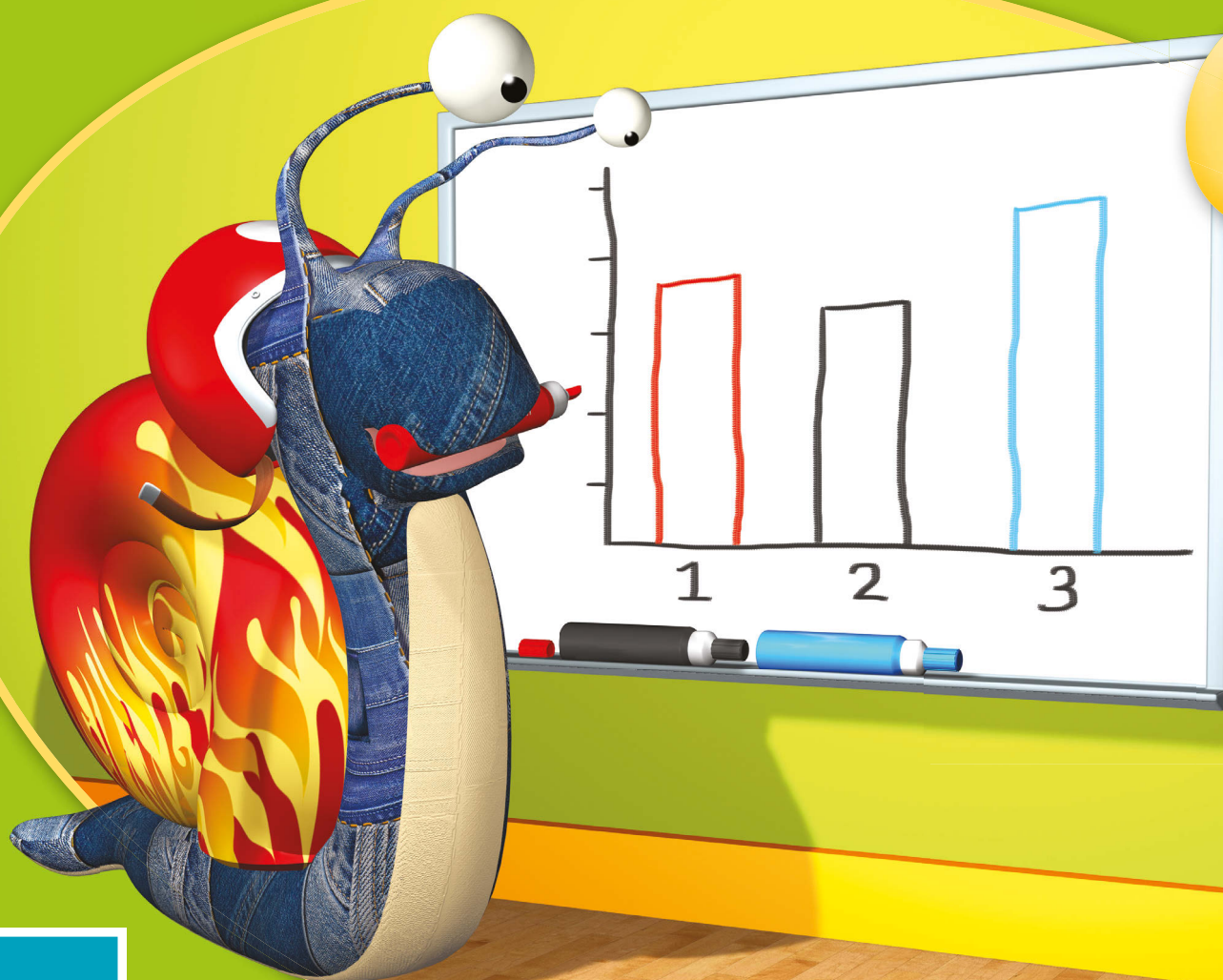


CAMBRIDGE PRIMARY Mathematics

Learner's Book

4



Cambridge
Primary
Maths

Emma Low

Completely **Cambridge**
Cambridge resources
for
Cambridge qualifications

CAMBRIDGE PRIMARY **Mathematics**

Learner's Book



Emma Low



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University Printing House, Cambridge CB2 8BS, United Kingdom

Cambridge University Press is part of the University of Cambridge.

It furthers the University's mission by disseminating knowledge in the pursuit of education, learning and research at the highest international levels of excellence.

www.cambridge.org

Information on this title: www.cambridge.org/9781107662698

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First published 2014

Printed in the United Kingdom by Latimer Trend

A catalogue record for this publication is available from the British Library

ISBN 978-1-107-66269-8 Paperback

Cover artwork by Bill Bolton

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Introduction

This *Learner's Book* is a supplementary resource that consolidates and reinforces mathematical learning alongside the *Cambridge Primary Mathematics Teacher's Resource 4* (9781107692947). It provides introductory investigations (Let's investigate) to encourage the application of mathematical knowledge, and numerous questions and activities to develop problem-solving skills.

Ideally, a session should be taught using the appropriate *Core activity* in the *Teacher's Resource 4*. The associated content in the *Learner's Book 4* can then be used for formative assessment at the end of a session, for homework, or used for support in learning new vocabulary. There is generally a double page corresponding to each *Core activity* in the *Teacher's Resource 4* printed book. The *Core activity* that the page relates to is indicated at the bottom of the page.

Hints and tips are provided throughout to support the learners. They will appear as follows:

Write a list of number pairs to help you



Please note that the *Learner's Book* on its own does **not** cover all of the Cambridge Primary mathematics curriculum framework for Stage 4. You need to use it in conjunction with the *Teacher's Resource 4* to ensure full coverage.



This publication is part of the *Cambridge Primary Maths* project. *Cambridge Primary Maths* is an innovative combination of curriculum and resources designed to support teachers and learners to succeed in primary mathematics through best-practice international maths teaching and a problem-solving approach.

Cambridge Primary Maths brings together the world-class Cambridge Primary mathematics curriculum from Cambridge International Examinations, high-quality publishing from Cambridge University Press and expertise in engaging online enrichment materials for the mathematics curriculum from NRICH.

Teachers have access to an online tool that maps resources and links to materials offered through the primary mathematics curriculum, NRICH and Cambridge Primary mathematics textbooks and e-books. These resources include engaging online activities, best-practice guidance and examples of *Cambridge Primary Maths* in action.

The Cambridge curriculum is dedicated to helping schools develop learners who are confident, responsible, reflective, innovative and engaged. It is designed to give learners the skills to problem solve effectively, apply mathematical knowledge and develop a holistic understanding of the subject.

The *Cambridge Primary Maths* textbooks provide best-in-class support for this problem-solving approach, based on pedagogical practice found in successful schools across the world. The engaging NRICH online resources help develop mathematical thinking and problem-solving skills. To get involved visit www.cie.org.uk/cambridgeprimarymaths

The benefits of being part of *Cambridge Primary Maths* are:

- the opportunity to explore a maths curriculum founded on the values of the University of Cambridge and best practice in schools
- access to an innovative package of online and print resources that can help bring the Cambridge Primary mathematics curriculum to life in the classroom.

This series is arranged to ensure that the curriculum is covered whilst allowing teachers to use a flexible approach. The Scheme of Work for Stage 4 has been followed, though not in the same order and there will be some deviations. The components are:

- Teacher's Resource 4
ISBN: 9781107692947 (printed book and CD-ROM).
- Learner's Book 4
ISBN: 9781107662698 (printed book)
- Games Book 4
ISBN: 9781107685420 (printed book and CD-ROM).

For associated NRICH activities, please visit the *Cambridge Primary Maths* project at www.cie.org.uk/cambridgeprimarymaths

Number

Reading, writing and partitioning numbers

Let's investigate

Pablo has these digit cards.

He makes three-digit numbers with the cards.

Write down all the numbers he could make.



1 Write each **red** number in **figures**, **words** and **expanded form**.

(a)

1000	2000	3000	4000	5000	6000	7000	8000	9000
100	200	300	400	500	600	700	800	900
10	20	30	40	50	60	70	80	90
1	2	3	4	5	6	7	8	9

(b)

1000	2000	3000	4000	5000	6000	7000	8000	9000
100	200	300	400	500	600	700	800	900
10	20	30	40	50	60	70	80	90
1	2	3	4	5	6	7	8	9

2 Write each number in words.

(a) 2345 (b) 3030 (c) 2901

(d) 7777 (e) 2816 (f) 9109

3 Write these numbers in figures.

(a) nine thousand and nine

(b) four thousand and forty

4 What is the value of 4 in these numbers?

(a) 6423 (b) 4623 (c) 3409

(d) 9040 (e) 1234 (f) 4321

Vocabulary

digit: 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9 are digits.

expanded form: $4567 = 4000 + 500 + 60 + 7$

partition: breaking up a number into its parts.

place value: the value of a digit determined by its position.

In 830, the 3 has a value of 3 tens (30).

H	T	U
8	3	0

thousand: is a four-digit number that is 10 times larger than a hundred.

Th	H	T	U
1	0	0	0

$\times 10$

5 Look at these number cards.

(a) Which cards have the same value as 3900?

(b) Which card has the smallest value?

(c) What is 10 more than 390 tens?

39 hundreds

390 tens

39 tens

6 Maria writes a number. It has the digit 4 in the hundreds place and the digit 2 in the units place.

Which of these numbers could Maria have written?

5426 4652 4265 5462

7 What is the largest possible number that can be written using the digits 3, 6, 3 and 4?

8 Which value is equal to 3 hundreds?

3 units 30 units 30 tens 300 tens

9 Find the missing numbers.

3000 $\xrightarrow{\text{is one hundred less than}}$?

5000 $\xrightarrow{\text{is one hundred more than}}$?

6500 $\xrightarrow{\text{is one thousand more than}}$?

980 $\xrightarrow{\text{is one hundred less than}}$?

10 Write the number that is 1 more than 9999.

11 Solve these number riddles.

- (a)
- I have four digits.
 - I am more than 2500.
 - I am less than 3000.
 - My hundreds digit is 6.
 - My tens digit is one less than my hundreds digit.
 - My units digit is 0.

What number am I?

- (b)
- I have four digits.
 - My units digit and my hundreds digit are the same.
 - I am less than 9000.
 - I am greater than 8000.
 - My tens digit is 4.
 - My hundreds digit is two more than my tens digit.

What number am I?

Ordering and rounding

Let's investigate

Ahmed writes a list of four-digit whole numbers. The digits in each number add up to 3.



He writes the numbers in order of size, starting with the smallest.

Write down all the numbers that could be in Ahmed's list. Make sure you write them in order of size.

Vocabulary

round to the nearest: to round to the nearest **hundred**, look at the **tens** digit and if it is

• < 5 , round down ↓

H	T	U
8	?	0

• $= 5$ or > 5 , round up ↑

H	T	U
8	3	0

830 to the nearest **hundred**, is 800.

H	T	U
	4	8

48 to the nearest **ten**, is 50.

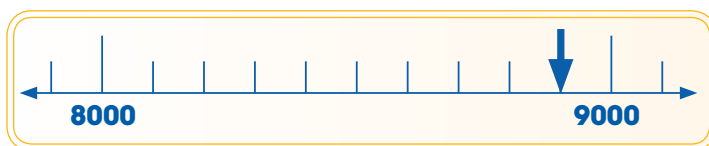
Rounding numbers makes them easier to use.

1 Write these numbers in order of size, starting with the smallest.

- (a) 1066 1606 1660 1060 1666
(b) 9080 8990 9009 9090 8999

2 What is the number shown by an arrow on each number line?

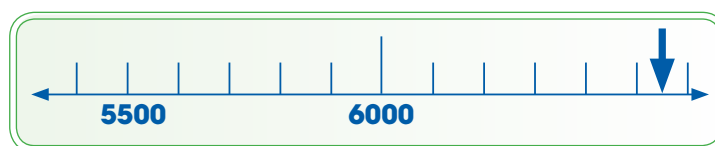
(a)



(c)



(b)



(d)



3 Round these numbers to the nearest 100.

- (a) 1060 (b) 7225 (c) 4680 (d) 1007 (e) 885

4 Which of these numbers is closest to 1000?

- 1050 1039 1100 980 899

5 Here are some digit cards.

Use the cards to make three-digit numbers **greater than** 500.
How many can you make?



6 Use the $<$ and $>$ signs to make these statements true.

(a) 505 $?$ 550

(b) 660 $?$ 606

(c) 989 $?$ 899

(d) 1234 $?$ 4321

(e) 1009 $?$ 1010

(f) 1001 $?$ 989

7 What number is halfway between 158 and 172?



$>$ is greater than
 $<$ is less than



8 Find the numbers halfway between these pairs of numbers.

(a) 498 and 604

(b) 337 and 451

(c) 559 and 997

9 Here are four numbers: 3005 3006 3007 3009

Choose one number to make this number sentence correct.

$3007 < ?$

10 Which of these numbers is **about** the same size as the correct answer to $480 + 490$?

100 500 400

1000 700 2000

11 Here are five digits.



Choose three of these digits to make the total as close as possible to 1000.

$300 + ? + ? + ? = ?$

Multiplying and dividing by 10 and 100

Let's investigate

Use a calculator. Key in these numbers and signs.

$$5 \times 10 = = = \dots$$

$$11 \times 100 = = = \dots$$

$$12500 \div 10 = = = \dots$$

Th	H	T	U
			5
Th	H	T	U
		5	0
Th	H	T	U
	5	0	0

Diagram illustrating the effect of multiplying by 10 and 100 on a number. The first table shows 5 in the Units column. The second table shows 5 in the Tens column (multiplied by 10). The third table shows 5 in the Hundreds column (multiplied by 100). Arrows and labels indicate the shift of digits.

What happens when you press the equals (=) sign?

Try using different start numbers. Do you notice the same thing?

1 Calculate.

(a) 67×10

(b) $40 \div 10$

(c) $3600 \div 100$

(d) 415×10

(e) $350 \div 10$

(f) 35×100

(g) $4100 \div 100$

(h) $4700 \div 10$

(i) $3900 \div 100$

2 What is the missing number? $5400 \div \boxed{?} \boxed{?} = 100$

3 Write the missing digits.

(a) $\boxed{?} \boxed{?} \boxed{?} \times 10 = 2320$

(b) $461 \boxed{?} \div 10 = \boxed{?} 61$

(c) $34 \boxed{?} 0 \div 10 = \boxed{?} \boxed{?} 6$

(d) $31 \boxed{?} \times 10 = \boxed{?} \boxed{?} 60$

4 Write the missing numbers.

(a) $\boxed{?} \div 10 = 54$

(b) $307 \times \boxed{?} = 3070$

(c) $\boxed{?} \times 100 = 6000$

(d) $3400 \div \boxed{?} = 34$

5 Here are four number cards.

A fifty-eight

B five hundred and eighty

C eight hundred and fifty

D five hundred and eight

Write down the letter of the card that is the answer to:

(a) 85×10

(b) $5800 \div 10$

(c) $5800 \div 100$

(d) $8500 \div 10$

(e) $580 \div 10$

(f) $5080 \div 10$

6 Calculate.

(a) $3800\text{ cm} = \boxed{?}\text{ m}$

(b) $64\text{ m} = \boxed{?}\text{ cm}$

(c) $500\text{ mm} = \boxed{?}\text{ cm}$

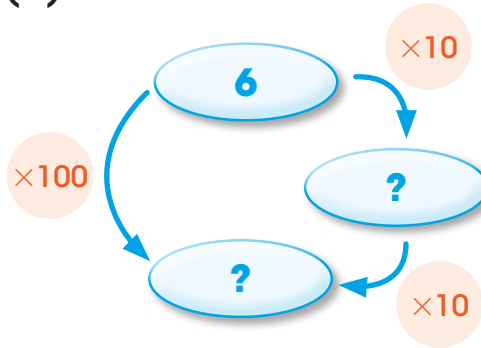
(d) $\boxed{?}\text{ mm} = 67\text{ cm}$

$10\text{ mm} = 1\text{ cm}$
 $100\text{ cm} = 1\text{ m}$

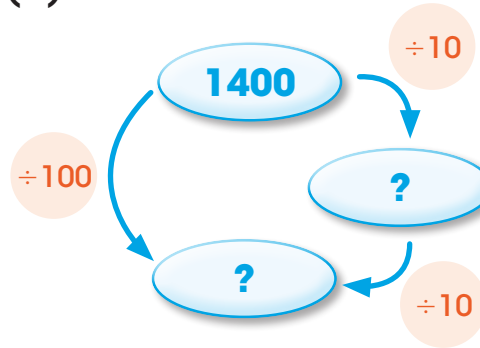


7 Copy the diagrams below. Write down the missing numbers.

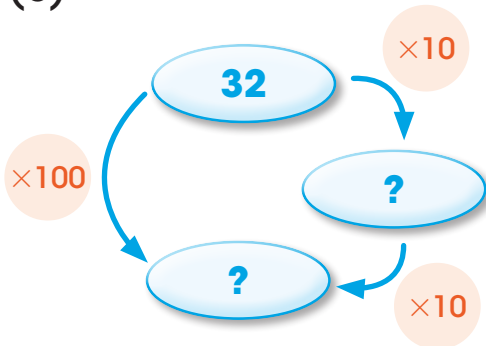
(a)



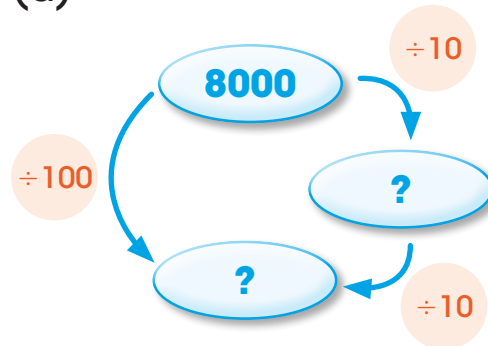
(b)



(c)



(d)



8 Here is a number calculation. $15 \times 10 = 150$

Write two different division calculations that use the same numbers.

9 A packet contains 500 grams of gerbil food.

Aysha feeds her gerbil 10 grams of food each day.

How many days does the packet of food last?

10 Here are three signs $\times$ $\div$ $=$

Use these signs to make each calculation below correct.

There may be more than one answer.

(a) $60 \boxed{?} 6 \boxed{?} 10$

(b) $10 \boxed{?} 15 \boxed{?} 150$

(c) $450 \boxed{?} 10 \boxed{?} 45$

11 Write the missing numbers.

$13 \xrightarrow{\times 10} \boxed{?} \xrightarrow{\times 10} \boxed{?}$

$4500 \xrightarrow{\div 10} \boxed{?} \xrightarrow{\div 10} \boxed{?}$

Addition (1)

Let's investigate

Make a route through the grid from Start to Finish. You can move horizontally or vertically. Add up the numbers on your route. Find the route that gives the **lowest** total.

4	8	2	Finish
9	1	4	6
8	5	5	2
2	4	3	8
Start	1	7	9

For example, $2 + 8 + 5 + 1 + 9 + 4 + 8 + 2 = 34$

Vocabulary

Some words that we use for addition:
add, addition, plus, increase, sum, total, altogether.

Questions that ask us to add: **How many are there altogether?**
What is the total number of ...?

1 Choose a method to solve these addition problems.

(a) $5 + 8 + 5 + 3 = ?$

(b) $4 + 19 + 12 + 1 = ?$

(c) $1 + 11 + 9 + 4 = ?$

(d) $4 + 17 + 2 + 3 = ?$

(e) $13 + 2 + 1 + 5 = ?$

(f) $3 + 14 + 9 + 3 = ?$

Use complements to 10 and 20 to help you. These are also called 'number pairs' to 10 and 20.



Explain to your partner why you chose that method. If you think your partner could choose a better method, tell them why.

2 Copy the addition number sentences below. Then copy the list of numbers on the right. Draw arrows to complete the number sentences. The first one has been done for you.

$76 + 52 =$	168
$28 + 34 =$	85
$65 + 89 =$	128
$94 + 22 =$	154
$17 + 68 =$	104
$43 + 52 =$	95
$91 + 77 =$	62
$40 + 64 =$	116