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the **MCE Cambridge  
Primary Maths (2<sup>nd</sup>  
Edition)** website!

# Cambridge Primary Mathematics

## 2<sup>nd</sup> Edition

### Brochure



**Beyond Basics, Reimagine Education**

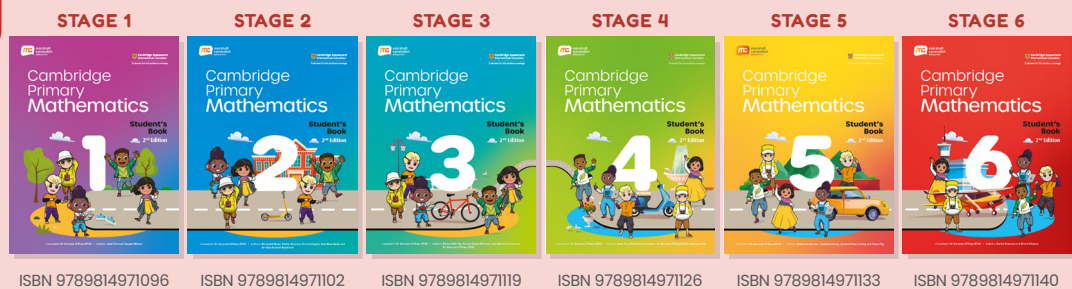
# Marshall Cavendish Education Cambridge Primary Mathematics (2<sup>nd</sup> Edition)

The Marshall Cavendish Education (MCE) Cambridge Primary Mathematics (2<sup>nd</sup> Edition) series is designed to support educators and learners following the Cambridge Primary Mathematics curriculum framework (0096). Our package nurtures Cambridge active learners, using the Concrete-Pictorial-Abstract (CPA) approach helping them develop conceptual understanding.

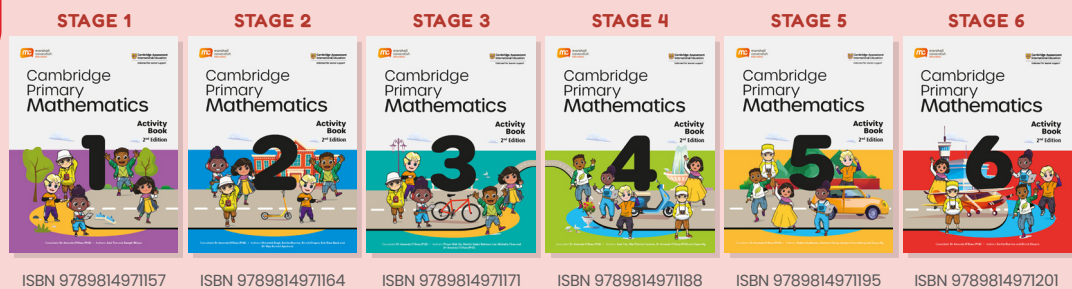
The series draws on Singapore's tried and tested methodologies that focus on mastery through sequencing of concepts. Through activities that promote engagement, curiosity, innovation and reflection, learners are encouraged to become more confident and self-directing. Incorporating the new Thinking and Working Mathematically skills, the series develops learners as 21<sup>st</sup> century mathematical thinkers within a globalised community.

## Product Architecture

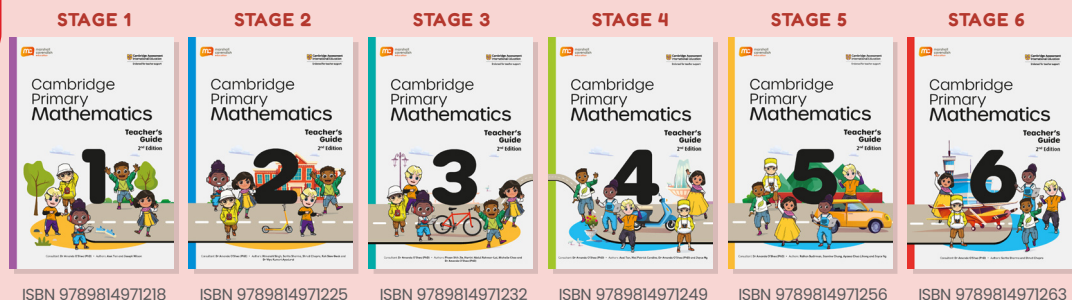
### STUDENT'S BOOK



### ACTIVITY BOOK



### TEACHER'S GUIDE

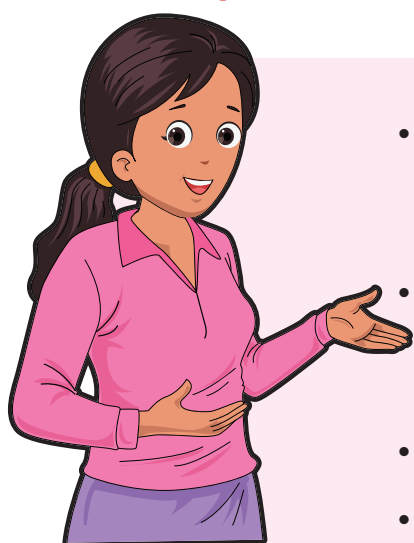


## ADDITIONAL DIGITAL RESOURCES\*

- **Student's Book**
  - Annotatable Enhanced eBooks (Tagged with interactive digital resources)
- **Activity Book**
  - Annotatable eBooks
- **Digital Teacher's Guide**
  - Scheme of Work (Editable)
  - Lesson Plans (Editable)
  - Suggested Answers for Student's Book and Activity Book
- **Levelled Worksheets (Editable)**
- **School-to-Home Notes**
- **PowerPoint Slides (Editable)**
- **Heuristics PowerPoint Slides (Editable)**

*\*These resources will not go through the Cambridge International Education endorsement process.*

## Why choose MCE Cambridge Primary Mathematics (2<sup>nd</sup> Edition)?

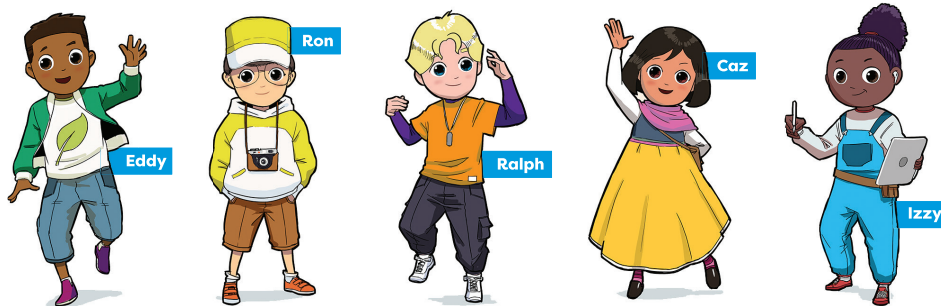


- Offers the best of both worlds to equip students for successful and meaningful living in the 21<sup>st</sup> century
- Provides effective support and strategies for English as a Second Language (ESL) learners and educators
- Promotes relatability through real-life contexts
- Delivers a fun and engaging hybrid learning experience

# Offers the Best of Both Worlds to Equip Students for Successful and Meaningful Living in the 21<sup>st</sup> Century

Our series offers specially designed instructional programmes that combine Cambridge International's global standard and Singapore's tried and tested methodologies. Our package focuses on mastery through the sequencing of concepts and Concrete-Pictorial-Abstract method. The Singapore Maths method encourages learners to think through problems and apply mental concepts in new ways.

Our series also incorporates Thinking and Working Mathematically (TWM), a new feature in the Cambridge Primary and Lower Secondary Mathematics curriculum framework. The TWM feature encourages learners to reason mathematically rather than to simply memorise facts and figures.



## Dynamic and Engaging Mascots

These mascots will appear frequently *to interact with the learners* and *present concepts in an engaging manner* and *promote critical thinking*.

## Social-and-Emotional Learning Mascots

Appear at relevant points to teach learners how to better understand their feelings and express themselves with different groups of people, developing their *social and emotional skills*.



## Thinking Cap



What pattern do you see in the coloured parts of the squares?  
Explain your generalisation.



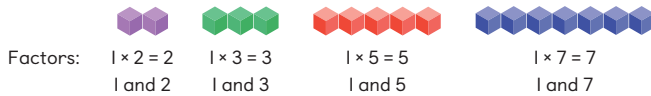
## Thinking Cap

Learners are *asked probing questions* to provide an opportunity for them to *extend and extrapolate* from their prior knowledge.



## Let's Learn

- a Look at the cubes.



2, 3, 5, and 7 are examples of **prime numbers**. A prime number is a number that has exactly two factors, 1 and itself.

The prime numbers from 1 to 100 are coloured in green.

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

The cubes are arranged in 1 row. They cannot be arranged in more than 1 row.



Is 1 a prime number? Explain your answer to your partner. Show why 11, 13, 17 and 19 are prime numbers.



There are \_\_\_\_\_ prime numbers from 1 to 100.

23 has two factors, 1 and \_\_\_\_\_.

The next prime number after 29 is \_\_\_\_\_.

The prime number from 90 to 100 is \_\_\_\_\_.

## Let's Learn

Engage learners to learn about new mathematical concepts through the **Concrete-Pictorial-Abstract approach**. The content is presented in **bite-sized chunks** and **scaffolded** to enable learners to stop, think, and engage with key concepts.

## Let's Practise

- 1 Find the missing numbers.

a  $3^2 = \underline{\hspace{2cm}}$

b  $7^2 = \underline{\hspace{2cm}}$

- 2 Circle the square numbers.

16      21      36      66      81

- 3 Draw the square number sequence from the 1st term to the 10th term.



- 4 Edwin has a piece of grid paper. It is 8 units long and 12 units wide. He wants to cut out a single square from the piece of grid paper. If Edwin cuts out the largest possible square, how many units are there in his cutout? How can you convince your friend?

- 5 a Draw the 5th and 6th terms. What do you notice about the pattern?



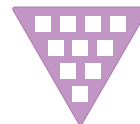
1st term



2nd term



3rd term



4th term



- b Without drawing the pattern, how would you find the number of squares in the 10th term? Make your own conjecture.

## Let's Practise

Questions **vary in difficulty**, with the initial questions covering basic skills learnt in Let's Learn, building up to more **non-routine, higher-order thinking questions** to challenge more confident learners.

## Worksheet B

## Tests of Divisibility

Level 1 Level 2 Level 3

- 1 Is the number divisible by 4?

Fill in the blanks.

- a In 432, the last two digits are \_\_\_\_\_.

$$\frac{\quad}{4} = \quad$$

432 \_\_\_\_\_ divisible by 4.

- b In 3984, the last two digits are \_\_\_\_\_.

$$\frac{\quad}{4} = \quad$$

3984 \_\_\_\_\_ divisible by 4.

If you need help,  
see Student's Book  
pages 6 and 7.You can check your  
answers using a  
calculator.

- 2 Is the number divisible by 8?

Fill in the blanks.

- a In 8432, the last three digits are \_\_\_\_\_.

$$\frac{\quad}{8} = \quad$$

432

- b In

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## What I Can Do Now

Encourage learners to **reflect** on the key concepts that have been taught in the classroom through **self evaluation and journals**. This promotes metacognitive thinking in students, enabling them to become flexible, creative and self-directed learners.

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## Worksheets

Questions of varying difficulty levels provide **additional practice** and **reinforcement** of key mathematical concepts and skills.

MCE Cambridge Primary Maths Activity Book

## What I Can Do Now

Colour the bulbs to show what you can do.

I have learnt to		What I still don't understand	To review, go to...
tell the difference between prime and composite numbers.			Student's Book Let's Learn A
understand the test of divisibility.			Student's Book Let's Learn B



## Maths Journal

Write a riddle using these words:

prime number, composite number, divisible by 4 and 8

For example:

A number is a composite number. It is divisible by 4 and 8.

What is the number?

## Be A Maths Explorer

## Blink and you'll miss it!

0.000001 s

The number above represents 1 microsecond. It is the amount of time taken by a high-speed camera flash to flash a light.



The average human eye takes 350 000 microseconds to blink once. That is about 0.3 s.

- 1 Use the Internet to find 5 units of time that are less than 1 s.
- 2 Describe how fast each unit of time is by giving examples. Present your findings in a table. One example has been done for you.

Unit	Example
nanosecond	Electricity travels along a 30-cm long wire in 1 nanosecond

- 3 Then share it with the class.

Then exchange your riddle with your partner. If you get the answer, you win!

## Be a Maths Explorer

Incorporates **STEAM** and other **disciplines** to help learners develop **21<sup>st</sup> century skills** such as global perspectives, use of ICT, and collaboration with others.

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MCE Cambridge  
Primary Maths  
Activity Book

## About the Programme

The following information is based upon the current Cambridge Primary Mathematics curriculum framework from 2020. Please consult the Cambridge International website ([www.cambridgeinternational.org/primary](http://www.cambridgeinternational.org/primary)) for the most up-to-date curriculum documents and additional details regarding assessment arrangements for Stages 1 to 6.

### a. The Mathematical Strands

The Cambridge Primary Mathematics curriculum from 2020 is organised into three main strands: Number, Geometry and Measure, and Statistics and Probability. These three main strands are subdivided into themes or 'sub-strands'.

**Number** includes the sub-strands:

- counting and sequences,
- money,
- integers and powers,
- place values ordering and rounding,
- fractions, decimals, percentages, ratio, and proportion.

Initially, students begin with counting objects through experiences with concrete materials. Through identifying patterns and sequences, students develop understanding and reasoning about the structure and properties of number. This is an important first step in early algebraic thinking and reasoning. Concrete resources of real objects, then become linked to representational materials such as number lines, base-ten blocks and counters. These resources are the main link to representation in mathematics that then becomes increasingly formalised.

Place value becomes increasingly important as a concept from Stage 1 as numbers increase in complexity towards millions by Stage 4. Alongside this, the four operations are developed as calculations with additive and multiplicative reasoning. Conceptual understanding of fractions is developed through early ideas of wholes and halves with a part-part-whole model. Having a sense of estimation is developed throughout as this is important for gaining a sense of number and proportionality as well as with size and measure for geometry. Estimation is also a crucial aspect of mental approaches to calculations as this gives a sense of reasonableness to their solutions. Reasoning in fractions is further developed with proportionality in terms of decimals and percentages, then ratio and proportion. Calculating with fractions, decimals and percentages becomes increasingly important from Stage 4 and has connections to representations in statistics.

**Geometry and measure** include time, geometrical properties and reasoning, and position and transformation. Initially the focus for geometrical progression is in developing a sense of 2-D and 3-D shapes and describing their properties. This becomes increasingly analytical with connections to transformations in shapes with reflective and rotational symmetry.

Students use position and direction to locate, describe and interpret movement on a grid as cardinal and ordinal points. The relative positions of points as coordinates are also explored. From Stage 5, this is connected to plotting and transforming lines and shapes using grid coordinates.

Students explore measures as a concept from early non-standard measures to formal standardised measures for length, mass, capacity, temperature, and time. Early skill in estimation is important so that students can develop a sense of proportion and scale in measure. Following this, students then undertake tasks in measuring and calculating distances, mass, capacity, and time. Students also

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## Teacher's Guide

The preface of Teacher's Guide offers a short **introduction to TWM** and the strands for educators who might be new to the curriculum framework. It also provides the teacher an introduction to the Concrete-Pictorial-Abstract approach.

MCE Cambridge Primary Maths Teacher's Guide

## Teaching Strategies

This section covers **active learning** and creates an **inclusive learning environment**. The strategies are practical so as to enable effective classroom or home-based learning.

## Teaching Approaches and Learning Environment

### a. Strategies for Active learning and Creating an Inclusive Learning Environment

In this section, we outline the strategies and activities that are suggested within the scheme. Through the Marshall Cavendish Primary Mathematics scheme, these strategies support students in becoming actively engaged, innovative, confident, reflective, and responsible mathematical students. Students are also encouraged to engage in creative mathematical thinking and to be motivated and enthusiastic participants in their own learning. They are enabled to become more confident by improving mathematical fluency and knowledge of the key concepts. Students will become increasingly responsible for their own learning and that of others, reflecting on the development of their mathematical skills, strategies, and conceptual understanding. They are encouraged to take an active and responsible role by engaging in the world around them and the society in which they live. Students will become increasingly innovative as they communicate mathematically through written and verbal representations of concepts and strategies. They will learn to be confident users of representations with symbols, diagrams, sketches, and pictures. This also enables them to critique and improve their representations to become more effective. Further, students are motivated to confidently use technology in a way that promotes their own mathematical learning and understanding.

The Marshall Cavendish Primary Mathematics scheme also supports all students by creating an inclusive environment where all students know they can achieve mathematical understanding. It is important that all students embrace their misconceptions and view them as positive steps in developing reasoning and understanding. It is through provoking misconceptions that we develop a deeper understanding of mathematical concepts alongside structure and meaning.

The strategies below are listed with a description and possible variations to support different class sizes and contexts.

Strategy	Description
<b>Think-Pair-Share</b> For paired and class discussions	Teacher poses a problem, question or challenge that requires thinking, students think for a minute, then discuss in pairs for two minutes. Students then share with two others or with the whole class.
<b>Think-Pair-Vote-Share</b> For paired and class discussions	This is a variation of Think-Pair-Share. Teacher poses a problem, question or challenge that requires thinking, students think for a minute, then think and consider an answer in pairs, and suggest a few different options. Alternatively, Teacher poses some possible answers as options. Students vote by show of hands on their chosen answer. Students then suggest a convincing reason why it is that answer either to another pair or as a whole class.

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MCE Cambridge Primary Maths Teacher's Guide

## Provides Effective Support and Strategies for ESL Learners and Educators

The series offers a comprehensive package to support both learners and educators. English language is pitched appropriately for ESL learners, with simple and concise language to ensure that learning is not hindered by their language skills. For non-specialist educators, the series offers a unique combination of teaching strategies that support the delivery of lessons in the classroom.

### Maths Words

**Key mathematical** terms used in the chapter are presented in a **visually** engaging manner to help learners recall and retain the terms.

### Maths Words

#### 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



1432

$$32 \div 4 = 8$$

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

Divisible by



1432

$$432 \div 8 = 54$$

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

Activity Book  
What I Can Do Now

MCE Cambridge Primary Maths Student's Book



### Rich Visuals

Are **colourful**, **attractive** and come with **simple sentences** to motivate learners to learn.

MCE Cambridge  
Primary Maths  
Student's Book

## Maths Journal

Encourage learners to *reflect and write about their metacognitive thinking* through journal writing at the end of each chapter.



## Maths Journal

Write a riddle using these words:

prime number, composite number, divisible by 4 and 8

For example:

A number is a composite number. It is divisible by 4 and 8.  
What is the number?

MCE Cambridge Primary Maths Activity Book

## GLOSSARY

### 1 hundredth

comes after the tenths. 1 hundredth is written as 0.01 or  $\frac{1}{100}$

### 1 tenth

comes after the decimal point. 1 tenth is written as 0.1 or  $\frac{1}{10}$

### 2D shapes

are flat

### area

is a measure of the amount of space in a shape.

### associative law of addition

to add later numbers in an addition sum to make addition easier; for example:  $368 + 11 + 89 = 368 + 100 = 468$

### associative law of multiplication

to multiply later numbers in a multiplication term to make multiplication easier; for example:  $55 \times 20 = 11 \times 5 \times 20 = 11 \times 100 = 1100$

### associative laws

allows us to work out the later numbers first

### bar chart

shows categorical or discrete data using bars

### Carroll diagram

a table that displays categorical data in a yes or no way

### categorical data

data which consists of values that belong to a common group; for example: likes coffee / does not like coffee

### centre

the highest point in a graph

### chance experiment

a test in which we perform a number of probability experiments to measure the chance of an event occurring

### closed cube

a closed cube has 6 identical square faces joined at their edges

### commutative law of addition

to swap the numbers in an addition sum to make addition easier; for example:  $45 + 126 + 55 = 45 + 55 + 126 = 100 + 126 = 226$

### commutative law of multiplication

to swap the numbers in a multiplication to make multiplication easier; for example:  $5 \times 24 \times 4 = 5 \times 4 \times 24 = 100 \times 24 = 2400$

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### commutative laws

We can swap the order of the numbers.

### compose

To combine numbers with different place values.

### composite numbers

a number that has more than two factors

### Compound shapes

are made up of 2 or more shapes.

### constant

a number which is consistently added to or subtracted from in a linear sequence

### continuous data

data which is gathered by measuring; for example: number of marks students in a class get for a test

### coordinates

describe points on a grid.

### cuboid

a figure with a square or rectangular base which has 6 faces

### decompose

To separate into numbers with different place values.

### diagonal

a slanted line

### discrete data

data which can be counted; for example: number of marbles a student has

### distributive law of multiplication

to break down a term in a multiplication equation to make multiplication easier; for example:  $110 \times 17 = 110 \times 10 + 110 \times 7 = 1100 + 770 = 1870$

### divide by a 1-digit whole number

to divide a number by a single digit number; for example:  $140 \div 7 = 20$

### dot plot

is a graph where each dot represents a data point.

### equilateral triangle

has 3 equal sides, 3 equal angles, and 3 lines of symmetry.

### equivalent

of the same size

## Glossary of Terms

Provides the mathematical terms and definitions that are introduced throughout the book. These terms are presented as *visuals* in the Student's Book.



MCE Cambridge Primary Maths Teacher's Guide



## Common Misconceptions

Highlights **common areas** that students get confused about easily. **Suggestions** are also provided to address the misconceptions.

### Common Misconceptions

#### Misconceptions:

1. Students may mistake numbers ending in 4 as being divisible by 4.
2. Students may mistake numbers ending in 8 as being divisible by 8.

#### How to address the misconceptions:

1. Demonstrate that the test of divisibility by 4 looks at the last two digits of a number. Point out to students that while some numbers that end in 4, such as 4, 24, and 44, are divisible by 4, this is not a test of divisibility. Other numbers that end in 4 are not necessarily divisible by 4. For example: 14 and 34.

Get students to recognise that when we look at the last two digits of a number, such as 1428, we ignore the first two digits (1 and 4) and focus only on the last two digits (2 and 8). Have them highlight, colour, or circle the last two digits to emphasise the correct digits to use in the test.

Emphasise that the digits before the last two digits do not matter when applying the test of divisibility by 4. Use other examples to prove this point. Have them repeat for a few more numbers (for example: 228, 1328, and 56 828). Remind them to look only at the last two digits of each number.

## Section B

## Tests of Divisibility

Number of Periods: 4

Learning Objective	Expected Prior Knowledge
<ul style="list-style-type: none"> <li>• <b>SNL07</b> Use knowledge of factors and multiples to understand tests of divisibility by 4 and 8.</li> </ul>	<ul style="list-style-type: none"> <li>• Understand the relationship between factors and multiples.</li> <li>• Recall tests of divisibility by 2, 5, 10, 25, 50, and 100.</li> </ul>
<p><b>Note</b></p> <p>Revisit division by two by having students explore sharing pencils equally between two people. Then move on to challenge students to use number chips to explore distributing equally among four people and dividing by four. Students will use concrete aids such as ribbon strips, counters and pencils, as well as utilise pictorial representation such as by illustrating their understanding with diagrams to record and explain their thinking to convince their friends.</p> <p>In this section, the emphasis is on finding the relationship between multiples of 2, 4, and 8 and tests of divisibility. By the end of the chapter, students should be able to determine if a number is divisible by 4 or 8 by focusing on the relevant digits of a number.</p> <p>Students are expected to be able to divide numbers by 4 and 8, but they can use a calculator to check their answers for large numbers.</p>	
<p><b>Language Support</b></p> <p><b>Vocabulary:</b> tests of divisibility</p> <p>Revise even numbers with students. As the focus students' attention on the tests of divisibility learnt before.</p>	
<p><b>Common Misconceptions</b></p> <p><b>Misconceptions:</b></p> <ol style="list-style-type: none"> <li>1. Students may mistake numbers ending in 4 as being divisible by 4.</li> <li>2. Students may mistake numbers ending in 8 as being divisible by 8.</li> </ol> <p><b>How to address the misconceptions:</b></p> <ol style="list-style-type: none"> <li>1. Demonstrate that the test of divisibility by 4 looks at the last two digits of a number. Point out to students that while some numbers that end in 4, such as 4, 24, and 44, are divisible by 4, this is not a test of divisibility. Other numbers that end in 4 are not necessarily divisible by 4. For example: 14 and 34.</li> </ol> <p>Get students to recognise that when we look at the last two digits of a number, such as 1428, we ignore the first two digits (1 and 4) and focus only on the last two digits (2 and 8). Have them highlight, colour, or circle the last two digits to emphasise the correct digits to use in the test.</p>	

### Language Support

**Vocabulary:** tests of divisibility

Revise even numbers with students. As the lesson proceeds, relate divisibility by 2 as a test of even numbers and focus students' attention on the tests of divisibility by 4 and 8 during the lesson as an extension of what they have learnt before.

## Language Support

Provides educators with **teaching ideas and strategies** that better help **students learn and retain the key terms.**

## Lesson Plans

Help educators who are new to the Cambridge Primary Maths curriculum framework to deliver lessons effectively. The lesson plan comes in an editable Word format for ease of lesson planning.



MCE Cambridge  
Primary Maths  
Teacher's Guide

### Lesson Plan

The lesson plan below will be available online for you to edit and customize according to your requirements.

#### Lesson 1 (40 min)

##### Warm up (5 min)

##### Chapter Opener

- This scene provides a context for students to explain the difference between prime and composite numbers.
- Facilitate a class discussion by asking students:
  - What do you notice about how the children are arranging the beads? (*Expected answers: Some are in equal rows and some are in a single row.*)
  - Why can't seven beads be arranged into equal rows like eight or ten beads? (*Expected answer: Seven is an odd number and is not divisible by two. Eight and ten are even numbers and are divisible by two. So they can be arranged into two equal rows.*)
  - What can you say about numbers such as eight, nine and ten? (*Expected answer: They can be arranged in different ways. They can be arranged in different groups and rows. Example: Eight can be arranged in one row of eight, two rows of four, or four rows of two. They have many factors. Example: The factors of 8 are 1, 2, 4, and 8.*)
  - What can you say about numbers such as seven? (*Expected answer: They can only be arranged in one way. Seven can only be arranged in one row of seven. They have only two factors. Example: The factors of 7 are 1 and 7.*)
  - Can seven beads be arranged in two equal rows? Show using counters or draw a picture to explain. (*Expected answers: No. Students' representations should show, for example, seven beads in a row of three and another row of four.*)
- Use the MCE Cambridge app to launch the video on page 1 of the Student's Book to introduce the definition of prime numbers, composite numbers and square numbers to the students. Revisit the song after they have learnt the different types of numbers.
- Then go through the objectives of the chapter.

*\*This material has not been through the Cambridge International endorsement process.*

##### Lesson Introduction (5 min)

- Go through the learning objective that students will learn in this section.

##### Look Back

- Get students to recall prior knowledge on multiples of 2, 5, and 10 (up to 1000) and related multiples and factors by discussing as a class.
- Have students find the similarities between the numbers. (*Expected answers: They are in ascending order; The numbers increase by one; Even numbers are arranged in groups of two rows; They are arranged in arrays; Some of the numbers are in equal groups of two or three; Some of the numbers are arranged in two or three rows.*)
- **SEL (Social awareness, Relationship skills):** Encourage students to be confident when they share their knowledge and what they notice with their partner. At the same time, remind them to be patient, to listen carefully and to acknowledge what their partners share.

##### Lesson development: Anchor Task C-P-A (10 min)

##### Thinking Cap

- The objective is to have students use their prior knowledge to explore new ideas and possible solutions through critical and creative thinking.
- Prepare counters, marbles, or shapes for students to use to explore arranging numbers in groups and by their factors. Students are not expected to solve the problem at this stage.
- Use the **Think-Pair-Vote-Share strategy** (see p.xii for detailed steps).
  - In the "Think" and "Pair" stages, allow students to attempt the task in pairs.
    - Have them practise **characterising (TWM.05)** by asking:
      - o What is common about numbers 2, 3, 5, and 7 and their factors?
      - o How are they similar? What pattern do you see? (*Expected answer: They only have two factors: 1 and itself.*)
    - In the "Pair" stage, connect their prior learning to the new idea by asking:
      - o What are the factors for the numbers 1 to 10? (*Expected answer: 1 has only one factor, itself. 2 has two factors: 1 and 2. 3 has two factors: 1 and 3. 4 has three factors: 1, 2, and 4. 5 has two factors: 1 and 5. 6 has four factors: 1, 2, 3, and 6. 7 has two factors: 1 and 7. 8 has four factors: 1, 2, 4, and 8. 9 has three factors: 1, 3, and 9. 10 has four factors: 1, 2, 5, and 10.*)
      - o What do you already know that could help you find the factors for each number? (*Expected answers: 2 = 1 x 2 so it has only two factors, 1 and 2...*)

Marshall Cavendish Cambridge Primary Mathematics (2nd edition)  
Stage 5

### Differentiation

#### For support:

- Ensure that students know how to find the factors of numbers before moving on to the difference between prime and composite numbers.
- Go through questions 1 and 2 for students to build on the skill of finding the factors of a number less than 100.
- Go through questions 3 and 4 to help students build the skill of being able to tell the difference between prime and composite numbers. You may use the following samples or make up your own questions:
  1. Find the factors of 15. (*Expected answer: 1, 3, 5, and 15.*) This question requires students to find the factors of a number smaller than 100.
  2. How many factors does 28 have? (*Expected answer: The factors of 28 are 1, 2, 4, 7, 14, and 28. 28 has six factors.*) This question requires to identify the number of factors in a number smaller than 100.
  3. Is 10 a prime or composite number? Explain. (*Expected answer: 10 is a composite number. It has four factors: 1, 2, 5, and 10.*) This question requires students to identify a composite number.
  4. Why is 19 a prime number? Explain. (*Expected answer: It has exactly two factors, 1 and itself.*) This question requires students to state the definition of prime number.

#### For challenge

- Have students work in pairs.
- Get students to take turns to roll two die and make their moves using a hundreds chart. At each number, have them find the factors and identify whether it is a prime or composite number. If they get it right, they get to move forward at their next turn. If they get it wrong, they move backwards. Get them to take turns and repeat the exercise. The first person to cross 100 wins.

### Differentiated Instructions

Suggests further activities to **scaffold learning** for learners who require additional support and **extend learning** for more confident learners.

### Schemes of Work

Enables educators to **plan lessons effectively** as they save time and effort in locating materials across the series.

### Scheme of Work

## Chapter 1 Special Numbers

Suggested time frame: 8 periods  
Each period is 40 min.

Section	No. of Periods	Learning Objectives	Resources	Thinking and Working Mathematically (TWM) and Social and Emotional Learning (SEL)
Chapter Opener	3		<ul style="list-style-type: none"> <li>• Student's Book p.1</li> <li>• Video via MCE Cambridge app</li> <li>• Counters, shapes or sticks</li> </ul>	
A. Prime and Composite Numbers		<b>5Ni.06</b> Understand and explain the difference between prime and composite numbers.	<ul style="list-style-type: none"> <li>• Student's Book pp.2–5</li> <li>• Activity Book pp.1–3</li> <li>• Counters, marbles, or shapes</li> <li>• Cubes or blocks</li> <li>• TR1A Hundred Square Grid</li> </ul>	<ul style="list-style-type: none"> <li>• <b>TWM:</b> Characterising Convincing Specialising</li> <li>• <b>SEL:</b> Social awareness Relationship skills</li> </ul>
B. Tests of Divisibility	4	<b>5Ni.07</b> Use knowledge of factors and multiples to understand tests of divisibility by 4 and 8.	<ul style="list-style-type: none"> <li>• Student's Book pp.6–8</li> <li>• Activity Book pp.4–6</li> <li>• Number chips</li> <li>• Long piece of paper or ribbon</li> </ul>	<ul style="list-style-type: none"> <li>• <b>TWM:</b> Convincing Classifying</li> </ul>
Chapter Wrap Up	1		<ul style="list-style-type: none"> <li>• Student's Book pp.9–10</li> <li>• Activity Book p.7</li> <li>• two counters (one red and one blue)</li> <li>• Dice</li> <li>• Papers</li> </ul>	<ul style="list-style-type: none"> <li>• <b>TWM:</b> Convincing</li> </ul>

## Promotes Relatability through Real-life Contexts

This series caters to the international audience with the use of real-life contexts. Visuals are attractive and colourful, with scenarios and characters that the audience can more easily identify with. Learning is enhanced with the use of real-world contexts, enabling learners to better understand the relevance and make sense of the mathematical concepts, improving knowledge retention. This series also provides opportunities for Social-and-Emotional Learning, where students become more aware of oneself and others around them.

MCE Cambridge Primary Maths Student's Book



### Make Special Number Sequences

What You Will Learn:

- Recognise square numbers from 1 to 100.
- Recognise and extend spatial pattern of square and triangular numbers.

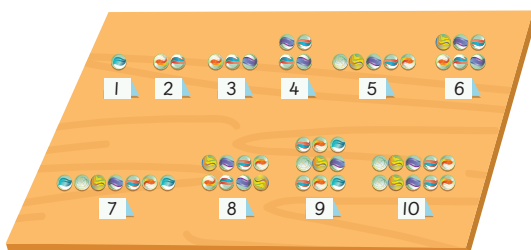


### Prime and Composite Numbers

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?



What would the next square look like? Discuss your answer with your partner.

When someone is talking, listen carefully.

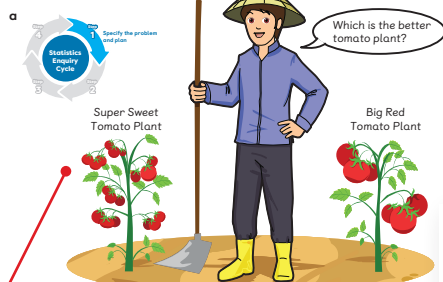


### Social-and-Emotional Learning Mascots

Promotes values such as respect for others during teachable moments.

MCE Cambridge Primary Maths Student's Book

## Let's Learn



To answer the farmer's question, carry out Step 1 in the Statistics Er Cycle by identifying the problem and asking questions.

Which tomato plant should the farmer grow?

What are the heights of the plants?

What is the length of the tomatoes?

What is the mass of the tomatoes?

From these questions, the following data can be collected:

height of tomato plants  
length of tomatoes  
mass of tomatoes

The data can be measured and has a range of values.

The data shown is called **continuous data**.

## Colourful Visuals

Visuals promote **reliability** for learners.

## Let's Practise

Questions include **real-world contexts** to promote reliability as learners practise key skills related to the concepts covered in the lesson.

## Let's Practise

- Is 4818 divisible by 4?
- Is 10 616 a multiple of 4? Describe to your partner how you would apply the test of divisibility to find out.

- Classify the numbers.

60

128

4224

9016

Numbers divisible by 4	Numbers divisible by 8

- Eddy has 336 stickers.
  - 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.
  - 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

## CHAPTER

## 2

## Number Sequence

## Option

## Quiz

## Chapter Opener

Introduces topics using a **real-life example** which features an engaging scene with dialogue between two characters. This is followed by questions to **foster discussion** about a key mathematical concept or misconception.

Three days ago, the temperature in London was 2°C.

The temperature dropped by the same number every day.

It is -7°C in London today. What was the temperature in London yesterday?

What are the different ways to work out the temperature? Explain how you arrive at your conjecture.

## In this chapter, you will:

- count on and count back with negative numbers.
- find a term of a sequence.
- recognise and extend pattern of square and triangular numbers.



## Delivers a Fun and Engaging Hybrid Learning and Teaching Experience

The series is designed to make learning joyful and meaningful. The digital resources provide a dynamic hybrid learning and teaching experience. Videos, quizzes, and virtual manipulatives are embedded throughout the book to make learning interactive for learners.

For educators, online PowerPoint lesson slides, along with lesson plans and annotatable eBooks, are provided for ease of lesson delivery. Colourful visuals and diagrams also help to make learning mathematics fun!

MCE Cambridge Primary Maths Student's Book

**CHAPTER 4**

### Time

**Option Watch!**

Flight	From	Arrival Time (Local Time)
MLM007	Jakarta, Indonesia	12:05
SQ0149	Seoul, South Korea	12:50
QAS98	London, United Kingdom	12:55

**Watch**

Exciting video clips\* that make **learning come alive** are embedded throughout the book! Video clips can be launched on a smartphone or tablet by scanning the page using the MCE Cambridge App.

\*These digital resources will not go through the Cambridge International endorsement process.

### Virtual Manipulatives

Learners are able to visualise and better **understand abstract mathematical concepts** through the visual manipulatives.

**CHAPTER 3**

### Decimals

**Option Virtual Manipulative**

Elephants are so big! I wonder how tall they are.

Look at its trunk! How long can it stretch?

Elephants are the biggest animals on land. They grow up to 3.2 m tall. Their trunks can be as long as 2.15 m long.

Where have you seen numbers like 3.2 and 2.15? Why do we show numbers like this?

**In this chapter, you will:**

- find the value of tenths and hundredths.
- compose, decompose and regroup decimals.
- round decimals to the nearest whole number.

MCE Cambridge Primary Maths Student's Book



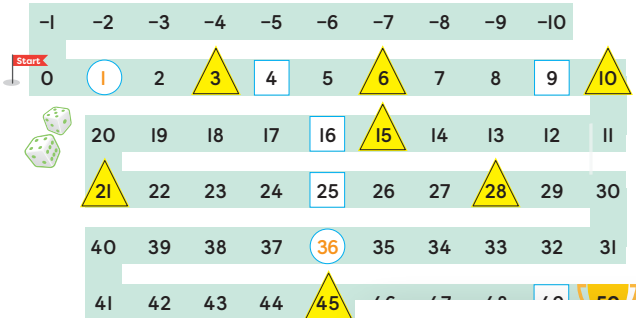
# Maths CHAMPIONS

Play with your partner.

**Materials:**

- a game board
- 2 counters (1 red and 1 blue)
- 2 dice

- Step 1:** Place a counter at the start point.
- Step 2:** Roll both dice. Move the counter forward by the sum of the numbers rolled.
- Step 3:** If the counter lands on a square number, you miss a turn. If the counter lands on a triangular number, roll both dice again. Move the counter backward by the sum of the numbers rolled. If the counter lands on 1 or 36, choose either 'miss a turn' or 'move backward by 6'.
- Step 4:** Take turns to repeat Steps 2 and 3.
- The player to reach 50 first wins!



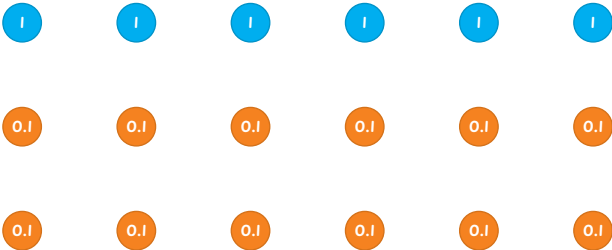
Don't give up if you lose.

## Sticker Activities

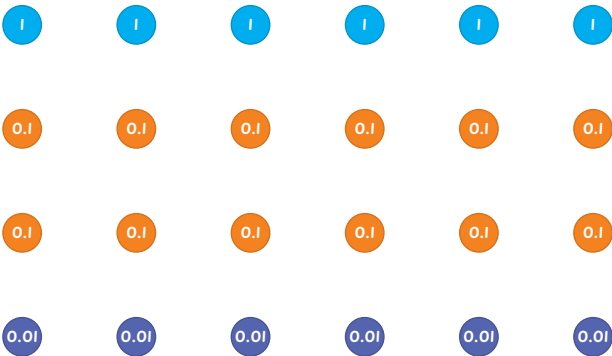
Learners are kept **engaged** while learning maths with hands-on sticker activities. Stickers can be found at the back of the Student's Book.

## Stickers

Stickers for Chapter 3, Lesson A Let's Practise, page 28



Stickers for Chapter 3, Lesson B Let's Practise, page 32



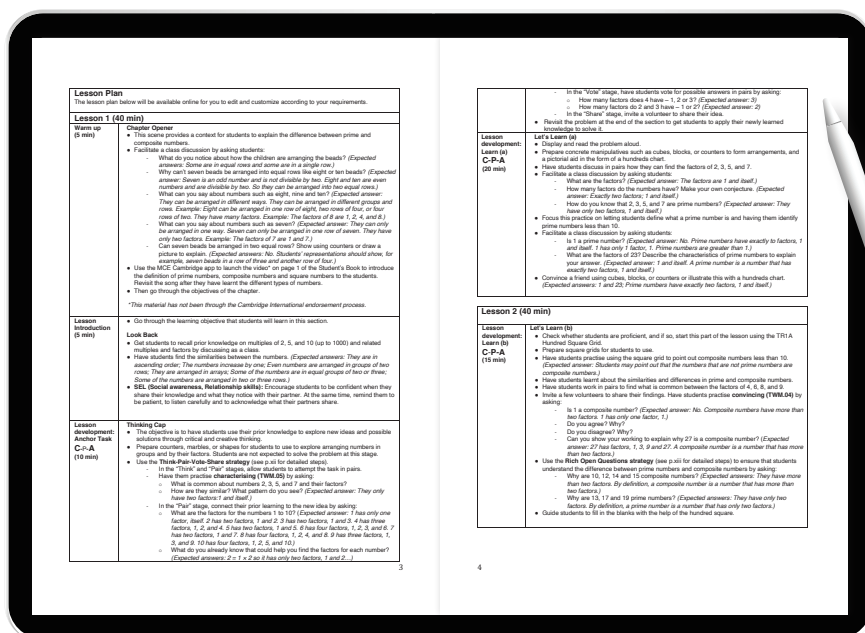
## Annotatable Enhanced eBooks\*

eBooks come with an **annotation function**, allowing answers to be saved and submitted. **Interactive digital resources** are also embedded throughout the book, keeping learners engaged. These activities can be attempted in learners' own time or delivered as part of an in-class activity.



## Teacher's Digital Resources\*

**PowerPoint slides** and **lesson plans** are provided in **editable formats** to support educators in effective lesson planning and delivery.



\*These digital resources will not go through the Cambridge International Education endorsement process.

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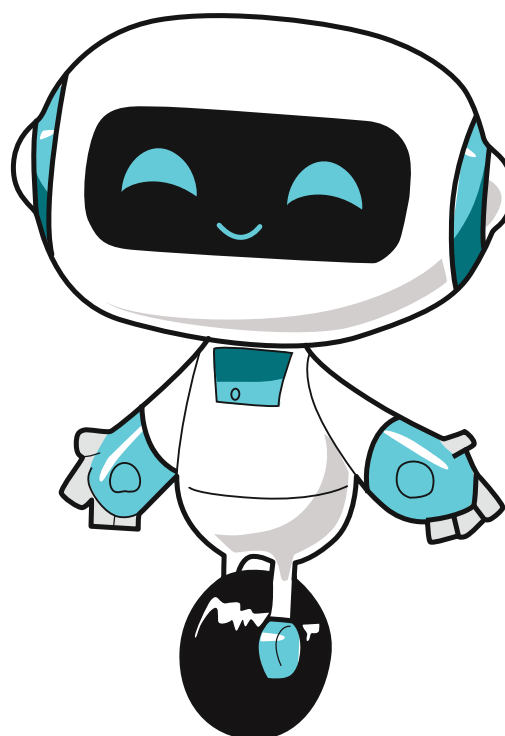
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**Grade 7 – 9 | Age 13 – 15**

The Marshall Cavendish Education **Maths Ahead** Series is designed for students from Grades 7 to 9. Focused on building up necessary mathematical knowledge, this series comprises of a Student's Book, Workbook, Teacher's Guide and digital resources for each level.

The **Maths Ahead** Package espouses the use of comics to enhance students' learning for the development of the 21<sup>st</sup> century competencies in the Mathematics classroom.

Based on the paper co-written by Dr Toh Tin Lam and other writers, the use of comics in our student book aims to empower learners through the following:

- Capture Interest and impress key mathematical ideas
- Enhance and extend communication of Maths concepts to facilitate understanding
- Minimise apprehension and anxiety by Increasing motivation to learn Mathematics
- Provide a bridge between Maths concepts and real-life context
- Engage and encourage students to participate actively in class discussions and collaboration



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### **Series architecture**

- Student's Book (Stages 1–6)
- Activity Book (Stages 1–6)
- Teacher's Guide (Stages 1–6)
- eBook (Stages 1–6)\*
- Additional Digital Resources\*

*\*These resources will not go through the Cambridge International Education endorsement process.*