Cambridge Primary Mathematics

Student's Book

2nd Edition

5

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How to Use This Book

This book is designed to help you understand mathematical concepts through meaningful learning experiences that are joyful and simple.

The Student's Book has the following features:

Chapter Opener

Motivates you to learn and talk about the topic through real-life contexts so you can relate to and make sense of the maths.

Option ▸ Watch!   Option ▸ Virtual Manipulative   Option ▸ Quiz

Use exciting video clips, virtual manipulatives and quizzes to make learning "come alive". These resources can be launched on a smartphone or a tablet by scanning the page using the MCE Cambridge app.

In this chapter, you will:

List the learning aims for the chapter so that you are aware of your learning pathway from the start.

What You Will Learn

Focus on the learning aims that you will be learning in the section.

Look Back

Engage you to think about what you have already learnt that is useful for the section.

Thinking Cap

Encourage you to extend your prior knowledge and use concrete objects or real-life contexts to explore new maths concepts in the section.

Let's Learn

Engage you in tasks to learn about new maths concepts. You will begin your learning with concrete objects or real-life contexts, then work with the maths ideas using pictures or diagrams. Finally, you will connect the learning to symbols.

Deepen your learning with these questions.

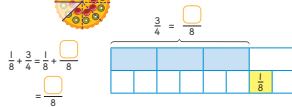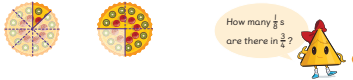Provide tips to help you understand concepts better and solve problems.

Let's Practise

Provide you with carefully-varied practice questions on what you have learnt.

Encourage you to practise Thinking and Working Mathematically.

'I can…' statements
Help you reflect on the progress of your learning.

Activity Book links
Provide easy referencing to the related practices in the Activity Book.

(Let's Learn sample page)

Let's Learn

a Caz bought three similar cakes for a party. The diagram shows how much cake is left after the party. How can you estimate the cakes Caz has left altogether?

Cake A   Cake B   Cake C

Caz estimated that about $\frac{1}{4}$ of Cake A, $\frac{1}{8}$ of Cake B and $\frac{3}{4}$ of Cake C were left.

b Jiayi eats $\frac{1}{8}$ of the fruit tart. Raj eats $\frac{3}{4}$ of a fruit tart. How much of the fruit tart do they eat altogether?

How many $\frac{1}{8}$ s are there in $\frac{3}{4}$?

$\frac{3}{4} = \frac{\square}{8}$

$\frac{1}{8} + \frac{3}{4} = \frac{1}{8} + \frac{\square}{8}$

$= \frac{\square}{8}$

They eat $\frac{\square}{8}$ of the fruit tart altogether.

171

(Let's Practise sample page)

Let's Practise

1 Estimate then multiply. Convince your partner using two ways.

You can check the answers using a calculator.

a 34 × 50 = _____   b 34 × 53 = _____
c 235 × 40 = _____   d 235 × 46 = _____

2 A factory produces 60 plates every day. It opens 365 days a year.
   a How many plates are produced in a year?
   b If the factory has to close for one day every week, how many plates are produced in a year now?
   c If the factory starts producing 62 plates every day, how many plates are produced in a year now?

3 A library has 2500 books and 32 shelves. Each shelf can hold up to 100 books.
   a The librarian wants to increase the number of books to 3000. She thinks that the number of books on each shelf should increase to 90. Convince your partner why she is wrong.
   b To increase the number of books to 3000, what is the least number of books each shelf should hold?

Tick (✓) to show what you can do.

☐ I can estimate and multiply whole numbers up to 1000 by 1-digit or 2-digit whole numbers.

126

Activity Book
Worksheet 10A

Maths CHAMPIONS

Play a game or try out a fun activity and become fluent in maths.

Sticker activities

Keep learning maths fun. The stickers can be found at the back of the book.

Maths CHAMPIONS

Play with a friend.

Materials:
- a fishpond board
- 2 counters (1 red and 1 blue)
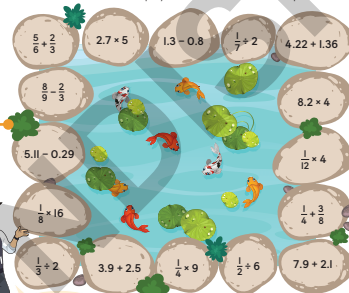- a dice
- frog stickers on page 280

Step 1: Take a coloured counter each and place it on any pebble on the board.
Step 2: Roll the dice. Move your counter clockwise by the number shown on the dice.
Step 3: Find the answer to the question on the pebble you land on. If your answer is correct, paste your coloured frog sticker with the correct answer on the pebble.
Step 4: Take turns. Repeat **Step 2** and **Step 3** until all questions are answered correctly.

The player with more stickers on the pebbles wins!

Pebbles:
$\frac{5}{6} + \frac{2}{3}$ | 2.7×5 | $1.3 - 0.8$ | $\frac{1}{7} \times 2$ | $4.22 + 1.36$
$\frac{8}{9} - \frac{2}{3}$ | 8.2×4
$5.11 - 0.29$ | $\frac{1}{12} \times 4$
$\frac{1}{8} \times 16$ | $\frac{1}{4} \div \frac{3}{8}$
$\frac{1}{3} \div 2$ | $3.9 + 2.5$ | $\frac{1}{4} \times 9$ | $\frac{1}{2} \div 6$ | $7.9 + 2.1$

Be fair when playing the game!

189

B Nets of a Cube

What You Will Learn:
- Identify and sketch different nets of a cube.

Look Back

What would you conjecture about the shapes that Ron is cutting out? Discuss with your partner.

Be willing to explore new ways to create different nets. Keep trying!

Thinking Cap

How many different nets can a cube have? Specify some examples. Show how your example can form a cube.
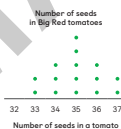
91

Learn more about Social and Emotional skills with two mascots, Lana and Leo. You will learn to better understand your feelings and express yourself with different groups of people.
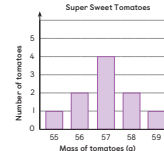
Lana

Leo

Maths Words

Patterns in data can be described in terms of its **centre, spread** and **shape**. Conclusions can be made and we may think of new statistical questions to ask!

Which is the better tomato plant?

Number of seeds in Big Red tomatoes

32 33 34 35 36 37
Number of seeds in a tomato

The farmer plans to collect a lot of data. Data such as the height of tomato plants and mass of tomatoes are called **continuous data.**

Step 4 Identify pattern and draw conclusion
Step 1 Specify the problem and plan
Step 3 Interpret data
Step 2 Record, organise and represent data

Statistics Enquiry Cycle

The farmer can use the charts to **interpret** or find meaning in the data. He can also try to find the **mode** and **median**.

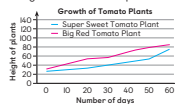The farmer collected a lot of data. He has to decide **what is the best way to represent each set of data**. For example, he can use a line graph to represent the growth of 1 tomato plant.

Super Sweet Tomatoes

Number of tomatoes
5 4 3 2 1
55 56 57 58 59
Mass of tomatoes (g)

Growth of Tomato Plants
— Super Sweet Tomato Plant
— Big Red Tomato Plant
140 120 100 80 60 40 20
0 10 20 30 40 50 60
Number of days
Height of plants

Activity Book
What I Can Do Now

250

Maths Words

Recall maths terms with pictures or diagrams.

Contents

Ron

Caz

Eddy

Ralph

Izzy

Get ready to start an exciting learning journey with us!
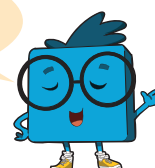
Special Numbers

Option

Watch!

I can't arrange 7 beads into 2 equal rows like I can with 8 beads. Why is it so?

I can put 9 beads into 3 equal rows, but I can't do it with 7 beads. I wonder why.

What can you say about numbers like 8, 9 and 10? What can you say about numbers like 7?

In this chapter, you will:

- tell the difference between prime and composite numbers.
- recognise numbers that are divisible by 4 and 8.

Prime and Composite Numbers

What You Will Learn:
- Tell the difference between prime and composite numbers.

Look Back
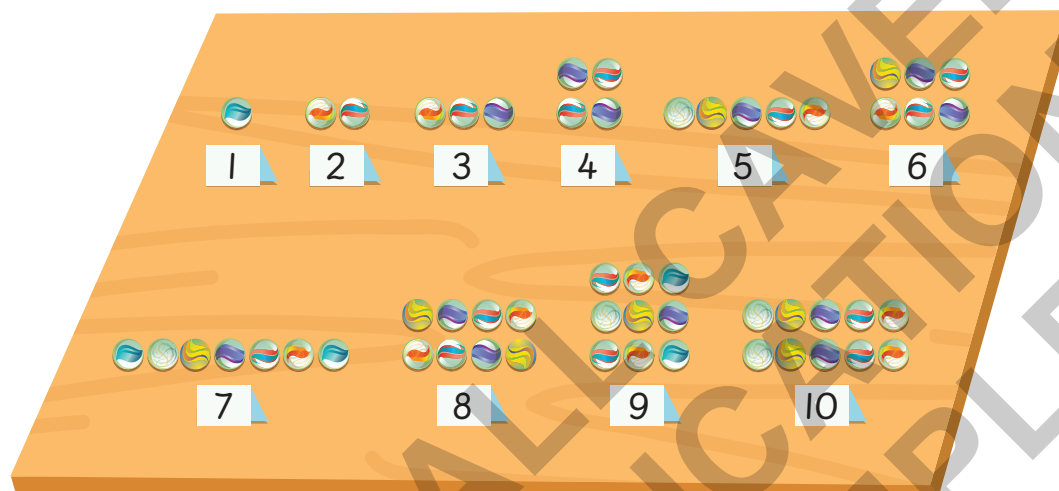
Look at the marbles. What do you notice about the arrangement? Tell your partner what the number of marbles in each set are and whether they can be arranged in equal rows.

Be confident when telling your partner what you notice.

Thinking Cap

What are the factors for numbers 1 to 10? What do you notice about the factors for numbers like 2, 3, 5 and 7? Describe the characteristics of these numbers.

What can you generalise about numbers like 2, 3, 5 and 7 and their factors?

Let's Learn

a Look at the cubes.

Factors:
I × 2 = 2	I × 3 = 3	I × 5 = 5	I × 7 = 7
I and 2	I and 3	I and 5	I and 7

2, 3, 5, and 7 are examples of **prime numbers**. A prime number is a number that has exactly two factors, I and itself.

The prime numbers from I to I00 are coloured in green.

The cubes are arranged in I row. They cannot be arranged in more than I row.

I	2	3	4	5	6	7	8	9	I0
II	I2	I3	I4	I5	I6	I7	I8	I9	20
2I	22	23	24	25	26	27	28	29	30
3I	32	33	34	35	36	37	38	39	40
4I	42	43	44	45	46	47	48	49	50
5I	52	53	54	55	56	57	58	59	60
6I	62	63	64	65	66	67	68	69	70
7I	72	73	74	75	76	77	78	79	80
8I	82	83	84	85	86	87	88	89	90
9I	92	93	94	95	96	97	98	99	I00

Is I a prime number? Explain your answer to your partner. Show why II, I3, I7 and I9 are prime numbers.

There are _____ prime numbers from I to I00.

23 has two factors, I and _____.

The next prime number after 29 is _____.

The prime number from 90 to I00 is _____.

3

b Look at the cubes.

$1 \times 4 = 4$ $1 \times 6 = 6$ $1 \times 8 = 8$ $1 \times 9 = 9$

$2 \times 2 = 4$ $2 \times 3 = 6$ $2 \times 4 = 8$ $3 \times 3 = 9$

Factors:

1, 2 and 4   1, 2, 3 and 6   1, 2, 4 and 8   1, 3 and 9

4, 6, 8 and 9 are examples of **composite numbers**. A composite number is a number that has more than two factors.

The cubes can be arranged in more than 1 row.
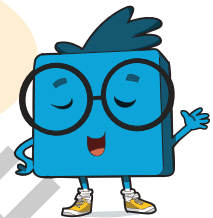
Is 1 a composite number? Convince your partner by explaining your answer. In what way are 10, 12, 14, and 15 composite numbers?

There are _____ composite numbers from 1 to 100.

27 has factors, 1, _____, _____ and _____.

The next composite number after 38 is _____.

There are _____ composite numbers from 70 to 80.

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

Let's Practise

1 The number 14 has _____ factors. It is a _____ number.

2 Circle all prime numbers. Describe the characteristics of prime numbers to explain your answer.

    a 10   **b** 23   **c** 37   **d** 49   **e** 51

3 Shan has 20 stickers. Gerald has 1 less sticker than Shan.
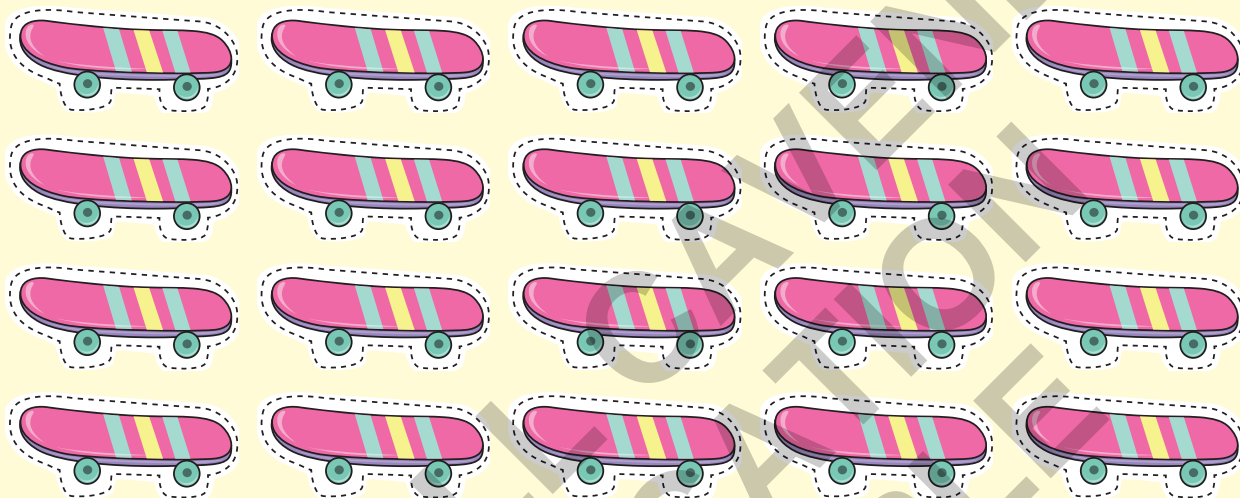
    a Can Shan arrange his stickers in equal rows? Is the number of stickers Shan has a prime or composite number?

    b Can Gerald arrange his stickers in equal rows? Is the number of stickers Gerald has a prime or composite number?

4 I am a composite number less than 50. I have 3 factors. I am divisible by 7. What number am I?

5 Crystal creates a basic 3-digit passcode by multiplying a prime number and a composite number. They are consecutive numbers.

    a Find the numbers.

    b Can there be more than one set of numbers? Tell your partner.

Tick (✓) to show what you can do.

☐   I can tell the difference between prime and composite numbers.

Activity Book
Worksheet 1A

What You Will Learn:
* Recognise numbers that are divisible by 4 and 8.

Look Back

Eddy wants to give all 112 pencils to Caz and Ron equally. Would they get the same number of pencils? What makes you say so?

Thinking Cap

If Eddy wants to give all 112 pencils to Caz, Ron, Izzy and Ralph equally, will they get the same number of pencils? Convince your partner using a diagram.

Let's Learn

a A fabric factory cuts a large roll of cloth into 4-m strips. Will there be any cloth left over from a 3728-m roll of cloth?

Look at the last two digits of 3728.

Note **37****28**.

28 is divisible by 4. By test of divisibility, 3728 is divisible by 4.

There will not be any cloth left after the cutting.

> We can check the divisibility of a number by long division or by using a calculator.
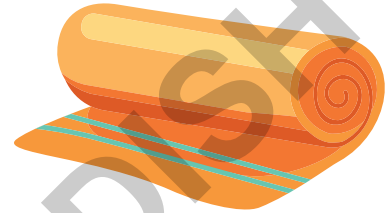
b An orchard harvests 4568 oranges. The oranges are packed in boxes of 8. Are there any oranges left?

Look at the last three digits of 4568.

4**568**

_____ is divisible by 8. By the test of divisibility, 4568 is _____ by 8.

There are _____ oranges left.

Let's Practise

1 a Is 4818 divisible by 4?

b Is 10 616 a multiple of 4? Describe to your partner how you would apply the test of divisibility to find out.

2 Classify the numbers.

| 60 | 128 | 4224 | 9016 |

Numbers divisible by 4	Numbers divisible by 8

3 Eddy has 336 stickers.

a He wants to share the stickers equally among his three friends and himself.

He says that there will be **no** stickers left after that. Do you agree or disagree with Eddy? Explain your answer.

b If Eddy shares the stickers equally among seven friends and himself, how many stickers will be left? Explain to your partner how you found the answer. Convince your partner that your answer is correct.

Tick (✓) to show what you can do.

☐ I can recognise numbers that are divisible by 4 and 8.

Activity Book
Worksheet 1B

Maths CHAMPIONS

Play with a partner.

Materials:
- a hundred square
- 2 counters (1 red and 1 blue)
- 1 die

Are odd numbers divisible by 4 or 8? Explain your answer to your partner. Convince your partner that your answer is correct.

Step 1: Each player takes a coloured counter at the start point.

Step 2: Player 1 rolls the die and moves the counter forward by the number rolled.

Step 3: Player 2 asks one of these questions about the number that Player 1's counter lands on.

> Is the number a prime or composite number?

> Is the number divisible by 4?

> Is the number divisible by 8?

Player 1 gets a point if his answer is correct.

Step 4: Both players take turns and repeat Steps 2 and 3 until both players reach 100.

The player with the most points wins!

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

Numbers

Prime numbers

have **exactly** two factors

$$1 \times 31 = 31$$

So, **31** is a prime number.

Composite numbers

have **more than** two factors

$$1 \times 20 = 20$$
$$2 \times 10 = 20$$
$$4 \times 5 = 20$$

So, **20** is a composite number.

Tests of divisibility

Divisible by **4**

1432

$$32 \div 4 = 8$$

So, **1432** is divisible by **4**.

Divisible by **8**

1432

$$432 \div 8 = 54$$

So, **1432** is divisible by **8**.

Activity Book
What I Can Do Now

Marshall Cavendish Education empowers educators and students with high-quality, research-based educational solutions that nurture joyful and future-ready global citizens.

Our Mathematics packages are designed for powerful learning through providing meaningful learning experiences that are joyful and simple. Each learning experience is carefully crafted to engage the hearts and minds of students. Our packages offer a myriad of fun and engaging learning experiences to motivate students and spur them to learn. We use simple language and everyday contexts to help students make sense of mathematical concepts easily. The use of Singapore's tried-and-tested methodologies and carefully varied questions help students to think and work mathematically, and develop mastery in the subject. Our packages provide opportunities for students to reflect on their own thinking which will help them become competent problem solvers.

We have published numerous mathematics packages to support primary and secondary schools. Marshall Cavendish Cambridge Primary Mathematics is our primary series based on the Cambridge Primary Mathematics curriculum framework (0096).

Primary
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- My Pals are Here! Maths 4th Edition
- Marshall Cavendish Cambridge Primary Mathematics 2nd Edition
- New Mathematics Connection

Lower Secondary
- Maths Ahead
- Maths 360

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- Marshall Cavendish IGCSE Core and Extended Mathematics
- Marshall Cavendish IGCSE O Level Additional Mathematics
- Marshall Cavendish Cambridge O Level Mathematics D
- Maths 360
- Additional Maths 360

This resource is endorsed by
Cambridge Assessment International Education

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✓ Has passed Cambridge International's rigorous quality-assurance process

✓ Developed by subject experts

✓ For Cambridge schools worldwide

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