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education

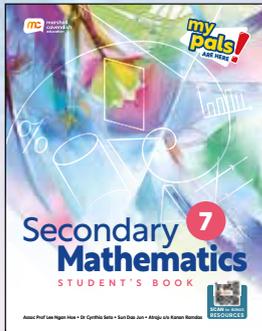
**my
pals!**
ARE HERE

**Secondary
Mathematics**
GRADE 7 - 10

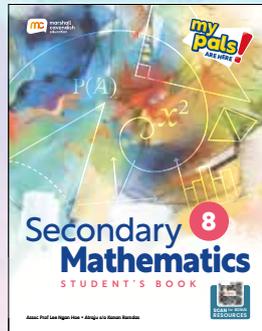
What's in our Programme?

Student Book

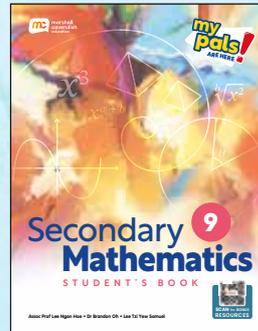
Available in print and annotable eBook



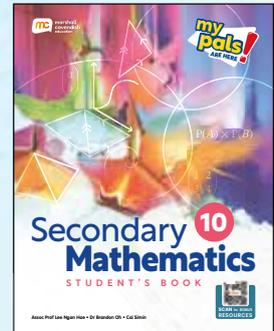
Grade 7 Student Book
Print: 9789815319958
eBundle: 9789815358520



Grade 8 Student Book
Print: 9789815319965
eBundle: 9789815358537



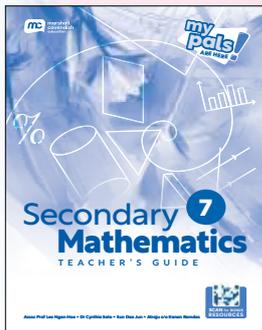
Grade 9 Student Book
Print: 9789815319972
eBundle: 9789815358544



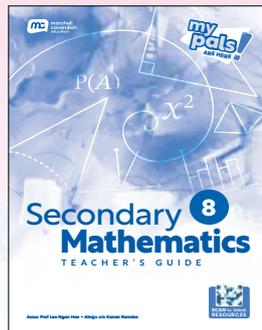
Grade 10 Student Book
Print: 9789815319989
eBundle: 9789815358551

Teacher's Guide

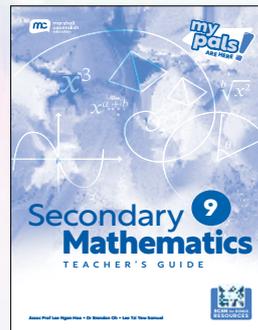
Available in annotable eBook



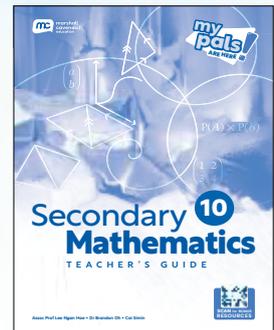
Grade 7 Teacher's Guide
Print: 9789815319996
eBundle: 9789815358568



Grade 8 Teacher's Guide
Print: 9789815320008
eBundle: 9789815358575



Grade 9 Teacher's Guide
Print: 9789815320015
eBundle: 9789815358582



Grade 10 Teacher's Guide
Print: 9789815320022
eBundle: 9789815358599

For Students

Student's Book in print

Student's Book eBook:

- Annotable eBook
- Videos of worked solutions (embedded in eBook, short videos to teach how to solve problems)
- Links to AI-driven adaptive assessments platform (embedded in eBook)
- Dynamic digital interactives inside the eBook
- Mock Exam Paper (Designed only for Indonesia and Philippines)

For Teachers

Student Book in print

Teacher's Guide eBook:

- Editable schemes of work
- Editable lesson plans
- Editable Maths Practice worksheets (word and pdf)
- Mock Exam Papers (preset, generated by AI)*
- Question Bank/Test Generator (preset, generated by AI)
- AI-driven adaptive assessment
- Teacher's Dashboard

*For Indonesia and Philippines only



My Pals are Here! Secondary Maths Grade 7 - 10

My Pals are Here! International Secondary Maths is a four-level secondary Mathematics programme that is designed to meet the needs of the market – providing a seamless progression from the well-loved My Pals are Here! Primary Maths series that is widely adopted and highly popular amongst teachers and students worldwide. This programme ensures all students excel in the local and Cambridge exams regardless of their language proficiency or Mathematical readiness levels.

Based on the proven Singapore methodology that has taken Singapore students to the top of international studies such as the Trends in International Maths and Science study (TIMSS) and the Programme for International Students Assessment (PISA), this programme blends effective pedagogy, depth and rigour with high-quality resources that support all students. This programme is based on the latest Singapore Maths MOE syllabus and is designed for use in international classrooms.

Enhanced by AI-driven tools*, it simplifies lesson planning and delivery, enabling teachers to teach with ease. With well-structured content, engaging examples, and student-friendly language, it empowers teachers and equips students with the skills and confidence to excel in Mathematics.

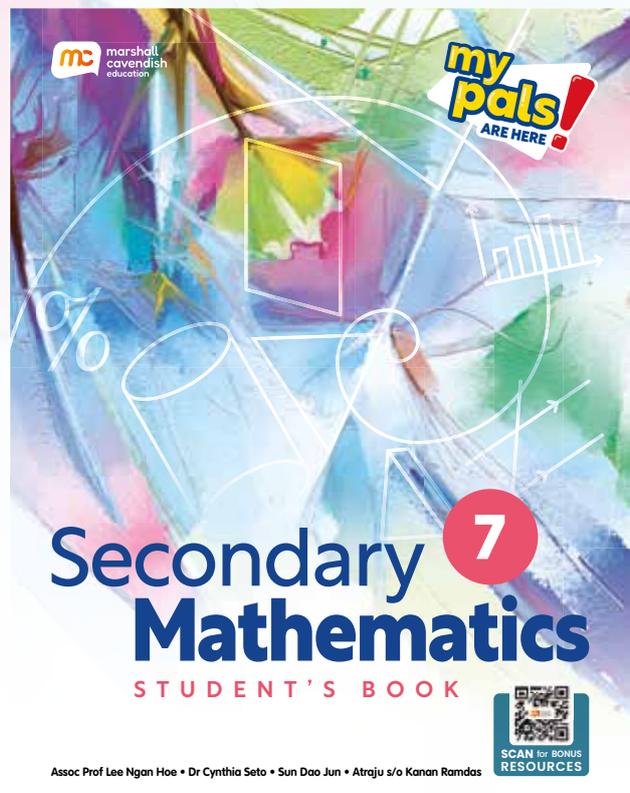
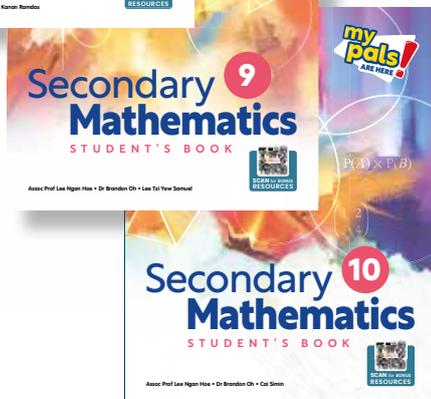
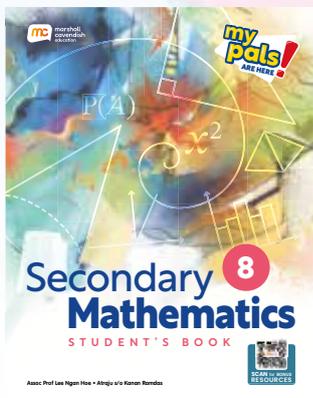
Who is this programme for?

- ✓ **Schools seeking a Maths series that is based on the rigorous Singapore Maths approach and pedagogy**
- ✓ **Teachers that require more guidance and teachers resources for lesson preparation and delivery**
- ✓ **Students who are non-native speakers of English and may not have the necessary foundational knowledge and Math skills to master Mathematics at the secondary level**

*AI is available as an add-on, for more information, please contact our education consultants

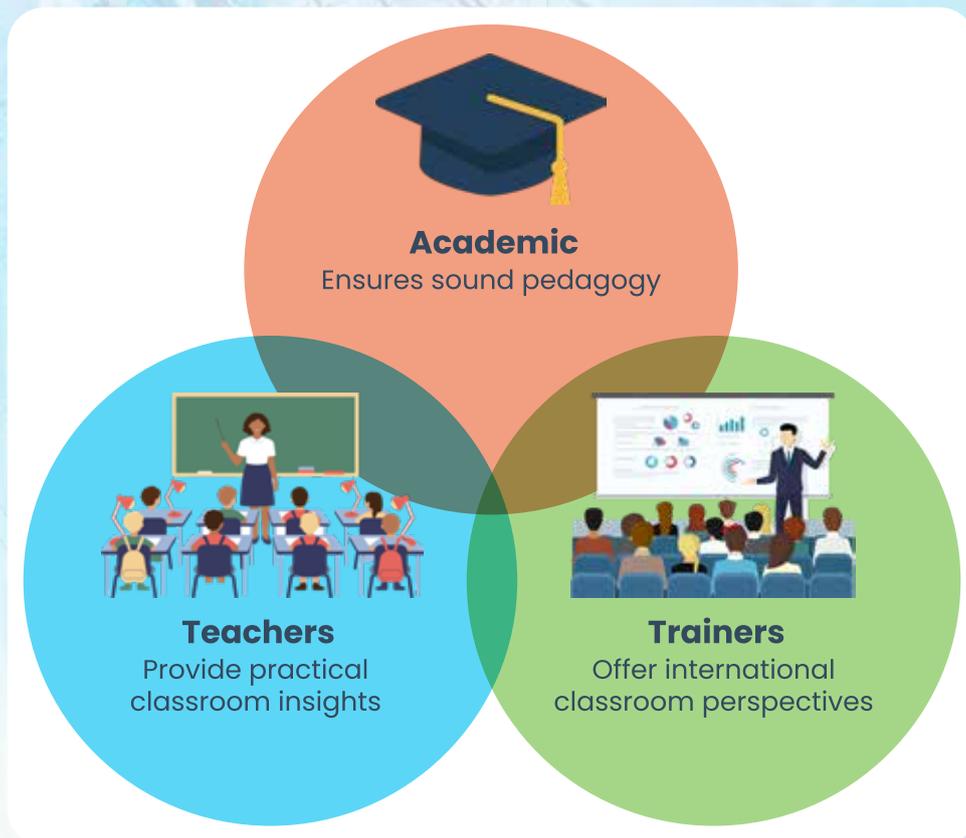
Why choose Secondary Maths?

- 1 Designed by leading Maths Experts with extensive experience in teacher training in Singapore and Internationally
- 2 A seamless pathway and excellent progression from the My Pals Are Here! Primary Maths series
- 3 AI-Powered Sec Maths Textbook based on Singapore Sec Maths for personalised learning
- 4 All-in-one solution for unparalleled ease of use and convenience



Why choose Secondary Maths?

1 Designed by leading Maths Experts with extensive experience in teacher training in Singapore and Internationally



This series is developed by top-tier Maths experts comprising academics, trainers and teachers.

Academics

Backed by decades of research, our consultants and authors are experts in best practices for secondary Mathematics education and understand how to foster effective mathematical thinking and teaching in diverse learning settings.

Trainers

Our trainers have a strong understanding of teachers' needs and challenges across different educational settings. They are experienced in implementing curricular and pedagogical initiatives in diverse learning environments and can relate well to our key markets in terms of their learning contexts and educational cultures.

Teachers

Teachers understand the diverse needs and challenges faced by students in the classroom and are dedicated to supporting effective teaching and learning for all learners, regardless of ability.

2 A seamless pathway and excellent progression from the My Pals Are Here! Primary Maths series



My Pals Are Here! Secondary Maths provides a seamless pathway and excellent progression from My Pals are Here! Primary Maths to Secondary Maths. It combines bite-sized content with tiered exercises and 10-Minute Concept Checks to ensure learning is both achievable and rigorous to build confidence and mastery.

Each numbered point focuses on one key idea, with the next building on the previous.

This **step-by-step structure** supports **understanding, retention and confidence.**

A Introduction To Algebra

Algebraic Expressions

1. Three baskets hold a specific number of apples.

Basket 1: 3 apples, Basket 2: 5 apples, Basket 3: 4 apples. Total: 12 apples.

When the number of apples in Basket 3 changes, the total number of apples in the three baskets will also change.

Basket 1: 3 apples, Basket 2: 5 apples, Basket 3: 2 apples. Total: 10 apples.

When there are 10 apples in Basket 3, there is a total of 10 apples.

When there are 7 apples in Basket 3, there is a total of 7 + 5 + 3 = 15 apples.

2. The expression $2x + 3$ is called an **algebraic expression**.

In the expression, x is called a **variable** because its value can vary.

An algebraic expression is a combination of variables, numbers and operations like $+$, $-$, \times , \div and exponents.

Does an algebraic expression have an equal sign? Explain.

Take Note: You can use letters like x or y to represent the unknown number of apples in Basket 1.

Let's Try It Out: Does an algebraic expression have an equal sign? Explain.

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Tiered exercises comprising **basic, intermediate** and **advanced** questions build rigour through **progressive levels of challenge** for every learner.

Exercise

Basic

- Solve the following equations:
 - (a) $2x = 4$
 - (b) $3 + 4x = 19$
 - (c) $4 - 3x = 2$
 - (d) $5 - 2x = 12$
 - (e) $3x - 10 = 13$
- Solve the following equations:
 - (a) $2x = 4$
 - (b) $\frac{1}{2}x = 4$
 - (c) $-3x = 12$
 - (d) $\frac{2}{3}x = 3$
- Solve the following equations:
 - (a) $3x + 4 = 1$
 - (b) $4x - 2 = -1$
 - (c) $7 + 3x = 9$
 - (d) $4 - 2x = 11$
- Solve the following equations:
 - (a) $3x + 4 = x$
 - (b) $4x = 2 + 3x$
 - (c) $3x = -4x + 12$
 - (d) $4x = 4x - 5$

Intermediate

- Solve the following equations:
 - (a) $2x + 4 = 4x - 4$
 - (b) $7x - 3 = 3x + 5$
 - (c) $2y - 2 = 7x - 3y$
 - (d) $5.7 - y = 30.2 = 19$

Problem Solving

- Given that $y = 3$ is the solution to the equation $2x + 3y = 27$, find the value of x .
- Write down the algebraic expression whose value is $x + 1$.
- A triangle with an area of 30 cm^2 has a height of h centimetres and a base of 7 cm.
 - (a) Find an equation in h .
 - (b) Find the value of h .
- Solve for the unknown, a spring is hung with a block of mass m kilograms attached to the end. The length, L centimetres, of the stretched spring is given by the formula $L = 12 + 4m$.
 - (a) Explain verbally what the number 12 is in the equation above.
 - (b) Find the length of the stretched spring when the mass of the block is 7 kg .
 - (c) Find the mass of the block if the spring is stretched to 70 cm .

Chapter 3 Linear Equations In One Variable © 2007 Marshall Cavendish Education Pte Ltd

The **10-Minute Concept Check** helps **consolidate key learning** at the end of each chapter, **reinforcing retention and confidence.**

10-Minute Concept Check

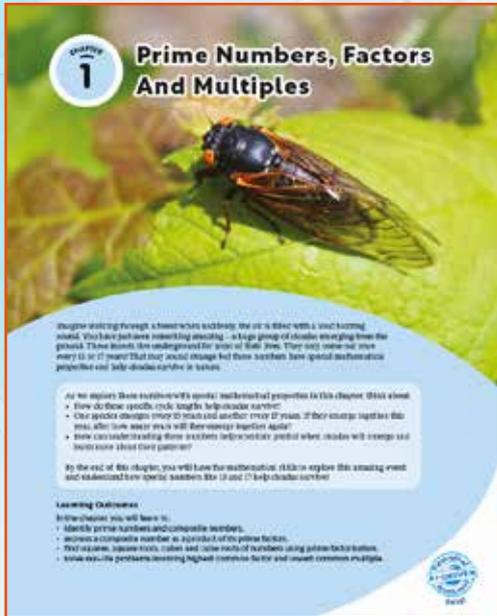
You have 10 minutes to answer the following questions. Choose the most appropriate answer.

- Which statement is correct about (I), (II) and (III)?
 - (I) $3 + 4 = 7$ (II) $3 + 4 = 8$ (III) $3x$
 - A. Only (I) is an equation. B. Only (II) is an equation.
 - C. Both (I) and (II) are equations. D. Both (I) and (II) are equations. ()
- Which of the following is a linear equation?
 - A. $x^2 + 2 = 3x + 1$ B. $3(2x - 1) = 8$ C. $3x = 10$ D. $x^2 = 2x^2$ ()
- Solve the equation $-2 = 4 + 3x$.
 - A. $x = 2$ B. $x = \frac{1}{3}$ C. $x = 4$ D. $x = -2$ ()
- Given that $2x - 4 = 3$, find the value of x .
 - A. $\frac{1}{2}$ B. $-\frac{1}{2}$ C. 3 D. -3 ()
- Given that $3y - 10 = 2y - 4$, find the value of y .
 - A. 6 B. 1 C. -4 D. -7 ()
- Solve the equation $\frac{2x}{3} + \frac{3}{4} = \frac{x}{2}$.
 - A. $x = 2$ B. $x = 4$ C. $x = 3$ D. $x = 9$ ()
- What is the value of x that satisfies the equation $\frac{2}{3}x = \frac{1}{2}$?
 - A. $x = \frac{1}{3}$ B. $x = \frac{1}{2}$ C. $x = 4$ D. $x = 2$ ()
- Which equation is NOT equivalent to the others?
 - A. $\frac{x-1}{2} = \frac{3x-1}{4}$ B. $2(x-3) = 4x-2$ C. $2x-2 = 3x-3$ D. $2x-2 = 3x-3$ ()
- The sum of three consecutive odd integers is 75. The largest integer is n . Which equation represents the given information correctly?
 - A. $n + (n + 1) + (n + 2) = 75$ B. $n + (n + 2) + (n + 4) = 75$
 - C. $(n - 2) + (n - 1) + n = 75$ D. $(n - 4) + (n - 2) + n = 75$ ()
- Donna's mass is $\frac{1}{3}$ of her father's. If their mass difference is 30 kg , what is Donna's mass?
 - A. 10 kg B. 24 kg C. 40 kg D. 70 kg ()

Chapter 3 Linear Equations In One Variable

3 AI-Powered Sec Maths Textbook based on Singapore Sec Maths for personalised learning

This series promotes personalised learning and strengthens the mastery of Maths through an adaptive learning platform.

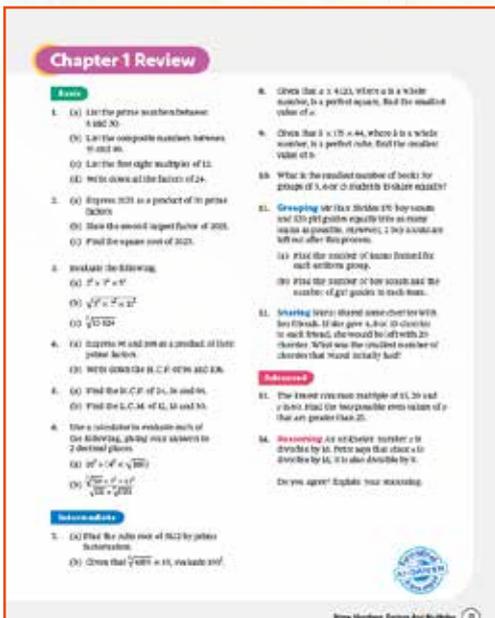


AI-driven Personalised Assessments are found at the following places within each chapter:

- Recap!
- Exercises
- Chapter Review
- Chapter Assessment

These assessments promote self-directed learning, allowing students to take ownership of their learning and revise at their own pace, based on their individual needs and progress.

AI-driven Personalised Assessments are also found after a few chapters as **Cumulative Assessments**, after half of the book as **Mid-Year Assessment** and at the end of the book as **End-of-Year Assessment**. These provide summative assessments for students as they prepare for their examinations.



There are 3 practice sets for Recap and 10-Minute Concept Checks with unlimited tries for the 3rd set. For Exercise, Chapter Review, Chapter Test, Cumulative Assessment, Mid-Year Assessment and End-of-Year Assessment, 5 practice sets are available for each.

For Students

Students are given **instant responses** and feedback on their answers. They can also view the **worked solutions** provided.



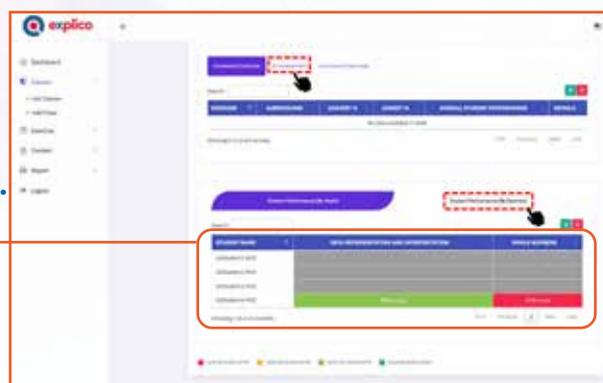
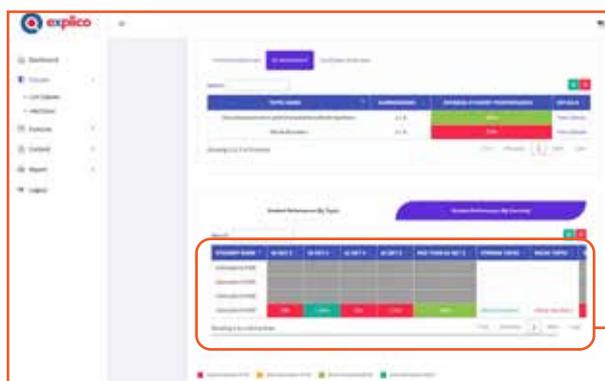
Students can also view their strong and weak aspects through the platform's **detailed analysis**.

Students can revisit the questions that they have done earlier through the **detailed report**.



For Teachers

Teachers can track and monitor **individual student's progress (by topic)** to prescribe timely remediation and intervention.



Teachers can track and monitor **individual student's progress (by exercise)** to prescribe timely remediation and intervention.



Question Bank and Test Generator for teachers to provide formative and summative tests to students



Mock Exam papers for exam preparation and practice (Indonesia and Philippines for now)

4 All-in-one solution for unparalleled ease of use and convenience

For Students

Dynamic Digital Interactives (GeoGebra).



2. We can express 12 in terms of prime factors only.....

$12 = 2 \times 2 \times 3$

This process is known as **prime factorisation**.

Prime factorisation of a number can be shown using a **factor tree**. Let us try and express 90 as a product of its prime factors.

PQRS is a rectangular garden of length $(2x - 1)$ m and breadth $(x + 2)$ m. John wants to build a square pool of side length 6 m as shown in the diagram.

(i) Write down an expression, in terms of x , for the area of the garden that is not covered by the pool.

(ii) Given that the area in (i) is 100 m^2 , formulate an equation in x and show that it reduces to $2x^2 + 3x - 138 = 0$.

(iii) Solve the equation $2x^2 + 3x - 138 = 0$.

Polya's four step method

- 1 Understand
- 2 Plan
- 3 Solve
- 4 Check

Let's use Polya's four-step method to solve this problem.

Dynamic Digital Interactives (Real-World Problem Videos).

Students can also view their strong and weak aspects through the platform's **detailed analysis**.



The Student's Book eBook (SE enhanced) can be accessed through EduHub



For Teachers

Teachers' Resources such as editable **Schemes of Work**, **Lesson Plans** and **Worked Solutions** help teachers plan their lessons.

Chapter 1 Prime Numbers, Factors And Multiples

Scheme of Work

Suggested duration: 33 lessons (1 lesson is about 40 minutes)

Sections	No. of Lessons	Learning Objectives	Resources	Vocabulary / Thinking Skills
Chapter Opener Recall	1	<ul style="list-style-type: none"> Recall identifying odd and even numbers. Recall the multiplication facts of the form $a \times b$. Recall finding the factors of a number. Recall finding the common factors of two or more numbers. Recall listing the first 10 multiples of a 1-digit number. Recall finding the common multiples of two or more numbers. 	<ul style="list-style-type: none"> Student's Book, p. 1 AI-Driven Personalised Assessment (Recap) 	<ul style="list-style-type: none"> identifying patterns and relationships deduction
A. Prime Numbers and Prime Factorisation	2	<ul style="list-style-type: none"> Identify prime numbers and composite numbers. Express a composite number as a product of its prime factors. 	<ul style="list-style-type: none"> Student's Book, pp. 2–5 Interactive Resource, p. 4 Student's Book, Exercise, p. 6 AI-Driven Personalised Assessment (Exercise), p. 6 	Vocabulary <ul style="list-style-type: none"> prime number composite numbers prime factors prime factorisation factor tree

SOLUTIONS (Student's Book)

CHAPTER 1 Prime Numbers, Factors And Multiples

[A] Prime Numbers And Prime Factorisation

Try 1 (Student's Book, page 3)

- (a) The prime numbers smaller than 31 are 2, 3, 5, 7, 11, 13, 17, 19, 23 and 29. 31 is not divisible by any of them. \therefore 31 is a prime number.

(b) The prime numbers smaller than 33 are 2, 3, 5, 7, 11, 13, 17, 19, 23, 29 and 31. 33 is divisible by 3 and 11. \therefore 33 is a composite number.

Exercise (Student's Book, page 6)

- (a)–(e)

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
---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

(f) 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 43, 47 and 49

(g) The unit digits of prime numbers, except 2 and 5, are 1, 3, 7 or 9. No prime number, other than 2 and 5, ends in 0, 2, 4, 5, 6, or 8.

(h) Since $7 \times 7 = 49$, there is no need for further checks on numbers less than 49.
- The only even prime number is 2. So, there is 1 even prime number less than 50.
- Total prime numbers less than 50 = 15
Even prime numbers = 1 (which is 2)
So, odd prime numbers = $15 - 1$
= 14

Lesson 2

Section A • Prime Numbers And Prime Factorisation (I)

Duration: 40 minutes

Student's Book, pp. 2–6

Notes for Teachers:

In this lesson, students will learn about prime and composite numbers and their differences. Students will build on their prior understanding of factors from primary or elementary school to help them identify whether numbers are prime or composite.

Lesson Introduction 15 minutes

- Recap with students what factors are.
- Show with students that they will be learning about prime numbers and composite numbers in this lesson.

Lesson Development 25 minutes

Prime Numbers (Student's Book, pp. 2–5)

- Refer students to (1) on Student's Book, page 2.
 - Begin by asking students to recall what factors are.
 - Ask: What are factors? (Factors are numbers that can be multiplied together to make another number.)
 - Encourage students to share the factors of numbers other than 2.
 - Explain to students that the numbers such as 1, 2, 3 and 4 can be represented as areas made up of unit squares. Use the number 4 as an example. Highlight that 4 can form both a 1×4 rectangle and a 2×2 square.
 - For part (a), have students complete the table for the numbers 4 to 12. Then, ask them which of these numbers can be arranged into more than one different rectangle or square.
 - For part (b), ask students to identify which numbers have exactly one factor, which have exactly two factors and which have more than two factors.

Differentiation Strategies: Additional Support

Review that the area of a rectangle is calculated by multiplying its length by its breadth. Use a diagram to show how whole numbers can be represented as areas made up of unit squares. Explain that even numbers like 2, 4 and 6 are all multiples of 2, which means 2 is always one of their factors.

The screenshot shows the EduHub website interface. At the top, there are navigation links for 'My Library' and 'My Resources', along with a notification bell and a profile icon labeled 'I'm GTTeacher I teach :)'.

The main content area is titled 'Student Books (1)'. Below this title, there is a large image of a book cover for 'MPAH INTL Sec Maths TS Sample'. The cover features a landscape scene with a road and trees. A red dashed box highlights the book cover, and a red arrow points from the 'SOLUTIONS' section above to this book cover.

The Student's Book eBook (TE enhanced) can be accessed through EduHub

About Marshall Cavendish Education

Marshall Cavendish Education (MCE) is a global education solutions provider dedicated to nurturing the joy of learning and preparing students for the future. We believe the best way to do so is by simplifying learning and listening to the needs of schools, teachers, students and parents.

MCE makes world-class educational content more accessible through a seamless experience that integrates both print and digital resources. We provide holistic and end-to-end solutions customised to the school's requirements, with professional development to help educators implement the curriculum.

We've collaborated extensively with ministries, policymakers, educators and parents to foster educational achievement among learners. Trusted by educators worldwide, our programmes reach learners across more than 100 countries and 17 languages, from Pre-K to Grade 12. Backed by outstanding results in international benchmarks assessments such as TIMSS, PISA, PIRLS, and the Global Competitiveness Report, our works continue to set the global standard for excellence in education.

www.mceducation.com