

Australian



Signpost

MATHS

NSW

Sample pages



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Pearson Australia

(a division of Pearson Australia Group Pty Ltd)
707 Collins Street, Melbourne, Victoria 3008
PO Box 23360, Melbourne, Victoria 8012
www.pearson.com.au

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First published 2018 by Pearson Australia
2021 2020 2019 2018
10 9 8 7 6 5 4 3 2 1

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Cover background: rf_vector/shutterstock.com
Illustrator/s: Michael Barter, Wendy Gorton, Nives Porcellato,
Andrew Craig, Bruce Rankin
Printed in Malaysia

ISBN 978 1 4886 2123 9
Pearson Australia Group Pty Ltd ABN 40 004 245 943

Acknowledgements

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What is Australian Signpost Maths NSW?

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

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 NSW

Australian Signpost Maths NSW 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 the Working Mathematically proficiency strand.

Content Strands

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

Working Mathematically

- Communicating
- Problem Solving
- Reasoning
- Understanding
- Fluency

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

This is Australian Signpost Maths NSW.



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** helps 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

Structure of NSW Mathematics K–6, Australian Curriculum

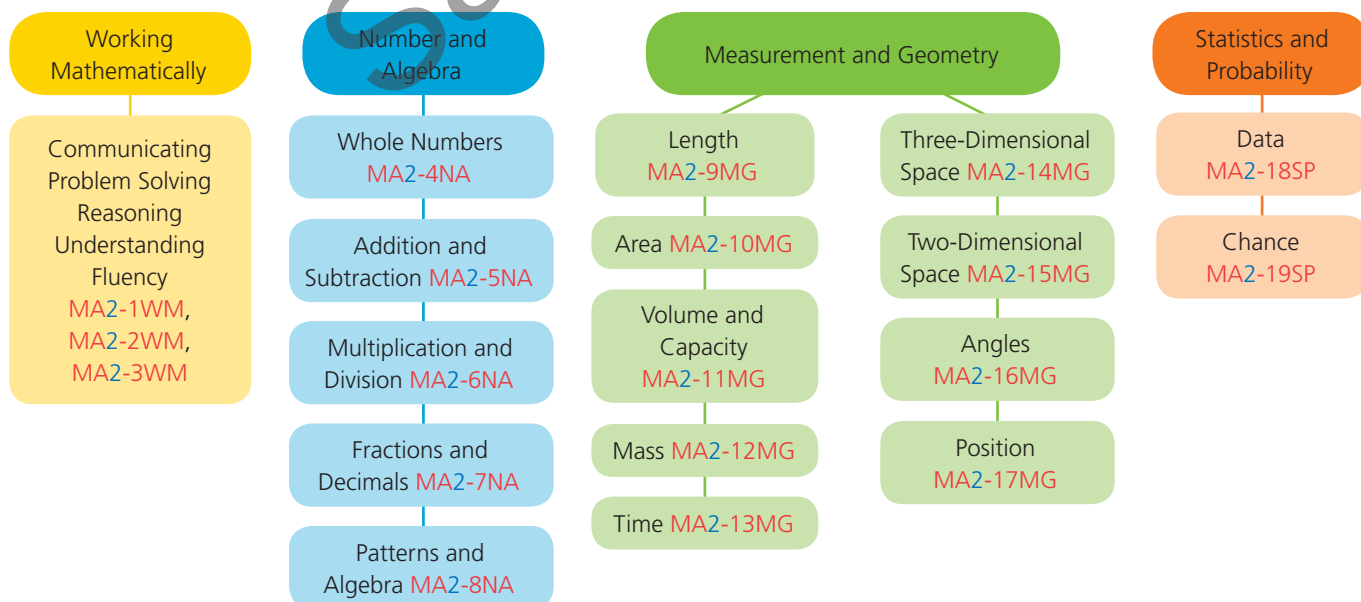
The K–6 Mathematics Syllabus content is described in Early Stage 1, Stage 1, Stage 2 and Stage 3. Students develop at different rates, but Stage 2 describes the content expected to be covered in Years 3 and 4.

The outcome reference **MA2-4NA** refers to **Mathematics Stage 2, Substrand 4** in the **Number and Algebra** strand. Relevant syllabus outcomes are shown in the Contents

and Syllabus Overview on page vi, in the Teacher's Book and in the planning documents on the website.

The Working Mathematically strand pervades each of the other strands.

The syllabus strands and substrands covered in Stage 2 are shown below.



Special Features of Australian Signpost Maths NSW

- **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.
- 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 Maths NSW 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 usually involve 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**.

Suggested Program.	x
Contents Cross-reference	x
Dictionary	xiv
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KEY

	Number and Algebra
	Measurement and Geometry
	Statistics and Probability

Working Mathematically pervades all of the strands as indicated by the 'WM' outcomes.

Number and Algebra A			Content	Counting and numeration	Place value	Fractions	Number patterns	Syllabus Outcomes	Suggested progress
Page	Unit	Title							
1	1:01	Skip Counting						MA2-1WM, -2WM, -6NA, -8NA	Term 1
2	1:02	Odd and Even Numbers						MA2-1WM, -2WM, -3WM, -8NA	
3	1:03	Numbers to 1000						MA2-1WM, -2WM, -4NA	
4	1:04	Numbers to 1000						MA2-1WM, -4NA	
5	1:05	Counting						MA2-1WM, -2WM, -3WM, -8NA	
6	1:06	Counting						MA2-1WM, -2WM, -3WM, -4NA	
7	1:07	Numbers to 1000						MA2-1WM, -4NA	
8	1:08	Numbers to 1000						MA2-1WM, -2WM, -3WM, -4NA	T1, T2*
9	1:09	Fractions of a Whole						MA2-1WM, -7NA	Term 2
10	1:10	Fractions of a Collection						MA2-1WM, -7NA	
11	1:11	Numbers to 10000						MA2-1WM, -4NA	
12	1:12	Numbers to 10000						MA2-1WM, -2WM, -4NA	
13	1:13	Fractions						MA2-1WM, -3WM, -7NA	
14	1:14	Comparing Fractions						MA2-1WM, -7NA	
15	1:15	Number Patterns						MA2-1WM, -3WM, -6NA, -8NA	
16	1:16	Numbers to 10000						MA2-1WM, -4NA	T3, T4*
17	1:17	Ordering Numbers						MA2-1WM, -4NA	Term 3
18	1:18	Rounding						MA2-1WM, -3WM, -4NA	
19	1:19	Fractions						MA2-1WM, -3WM, -7NA	
20	1:20	Mixed Numerals						MA2-1WM, -7NA	
21	1:21	Fractions and the Number Line						MA2-1WM, -7NA	
22	1:22	Fractions in Our World						MA2-1WM, -2WM, -3WM, -7NA	
23	1:23	Numbers to 10000						MA2-1WM, -4NA, -8NA	
24	1:24	Place Value to 10000						MA2-1WM, -4NA	Term 4
25	1:25	What's the Rule?						MA2-1WM, -3WM, -8NA	
26	1:26	Number Patterns						MA2-1WM, -3WM, -6NA, -8NA	
27	1:27	Expanded Notation						MA2-1WM, -2WM, -4NA	
28	1:28	Numbers to 10000						MA2-1WM, -4NA, -5NA, -8NA	
29	1:29	Number Patterns						MA3-1WM, -2WM, -7NA, -8NA	
30	1:30	Number Patterns						MA2-1WM, -5NA, -6NA, -8NA	
31	1:31	Fraction Patterns						MA2-1WM, -2WM, -7NA	T7, T8*
32	1:32	Numbers to 10000						MA2-1WM, -2WM, -4NA	
33	1:33	Expanded Notation						MA2-1WM, -4NA	
34	1:34	Numbers to 10000						MA2-1WM, -4NA	
35	1:35	Place Value to 10000						MA2-1WM, -4NA	
36	1:36	Numbers to 10000						MA2-1WM, -4NA	
37	1:37	Making Number Patterns						MA2-1WM, -2WM, -5NA, -8NA	
38	1:38	Rounding						MA2-1WM, -2WM, -4NA, -5NA	

* Suggested placement for Diagnostic Tests 1 to 8. (See the Teacher's Book.)

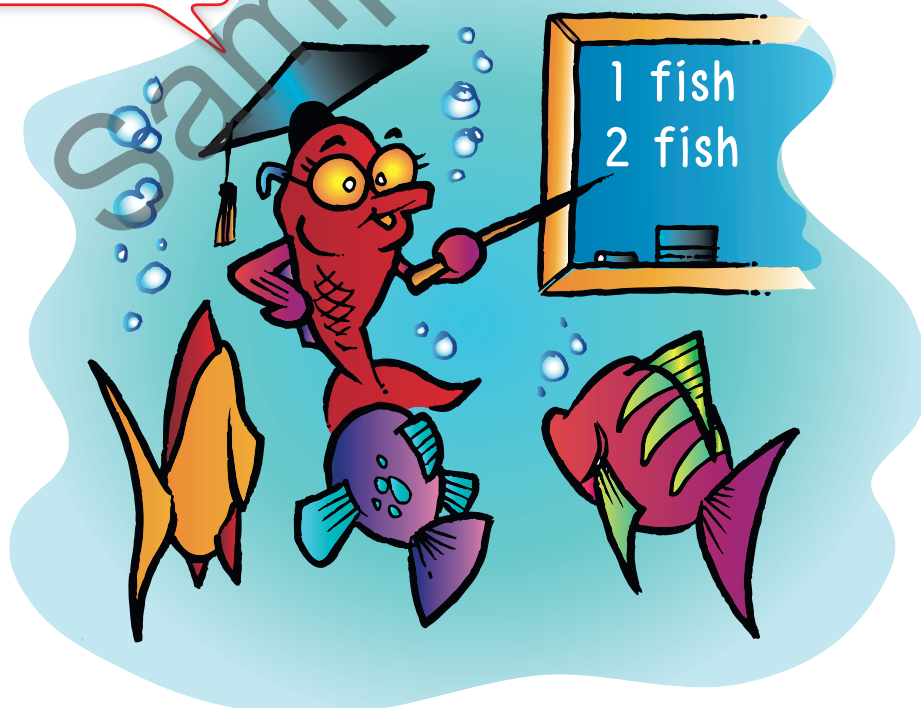
Measurement and Geometry

1	Measurement	Pages
	Reading scales	95, 105, 106, 107, 108
	Length	60, 91, 96, 105, 106, 107, 108, 117
	Area	109, 110, 111, 114, 115
	Volume and Capacity	97, 98, 99, 116, 117, 118
	Mass	100, 101, 113, 117
	Telling the time	92, 93, 94, 95, 102, 103, 104
	Units and duration of time	102, 104, 112
	Calendars	112
2	Shape	
	2D shapes	120, 128, 129, 134, 135, 136, 137, 139, 144, 146, 147
	Flip, slide, turn	121, 147
	Symmetry	119, 121
	3D shapes	122, 125, 126, 140, 141, 142, 143, 144
	Cones, cylinders and spheres	125, 141, 142, 143
	Prisms and pyramids	125, 126, 141, 143
	Angles	127, 130, 131, 138, 139
3	Position	
	Maps and giving directions	123, 124, 133, 145
	Describing position including using coordinates	132, 144, 145

Statistics and Probability

1	Data	Pages
	Data collection	149, 153, 154, 158, 161
	Graphs	148, 150, 153, 154, 155, 156, 157, 158, 160
	Tables	148, 149, 150, 155
2	Chance	
	Chance experiments	151, 152, 160
	Describing likelihood	151, 152, 159, 160

Maths is fun with
Australian Signpost.





Number Chart

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

1 Use the number chart to answer the questions.

a Count by 2s. Colour these numbers yellow.

b Starting at 100, count backwards by 10s.
Draw a cross on these numbers.

c Circle every second even number up to 80.
What do you notice?

d Count by 8s and tick the first 10 numbers you count. Write them below.

2 What do even numbers end in?

3 When we count by 5s from zero, the numbers end in .

4 When we count by 10s from zero, the numbers end in .



5 Continue each pattern. Check your answers with a calculator.

a 223, 233, 243, , , , ,

b 815, 810, 805, , , , ,

c 126, 124, 122, , , , ,

d 1 000, 900, 800, , , , ,



6 Show your answers to Questions 5a and 5b on the number lines.



The rule is .



The rule is .



- 1 a Count on from 76 to 100 by 2s.
- b Count backwards from 1000 by 100s.
- c Count on from 645 to 690 by 5s.
- d Count backwards from 500 to 400 by 10s.

Understanding number relationships helps us count better.



- 2 Write the missing numbers.

a 865, , 845, , , 815, , , 785

b 625, 620, , , 605, , , , 585

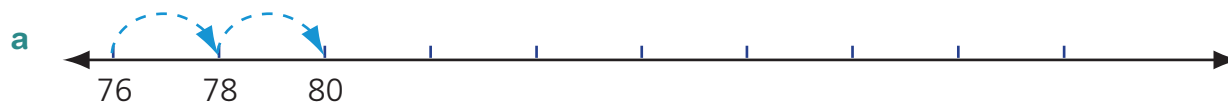
c 412, 410, , , 404, , , , 396

- 3 Write the first 20 even numbers. Circle every second even number and discuss the pattern you see.

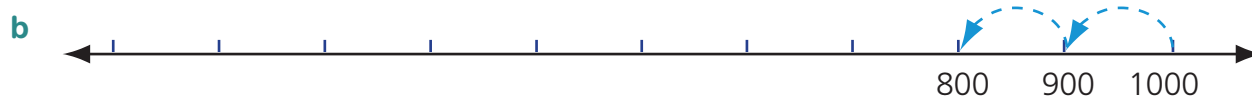
- 4 Count by 5s and write the first 20 numbers you count. Circle every second number and discuss the pattern.

- 5 If you have to count 300 ten-cent coins, what is the best counting strategy to make sure you count them correctly?

- 6 Show your answers to Questions 1a and 1b on the number line.



The rule is .



The rule is .

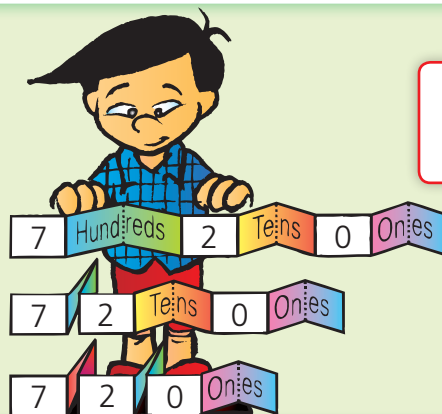
- c Try to do Question 1c on your own number line.



CONCEPT



720 is the same as
7 hundreds and 2 tens
or 72 tens or 720 ones.

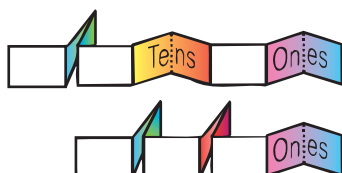


Numeral expanders help us understand the value of the numbers.

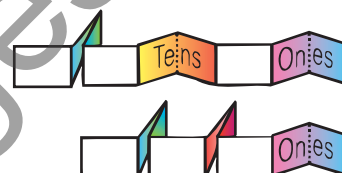


1 Complete the numeral expanders.

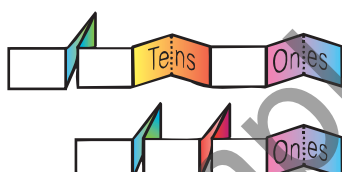
a 479



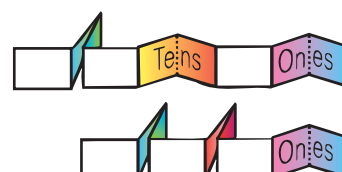
b 568



c 231



d 307



2 Write each number as a numeral.

a six hundred and thirty-two

c four hundred and twenty-nine

e two hundred and thirty-eight

g nine hundred and forty

b eight hundred and seventeen

d seven hundred and sixty-three

f five hundred and sixty-two

h three hundred and fifty-one

3 Write each number in words.

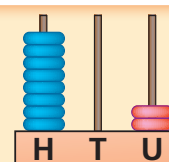
a 156

b 607

c 319

d 841

- Use concrete materials to show the numbers in Question 3. Explain your answer to a partner.



ACTIVITY

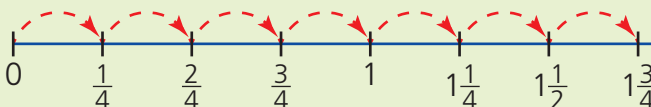


CONCEPT



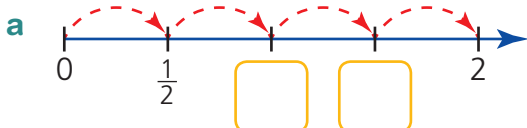
The rule is
Add $\frac{1}{4}$.

That is the
same as $+\frac{1}{4}$.

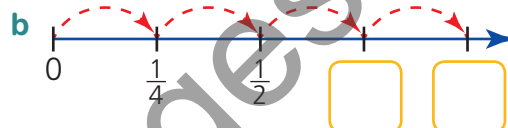


Rule: Add $\frac{1}{4}$

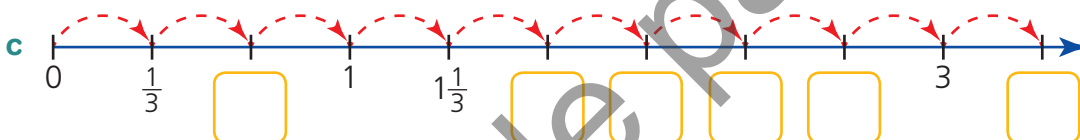
1 Complete each number line and write the rule.



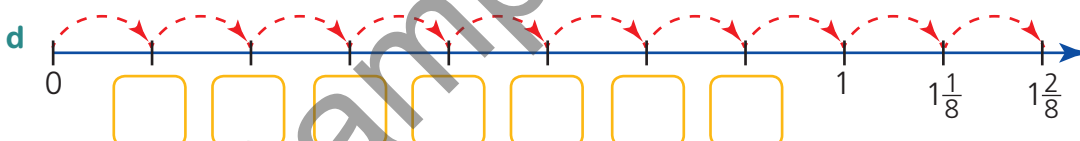
Rule:



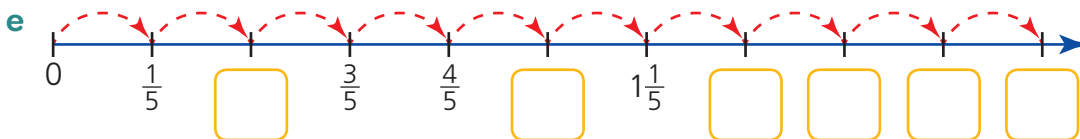
Rule:



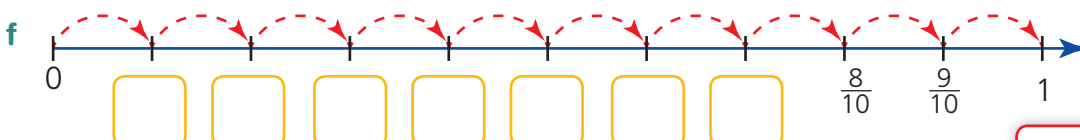
Rule:



Rule:



Rule:



Rule:

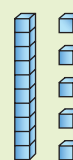
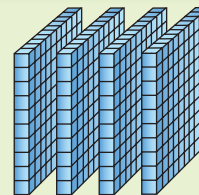
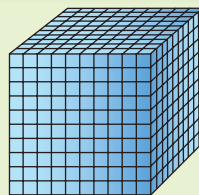
Be
careful!





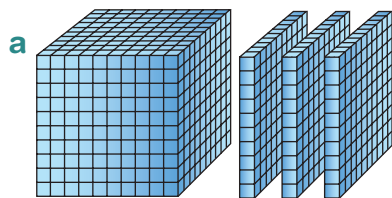
These two show the same number.

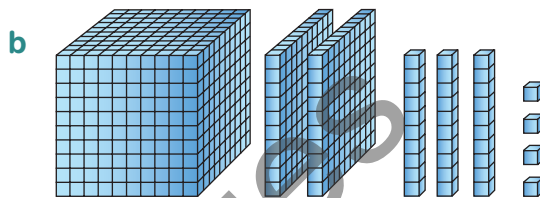
1415



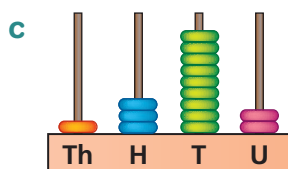
1415

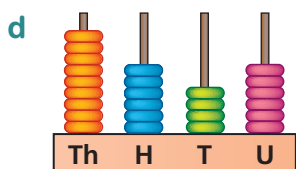
1 Write the number shown.

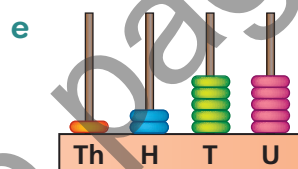


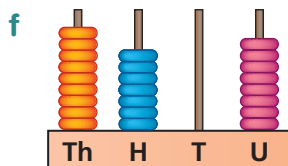


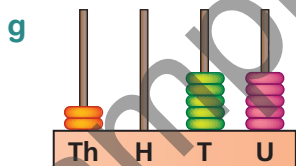
When a column is empty, we use a zero.

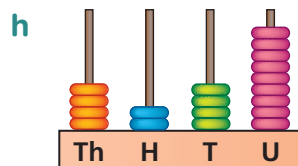


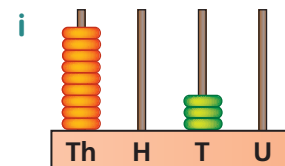












2 Write the value of the 6 in each number.

a 3659

b 6125

c 4968

3 Order each group of numbers in ascending (A) and descending (D) order.

a 8253, 8532, 8523, 8235 A:

, D:

b 7694, 7946, 7469, 7649 A:

, D:

Wipe Out a Digit

- Enter a 4-digit number into a calculator.
- Your partner selects any digit to be **wiped out** – that is, changed to zero.
- Try to wipe out that digit by entering only **one** operation into the calculator. Did it work?
- Take turns with your partner. Score 1 point for each successful wipe-out.



ACTIVITY