124	4:05	Nets	■				●				T1, T2*
125	4:06	Describing Position		■		●		●			
126	4:07	Measuring Angles Using a Protractor			■					●	
127	4:08	Angle Types in Degrees			■					●	Term 2
128	4:09	Using a Protractor			■					●	
129	4:10	Classifying Angles			■					●	T3, T4*
130	4:11	Compass Directions		■				●			
131	4:12	Reading a Street Directory		■				●			
132	4:13	Rotational Symmetry			■	●			●		
133	4:14	Measuring Angles of Rotation			■				●		
134	4:15	Rotational Symmetry		■		●			●		Term 3
135	4:16	Views and Nets of 3D Objects	■				●				
136	4:17	Reading a Street Directory		■					●		T5, T6*
137	4:18	Using Coordinates		■					●		
138	4:19	Drawing Angles			■					●	Term 4
139	4:20	Measuring Angles Greater Than 180°			■					●	
140	4:21	Enlargements and Reductions		■					●		
141	4:22	Enlargements and Reductions		■					●		T7, T8*
142	4:23	Enlargements and Reductions		■					●		

Measurement and Geometry B

Sub-strand categories: Shape, Location and transformation, Geometric reasoning
Content categories: 2D Space, 3D Space, Location, Transformations, Angles

* 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

Page	Unit	Title	Sub-strand: Chance	Sub-strand: Data representation and interpretation	Content: Chance	Content: Investigation	Content: Data representation	Suggested progress
143	5:01	Reading Graphs		■			●	Term 1
144	5:02	Drawing Graphs		■			●	
145	5:03	Drawing Picture Graphs		■			●	
146	5:04	Reading Line Graphs		■			●	T1, T2*
147	5:05	Drawing Line Graphs		■			●	
148	5:06	Dot Plots		■			●	Term 2
149	5:07	Drawing Dot Plots		■			●	
150	5:08	The Likelihood of an Event	■		●			
151	5:09	Chance	■		●			
152	5:10	Divided Bar Graphs		■			●	T3, T4*
153	5:11	Sector (or Pie) Graphs		■			●	
154	5:12	Questionnaires/Surveys		■		●	●	
155	5:13	Data Investigation		■		●		Term 3
156	5:14	More Line Graphs		■			●	
157	5:15	Information Collected Over Time		■			●	T5, T6*
158	5:16	Chance	■		●			
159	5:17	Chance Events	■		●			
160	5:18	Comparing Types of Graphs		■			●	Term 4
161	5:19	Selecting the Best Graph to Present Data		■			●	
162	5:20	Collecting Data from Experiments	■			●		
163	5:21	Collecting Data	■			●		
164	5:22	Reasoning with Graphs		■		●	●	T7, T8*
165	5:23	Comparing Mobile Phone Plans		■		●	●	

Suggested Program

	Weeks 1–10	Weeks 11–20	Weeks 21–30	Weeks 31–end
Number and Algebra A	1:01–1:06	1:07–1:13	1:14–1:23	1:24–1:26
Number and Algebra B	2:01–2:15	2:16–2:35	2:36–2:55	2:56–2:68
Measurement and Geometry A	3:01–3:05	3:06–3:11	3:12–3:19	3:20–3:25
Measurement and Geometry B	4:01–4:07	4:08–4:14	4:15–4:18	4:19–4:23
Statistics and Probability	5:01–5:05	5:06–5:12	5:13–5:17	5:18–5:23

The eight Diagnostic Tests are found in the Teacher's Book.
See the Contents and Syllabus Overview on pages vi–xi for suggested placement of each test.
It is assumed that there are 10 weeks in each term.

Contents Cross-reference

Numbers and Algebra

1 Whole numbers	Pages	Australian Curriculum Reference (AC)
Large numbers and place value	1, 2, 3	Recognise, represent and order numbers to at least tens of thousands (ACMNA072)
Factors and multiples	27, 28, 29, 57	Identify and describe factors and multiples of whole numbers and use them to solve problems (ACMNA098)
Powers of ten	3	Recognise, represent and order numbers to at least tens of thousands (ACMNA072)
Estimation and rounding	31, 32, 33, 76, 77, 78, 79, 84, 85, 87	Use estimation and rounding to check the reasonableness of answers to calculations (ACMNA099); Solve problems involving multiplication of large numbers by one- or two-digit numbers using efficient mental, written strategies and appropriate digital technologies (ACMNA100); Use efficient mental and written strategies and apply appropriate digital technologies to solve problems (ACMNA291); Create simple financial plans (ACMNA106)
2 Addition		
Mental strategies	55, 78	Use estimation and rounding to check the reasonableness of answers to calculations (ACMNA099); Use efficient mental and written strategies and apply appropriate digital technologies to solve problems (ACMNA291)
Written strategies	32, 33, 35, 40, 42, 50, 51	Use estimation and rounding to check the reasonableness of answers to calculations (ACMNA099); Use efficient mental and written strategies and apply appropriate digital technologies to solve problems (ACMNA291)
Problem solving	35, 40, 42, 51, 68, 69, 82, 83, 84, 86, 87, 88, 90, 91, 156, 165	Use estimation and rounding to check the reasonableness of answers to calculations (ACMNA099); Use efficient mental and written strategies and apply appropriate digital technologies to solve problems (ACMNA291); Create simple financial plans (ACMNA106)
3 Subtraction		
Mental strategies	49, 54, 55, 78	Use estimation and rounding to check the reasonableness of answers to calculations (ACMNA099); Use efficient mental and written strategies and apply appropriate digital technologies to solve problems (ACMNA291)
Written strategies	34, 36, 37, 41, 42, 48, 49, 52, 53, 54	Use estimation and rounding to check the reasonableness of answers to calculations (ACMNA099); Use efficient mental and written strategies and apply appropriate digital technologies to solve problems (ACMNA291)
Problem solving	34, 41, 49, 52, 53, 82, 83, 84, 87, 88, 90, 91	Use estimation and rounding to check the reasonableness of answers to calculations (ACMNA099); Use efficient mental and written strategies and apply appropriate digital technologies to solve problems (ACMNA291); Create simple financial plans (ACMNA106)
4 Multiplication		
Multiplication tables	27, 28, 29, 94	Recall multiplication facts up to 10 × 10 and related division facts (ACMNA075); Describe, continue and create patterns with fractions, decimals and whole numbers resulting from addition and subtraction (ACMNA107)

2:02 Number Facts, ×6, ×7, ×8, ×9

×	6	7	8	9
1	6	7	8	9
2	12	14	16	18
3	18	21	24	27
4	24	28	32	36
5	30	35	40	45
6	36	42	48	54
7	42	49	56	63
8	48	56	64	72
9	54	63	72	81
10	60	70	80	90

The circle shows 8 × 9.

The product of 8 and 9 is 72.

$9×8 = 8×9$

You need to know these tables too.

The answer to a multiplication question is called the **product**.

1 Try to do these without using the table.

a 5 × 6 = ☐   **b** 3 × 8 = ☐   **c** 3 × 7 = ☐

d 4 × 9 = ☐   **e** 5 × 8 = ☐   **f** 7 × 9 = ☐

g 6 × 6 = ☐   **h** 7 × 7 = ☐   **i** 9 × 6 = ☐

j 8 × 9 = ☐   **k** 6 × 8 = ☐   **l** 8 × 6 = ☐

m 7 × 6 = ☐   **n** 8 × 7 = ☐

o 9 × 8 = ☐   **p** 9 × 9 = ☐

q 4 × 6 = ☐   **r** 8 × 8 = ☐

s The product of 2, 3 and 8 = ☐ .

2

a ×6   **b** ×7   **c** ×8

d ×9   **e** ×8   **f** ×7
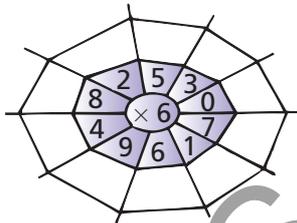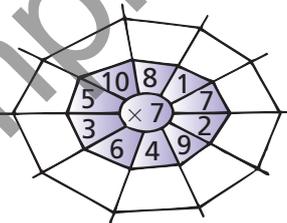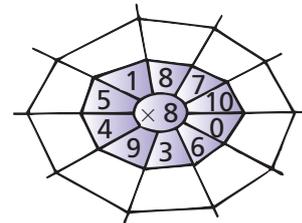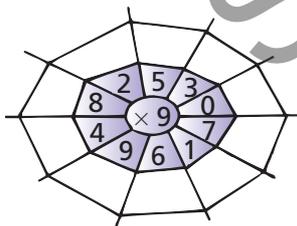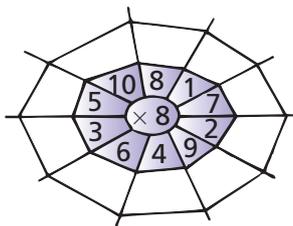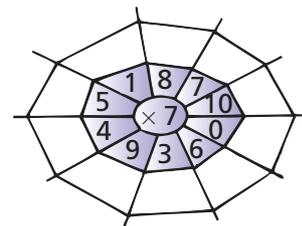
3 Write the first ten multiples of:

a 6 | 6 | | | | | | | | | |

b 7 | 7 | | | | | | | | | |

c 9 | 9 | | | | | | | | | |

2:03 Learning your Multiplication Tables

- Have someone test you.
- For each table you don't know, make a card with the question on one side and the answer on the other.
- Carry these cards with you, testing yourself until you know them.

56   7 × 8

know   don't know

CONCEPT

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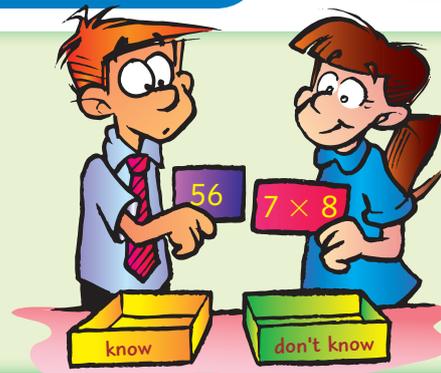
1 Try to do these without using the table below.

a 3 × 3 = ☐   **b** 6 × 2 = ☐   **c** 4 × 3 = ☐   **d** 9 × 2 = ☐

e 8 × 3 = ☐   **f** 5 × 5 = ☐   **g** 4 × 6 = ☐   **h** 6 × 6 = ☐

i 4 × 4 = ☐   **j** 7 × 2 = ☐   **k** 9 × 3 = ☐   **l** 8 × 2 = ☐

m 5 × 3 = ☐   **n** 5 × 6 = ☐   **o** 8 × 8 = ☐   **p** 6 × 3 = ☐

q 9 × 6 = ☐   **r** 7 × 3 = ☐   **s** 10 × 6 = ☐   **t** 8 × 6 = ☐

u 7 × 7 = ☐   **v** 10 × 8 = ☐   **w** 7 × 6 = ☐   **x** 9 × 9 = ☐

---

2 a

× 5 ring: 2 5 30 8 4 9 6 1 7 0

b

× 7 ring: 10 8 1 5 7 3 2 6 4 9

c

× 9 ring: 1 8 7 5 10 4 0 9 3 6

---
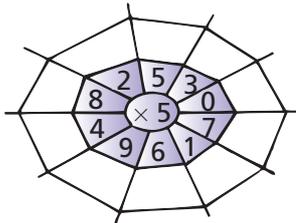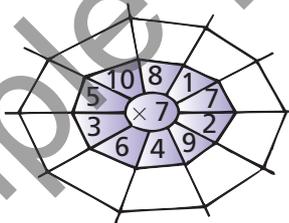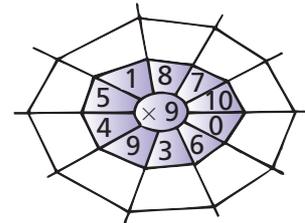
3 Write the first ten multiples of:

a 4 | 4 | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐

b 8 | 8 | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐

Can you see a connection between the multiples in parts **a** and **b**?

The multiples of 8 are ☐ the size of the multiples of 4.

0 × 1 = 0	0 × 2 = 0	0 × 3 = 0	0 × 4 = 0	0 × 5 = 0	0 × 6 = 0	0 × 7 = 0	0 × 8 = 0	0 × 9 = 0	0 × 10 = 0
1 × 1 = 1	1 × 2 = 2	1 × 3 = 3	1 × 4 = 4	1 × 5 = 5	1 × 6 = 6	1 × 7 = 7	1 × 8 = 8	1 × 9 = 9	1 × 10 = 10
2 × 1 = 2	2 × 2 = 4	2 × 3 = 6	2 × 4 = 8	2 × 5 = 10	2 × 6 = 12	2 × 7 = 14	2 × 8 = 16	2 × 9 = 18	2 × 10 = 20
3 × 1 = 3	3 × 2 = 6	3 × 3 = 9	3 × 4 = 12	3 × 5 = 15	3 × 6 = 18	3 × 7 = 21	3 × 8 = 24	3 × 9 = 27	3 × 10 = 30
4 × 1 = 4	4 × 2 = 8	4 × 3 = 12	4 × 4 = 16	4 × 5 = 20	4 × 6 = 24	4 × 7 = 28	4 × 8 = 32	4 × 9 = 36	4 × 10 = 40
5 × 1 = 5	5 × 2 = 10	5 × 3 = 15	5 × 4 = 20	5 × 5 = 25	5 × 6 = 30	5 × 7 = 35	5 × 8 = 40	5 × 9 = 45	5 × 10 = 50
6 × 1 = 6	6 × 2 = 12	6 × 3 = 18	6 × 4 = 24	6 × 5 = 30	6 × 6 = 36	6 × 7 = 42	6 × 8 = 48	6 × 9 = 54	6 × 10 = 60
7 × 1 = 7	7 × 2 = 14	7 × 3 = 21	7 × 4 = 28	7 × 5 = 35	7 × 6 = 42	7 × 7 = 49	7 × 8 = 56	7 × 9 = 63	7 × 10 = 70
8 × 1 = 8	8 × 2 = 16	8 × 3 = 24	8 × 4 = 32	8 × 5 = 40	8 × 6 = 48	8 × 7 = 56	8 × 8 = 64	8 × 9 = 72	8 × 10 = 80
9 × 1 = 9	9 × 2 = 18	9 × 3 = 27	9 × 4 = 36	9 × 5 = 45	9 × 6 = 54	9 × 7 = 63	9 × 8 = 72	9 × 9 = 81	9 × 10 = 90
10 × 1 = 10	10 × 2 = 20	10 × 3 = 30	10 × 4 = 40	10 × 5 = 50	10 × 6 = 60	10 × 7 = 70	10 × 8 = 80	10 × 9 = 90	10 × 10 = 100

2:29 Mental Strategies

The Jump Strategy: Addition

487 + 237

$$+200 \quad +30 \quad +7$$
487   687   717   724

487 + 237 = 724

487 + 200 + 30 + 7

CONCEPT

① Use the addition jump strategy to solve these.

a 347 + 518 = [ ]

$$+500 \quad +10 \quad +8$$
347

b 416 + 342 = [ ]

$$+300 \quad + \quad +$$
416
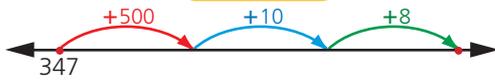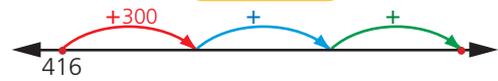
c 682 + 247 = [ ]

d 236 + 497 = [ ]

e 437 + 416 = [ ]

f 365 + 366 = [ ]

The Jump Strategy: Subtraction

625 – 237

$$-7 \quad -10 \quad -10 \quad -10 \quad -200$$
388   395   405   415   425   625

625 – 237 = 388

625 – 200 – 30 – 7

CONCEPT

② Use the subtraction jump strategy to solve these.

a 856 – 231 = [ ]

$$-1 \quad -30 \quad -200$$
856

b 742 – 337 = [ ]

$$- \quad - \quad -300$$
742
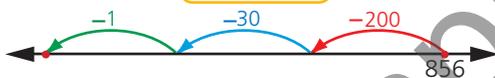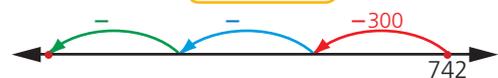
c 538 – 184 = [ ]

d 961 – 327 = [ ]

e 635 – 417 = [ ]

f 471 – 122 = [ ]

Subtracting from Numbers Ending in Zeros

8 000 – 732 = 7 999 + 1 – 732 = 7 267 + 1 = 7 268

It's easier to take away from 9.

**CONCEPT**

③ Use the strategy for subtracting numbers ending in zeros to solve these.

a 700 – 93 = 699 + 1 – 93 = [ ] = [ ]

b 4 000 – 346 = 3 999 + 1 – 346 = [ ] = [ ]

c 400 – 82 = [ ] **d** 800 – 165 = [ ] **e** 900 – 418 = [ ]

f 3 000 – 172 = [ ] **g** 5 000 – 436 = [ ] **h** 9 000 – 136 = [ ]

i 8 000 – 1 888 = [ ] **j** 4 000 – 2 914 = [ ] **k** 7 000 – 3 415 = [ ]

2:30 Factors and Multiples
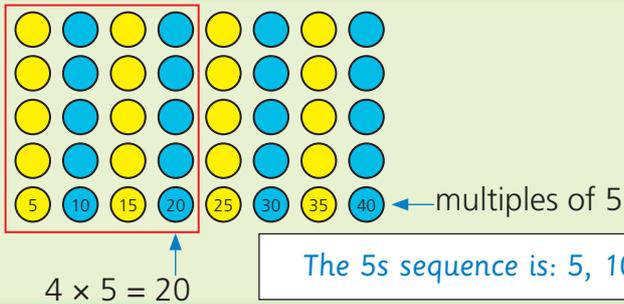
The number of columns used shows the number of 5s added.

multiples of 5

$4 \times 5 = 20$

The 5s sequence is: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, …

1 Complete the following.

5, 10, 15, 20, 25, 30, 35, 40, 45 and 50 are multiples of 5.

a The 7th number in the 5s sequence above is ☐ . $7 \times 5 =$ ☐

b The 3rd number in the 5s sequence above is ☐ . $3 \times 5 =$ ☐

c The 5th number in the 5s sequence above is ☐ . $5 \times 5 =$ ☐

d The 9th number in the 5s sequence above is ☐ . $9 \times 5 =$ ☐

e The 6th number in the 5s sequence above is ☐ . $6 \times 5 =$ ☐

f The 8th number in the 5s sequence above is ☐ . $8 \times 5 =$ ☐

2 Continue the patterns.

a 30, 35, 40, 45, ☐ , ☐ , ☐ , ☐ , ☐ , ☐ .

b 14, 16, 18, 20, ☐ , ☐ , ☐ , ☐ , ☐ , ☐ .

c 70, 80, 90, 100, ☐ , ☐ , ☐ , ☐ , ☐ , ☐ .

d 58, 60, 62, 64, ☐ , ☐ , ☐ , ☐ , ☐ , ☐ .
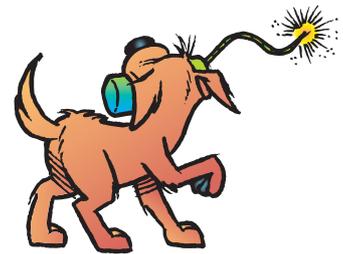
3 From the numbers 12, 14, 21, 24, 28, 35, 42 and 70, find two numbers that are multiples of both:

a 2 and 7 ☐ and ☐   **b** 5 and 7 ☐ and ☐

c 2 and 3 ☐ and ☐   **d** 3 and 7 ☐ and ☐

4 a 10 will be a factor of any number ending in ☐ .

b 5 will be a factor of any number ending in ☐ or ☐ .

c 2 will be a factor of any number ending in ☐ , ☐ , ☐ , ☐ or ☐ .

5 Using a calculator, fill in the next nine multiples.

a 36, 42, 48, ☐ , ☐ , ☐ , ☐ , ☐ , ☐ , ☐ , ☐ , ☐

b 63, 72, 81, ☐ , ☐ , ☐ , ☐ , ☐ , ☐ , ☐ , ☐ , ☐

ICT

2:60 Making a Budget

A budget is a way of working out how much a plan will cost. Work out what you need and the cost of each item. Add them to find the total cost.

"inc. GST" means "including Goods and Services Tax". This money, usually 10% of the cost, goes to the government.

CONCEPT

❶ You plan to set up a class fish tank.
Decide what you want to buy.
Complete the table to find your budget.

Item	Number	Cost
tank		
filter		
stones		
food		
fish		
Total budget		

What you need:

tank	$35 inc GST
filter	$16.30 inc GST
stones	$7.20 + GST = $7.92
fish food	$10.80 inc GST
fish	$3.50 each inc GST

GST (10%)
$7.20
+ .72
$7.92

Optional extras:

| cave | $10.20 inc GST |
| plant | $3.40 each inc GST |

❷ You plan to organise a class party.
Decide how much you want to buy.
Complete the table to find your budget.
Consider the number of people coming.

Item	Number	Cost
Total budget		

Food:

softdrink	$3 per litre inc GST
juice	$3.50 per litre inc GST
chips	$4 a packet inc GST
donuts	$6 a dozen + GST = $
lollies	$4.30 a packet inc GST
popcorn	$5.25 a packet inc GST

GST (10%)
$6.00
+ .60
____

Equipment:

serviettes	$2 for 20 inc GST
plates	$4.40 for 40 inc GST
party hats	$2 for 10 inc GST

Other items: