14 July Day 1		Welcome Address Introduction	
		The Goal of Mathematics Education (Teaching and Learning) Curriculum Framework of Cambridge Lower Sec Maths Syllabus 0862	
		Overview of MCE' s Instructional Resources (MCE PPT Slides)	
		How does MC implement the Cambridge curriculum framework ? Introducing Key Features of MCE Textbooks	

Day 1 Part 2

Go through G5 Student Book – Refer to "How to Use This Book"

1-күн 2-бөлүк

G5 Окуучунун китебинен өтүңүз - "Бул китепти кантип колдонуу керек" дегенди караңыз

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

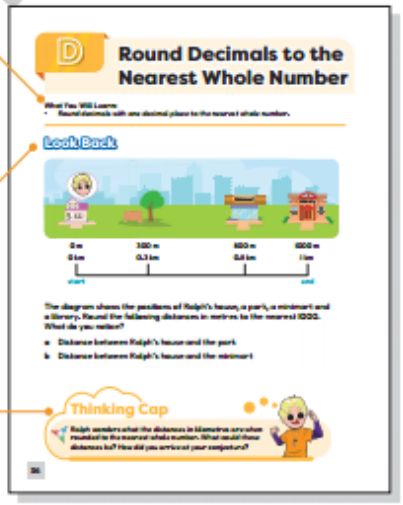
Focus on the learning aims that you will be learning in the section.

Look Back

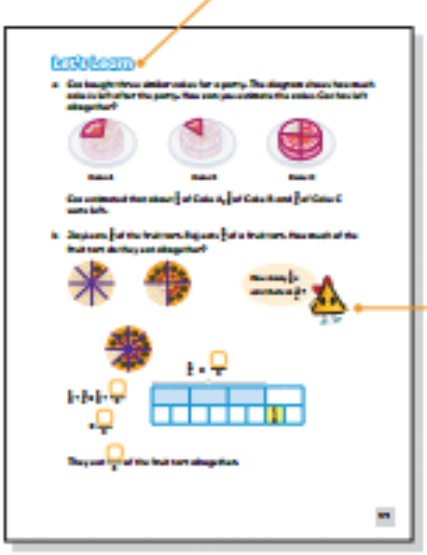
Engage you to think about what you have already learnt that is useful for the section.

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.



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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.

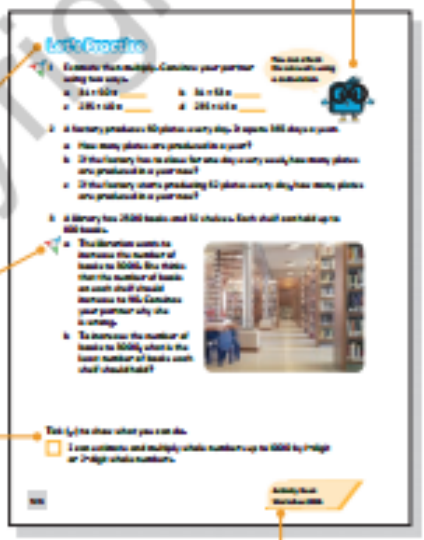
Provide tips to help you understand concepts better and solve problems.

Let's Practise

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

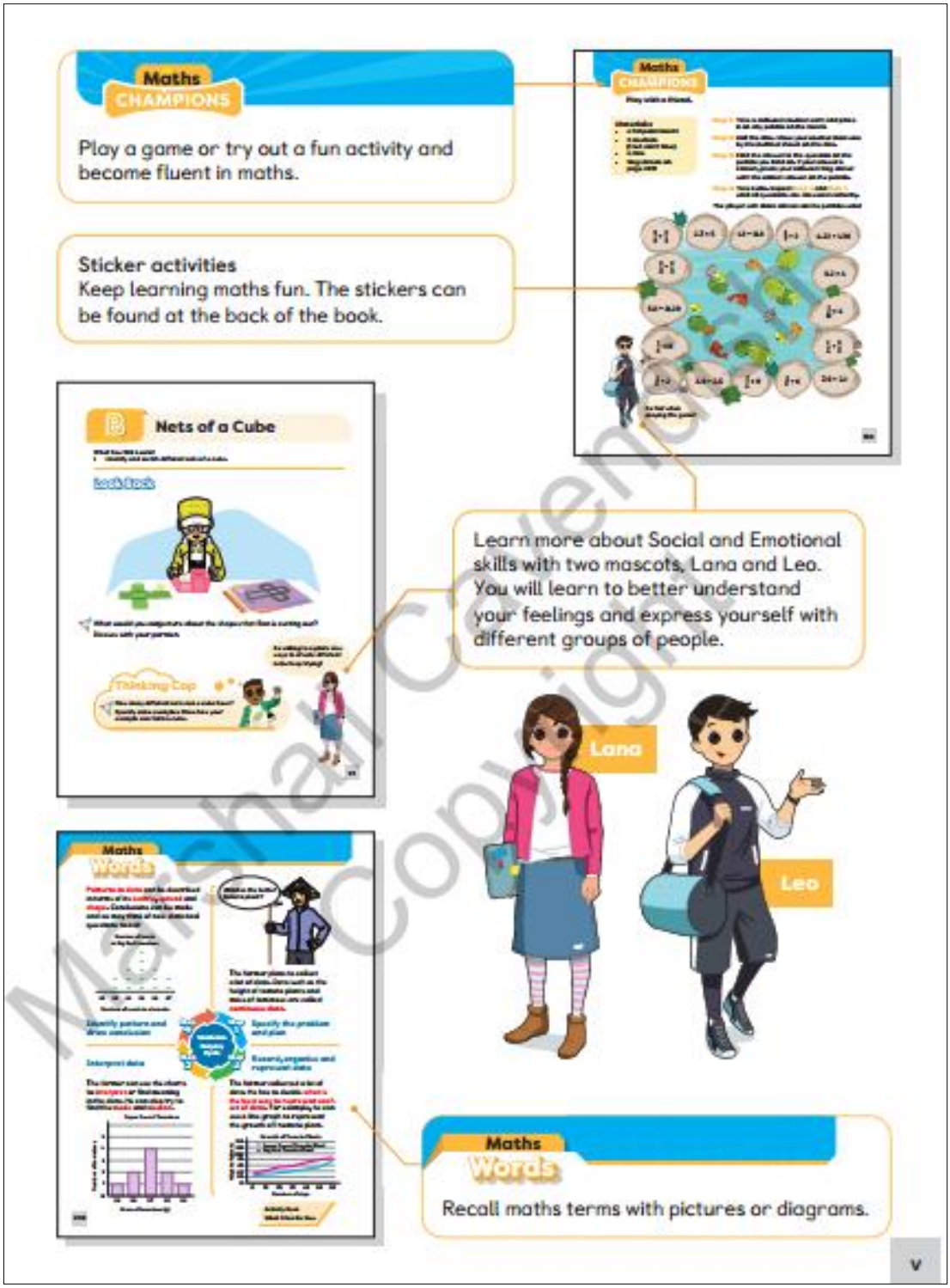
Encourage you to practise Thinking and Working Mathematically.

'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.

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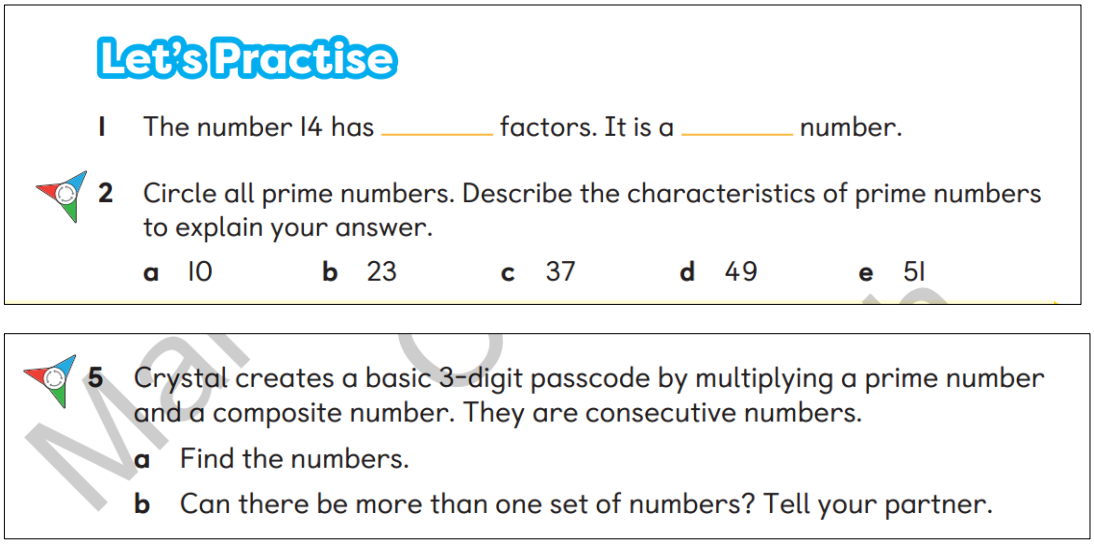
You may want to look at specific pages . For example

G5 Highlight 1: TWM is highlighted in the SB – refer to TG for explanation

Сиз белгилүү бир баракты карап көргүңүз келиши мүмкүн. Мисалы

G5 1-бөлүгү: TWM SBде баса белгиленген – түшүндүрүү үчүн TG караңыз

Eg. On page 5



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

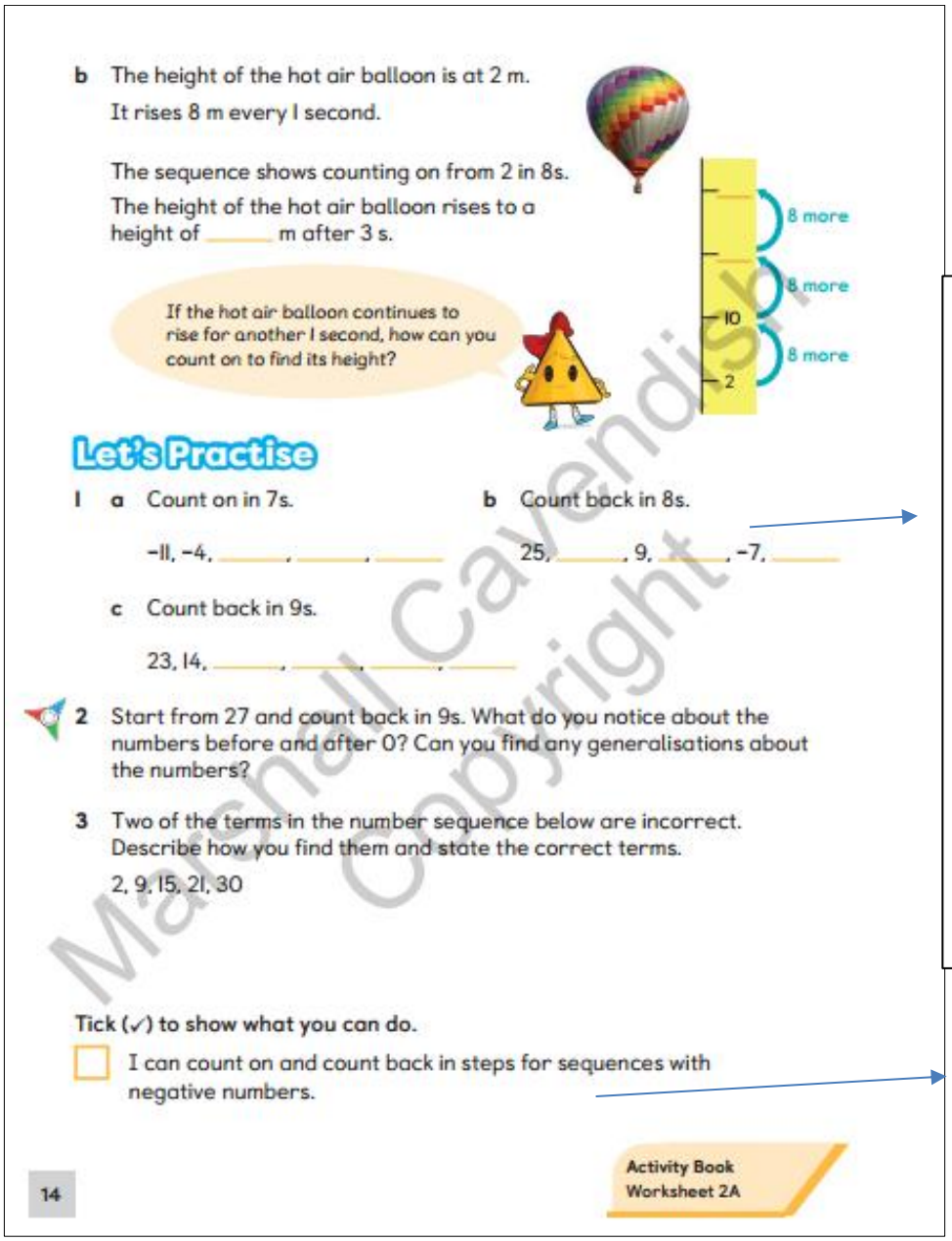
5 Crystal creates a basic 3-digit passcode by multiplying a prime number and a composite number. They are consecutive numbers.

a Find the numbers.

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

G5 Highlight 2 : Blanks in the textbook to engage students and scaffold their learning

G5 Баса 2 : Окуу китебинде окуучуларды кызыктыруу жана алардын окуусун бекемдөө үчүн боштуктар



b The height of the hot air balloon is at 2 m.
It rises 8 m every I second.

The sequence shows counting on from 2 in 8s.
The height of the hot air balloon rises to a height of _____ m after 3 s.

If the hot air balloon continues to rise for another I second, how can you count on to find its height?

8 more
8 more
10
8 more
2

Let's Practise

1 a Count on in 7s.

-11, -4, _____, _____, _____

b Count back in 8s.

25, _____, 9, _____, -7, _____

c Count back in 9s.

23, 14, _____, _____, _____, _____

2 Start from 27 and count back in 9s. What do you notice about the numbers before and after 0? Can you find any generalisations about the numbers?

3 Two of the terms in the number sequence below are incorrect. Describe how you find them and state the correct terms.

2, 9, 15, 21, 30

Tick (✓) to show what you can do.

☐ I can count on and count back in steps for sequences with negative numbers.

14

Activity Book
Worksheet 2A

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To engage students:

Give sufficient time for students to attempt the questions
Ask students to explain their answers

Студенттерди тартуу үчүн:

Студенттерге суроолорду берүүгө жетиштүү убакыт бериңиз

Окуучулардан

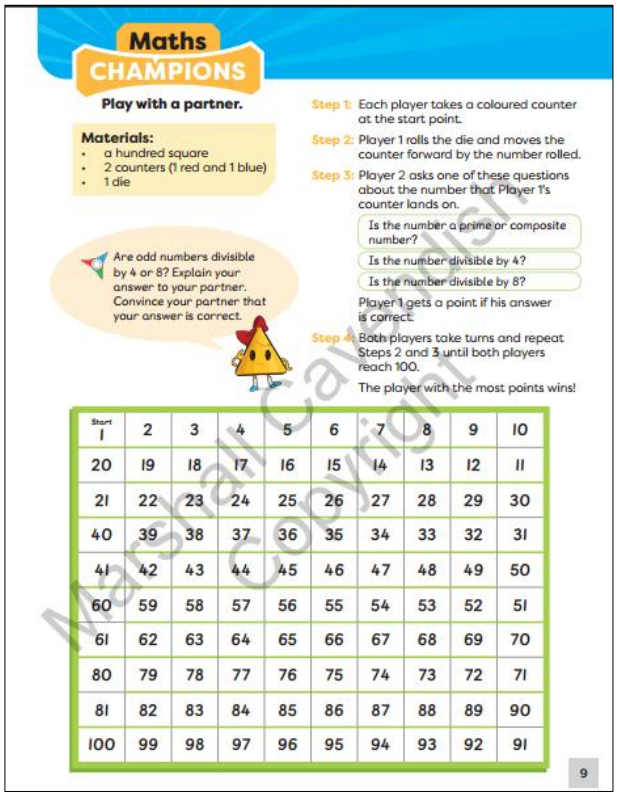
Promote reflective thinking

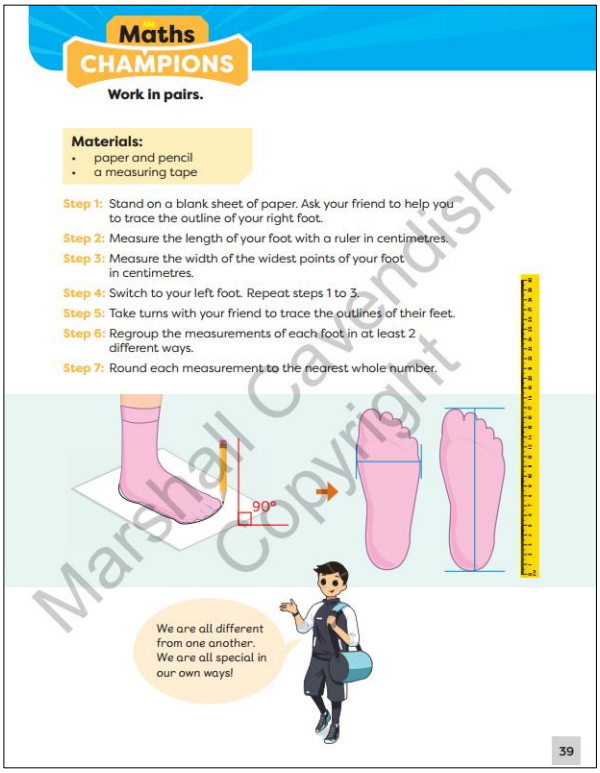
Рефлексивдүү ой жүгүртүүгө көмөктөшүү

G5 Highlight 3 : Maths Champions

At the end of each chapter, the Maths Champion provides students to work together to solve a puzzle or a real-world problem or a game-based mathematics problems.

Ар бир бөлүмдүн аягында Математика боюнча чемпион студенттерге баш катырма же реалдуу дүйнөлүк маселени же оюнга негизделген математика маселелерин биргелешип чечүүгө мүмкүнчүлүк берет.



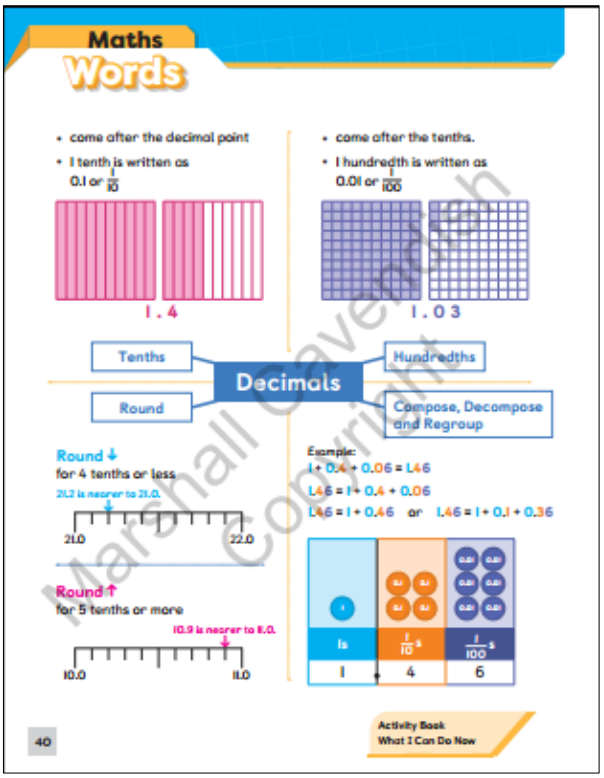


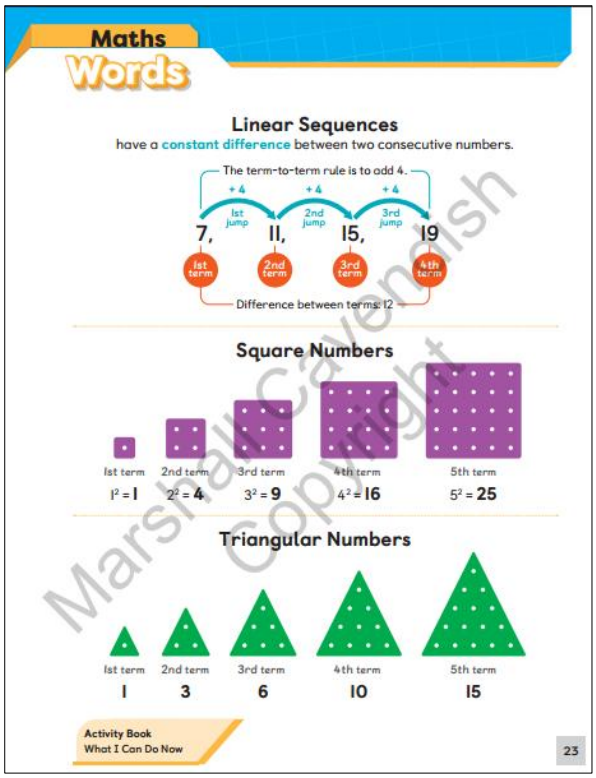
Математиканы кызыктуу жана кызыктуу кылуудан тышкары, ал көмөктөшөт кызматташуу, талкуулоо, баарлашуу жана ой жүгүртүү жөндөмдөрү

G5 Highlight 4

Сиз белгилүү бир баракты карап көргүңүз келиши мүмкүн. Мисалы

G5 1-бөлүгү: TWM SBде баса белгиленген – түшүндүрүү үчүн TG караңыз





Refer to G5 Teacher Guide (TG)

G5 Мугалимдер үчүн колдонмону караңыз (TG)

Абдан пайдалуу маалымат жана кыска жазуулар

1. Кембриджди башталгыч математикасынын окуу планы

(5-класстын окуучулары үчүн)

(а) Математикалык тилкелер

(б) Бетон-сүрөт-

Абстракттуу (CPA) мамиле

(с) Ой жүгүртүү жана математикалык иштөө (TWM)

иллюстрациялары менен

8 TWM мүнөздөмөлөрү

Very useful information and short writ-ups on

1. Cambridge Primary Mathematics curriculum framework

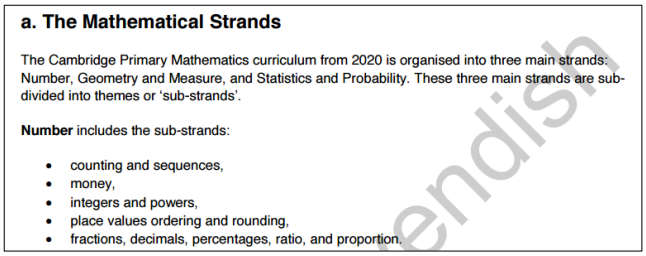
(For Grade 5 students)

(a) The Mathematical Strands

(b) The Concrete-Pictorial-Abstract (CPA) Approach

(c)Thinking and Working Mathematically (TWM)

With illustrations of the 8 TWM characteristics

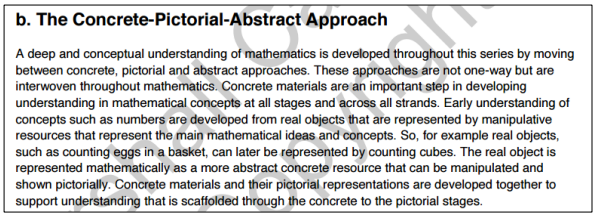


a. The Mathematical Strands

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 sub-divided into themes or 'sub-strands'.

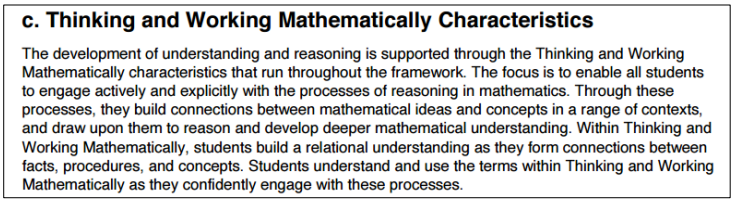
Number includes the sub-strands:

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



b. The Concrete-Pictorial-Abstract Approach

A deep and conceptual understanding of mathematics is developed throughout this series by moving between concrete, pictorial and abstract approaches. These approaches are not one-way but are interwoven throughout mathematics. Concrete materials are an important step in developing understanding in mathematical concepts at all stages and across all strands. Early understanding of concepts such as numbers are developed from real objects that are represented by manipulative resources that represent the main mathematical ideas and concepts. So, for example real objects, such as counting eggs in a basket, can later be represented by counting cubes. The real object is represented mathematically as a more abstract concrete resource that can be manipulated and shown pictorially. Concrete materials and their pictorial representations are developed together to support understanding that is scaffolded through the concrete to the pictorial stages.



c. Thinking and Working Mathematically Characteristics

The development of understanding and reasoning is supported through the Thinking and Working Mathematically characteristics that run throughout the framework. The focus is to enable all students to engage actively and explicitly with the processes of reasoning in mathematics. Through these processes, they build connections between mathematical ideas and concepts in a range of contexts, and draw upon them to reason and develop deeper mathematical understanding. Within Thinking and Working Mathematically, students build a relational understanding as they form connections between facts, procedures, and concepts. Students understand and use the terms within Thinking and Working Mathematically as they confidently engage with these processes.

2. Teaching Approaches and Learning Environment

(a) Strategies for Active learning and Creating an Inclusive Learning Environment

(A very comprehensive and useful list of learning strategies)

(b) Home-based Learning and Parental Support

(c) Maths Manipulatives from Everyday Objects

2. Окутуунун ыкмалары жана окуу чөйрөсү

(а) Активдүү окутуу жана инклюзивдик окутууну түзүү стратегиялары

Курчап турган чөйрө

(Окуу стратегияларынын абдан толук жана пайдалуу тизмеси)

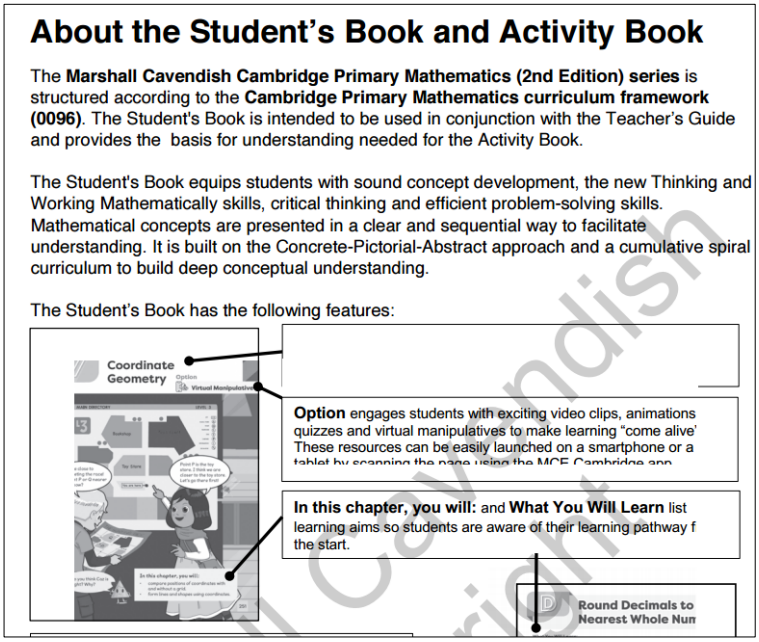
(б) Үйдө окутуу жана ата-энелердин колдоосу

(с) Күнүмдүк объекттерден математикалык манипуляторлор

You can briefly talk about the Activity Book and Work Book

Сиз Кыскача иш китеби жана иш китеби жөнүндө айта аласыз

A section to summarise the features of the Student Book and the Activity Book



About the Student's Book and Activity Book

The **Marshall Cavendish Cambridge Primary Mathematics (2nd Edition) series** is structured according to the **Cambridge Primary Mathematics curriculum framework (0096)**. The Student's Book is intended to be used in conjunction with the Teacher's Guide and provides the basis for understanding needed for the Activity Book.

The Student's Book equips students with sound concept development, the new Thinking and Working Mathematically skills, critical thinking and efficient problem-solving skills. Mathematical concepts are presented in a clear and sequential way to facilitate understanding. It is built on the Concrete-Pictorial-Abstract approach and a cumulative spiral curriculum to build deep conceptual understanding.

The Student's Book has the following features:

Teacher Guide for each chapter begins with a Schedule of Work (SOW) followed by a detailed suggestions for teacher to conduct teaching activities (you should adapt to suit the profile of your students)

Ар бир бөлүм үчүн Мугалимдер үчүн колдонмо иш тартиби (SOW) менен башталат

андан кийин мугалимге окутуучулук иш-аракеттерди жүргүзүү боюнча деталдуу сунуштар (сиз окуучуларыңыздын профилине ылайыкташыңыз керек)

Scheme of Work

Chapter 1 Special Numbers

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

Section	No. of Periods	Learning Objectives	Resources	Mathematically (TV and Social and Emotional Learnir (SEL)
ter Opener	3		• Student's Book p.1 • Video via MCE Cambridge app • Counters, shapes or sticks	
		tween prime and composite num	• Counters, marbles, or shapes • Cubes or blocks • TR1A Hundred Square Grid	Convincing Specialising • SEL: Social awareness Relationship skills
of Divisibility	4	IL07 e knowledge of factors and multi understand tests of divisibility by	• Student's Book pp.6–8 • Activity Book pp.4–6 • Number chips • Long piece of paper or ribbon	• TWM: Convincing Classifying
ter Wrap Up	1		• Student's Book pp.9–10 • Activity Book p.7 • two counters (one red and one blue) • Dice • Papers	• TWM: Convincing

1

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Section A Prime and Composite Numbers

Number of Periods: 3

Learning Objective

- **5Ni.06** Understand and explain the difference between prime and composite numbers.

Expected Prior Knowledge

- Be familiar with multiples of 2, 5, and 10 (up to 1000).
- Recognise related multiples and factors.

Note

In this section, the emphasis is on the definition of a prime number as a number with exactly two divisors: 1 and itself. Students will arrange concrete materials such as counters, marbles or shapes in rectangular arrays to represent numbers. The rectangular arrays can be used to tell the factors of each number and help students differentiate between prime numbers and composite numbers. Students will also use number chips, cubes and blocks, as well as a hundred chart—a pictorial aid—to identify prime numbers and composite numbers. At this stage, they are only expected to identify prime numbers up to 100. Students will engage in activities using die to provide them more practise in finding divisors and identifying prime numbers and composite numbers up to 100.

In focusing on the fact that a prime number is a whole number greater than 1, students will recognise that 1 is not a prime number as it only has one divisor.

Language Support

Vocabulary: prime numbers, composite numbers

Build a word wall in the class and explain the meanings of the words to the students before the lesson. As the lesson progresses, focus students' attention to the specific words as they appear in the text and during the lesson.

Common Misconceptions

Misconception:
Students may mistake the number 1 to be a prime number.

How to address the misconception:
Use arrays or counters to show students how to find the divisors for numbers 1 and 2. Draw their attention to the definition of prime numbers as having exactly two divisors, 1 and the number itself. Explain that 1 only has one divisor, unlike 2 which has 2 divisors (1 and 2). Then reinforce that a prime number is a whole number greater than 1.

Make a note of students who have trouble finding the divisors of a number. Encourage them to explain how they get their answers to elicit possible misconceptions. If necessary, allow students to use arrays, counters, or shapes to find the divisors of a number.

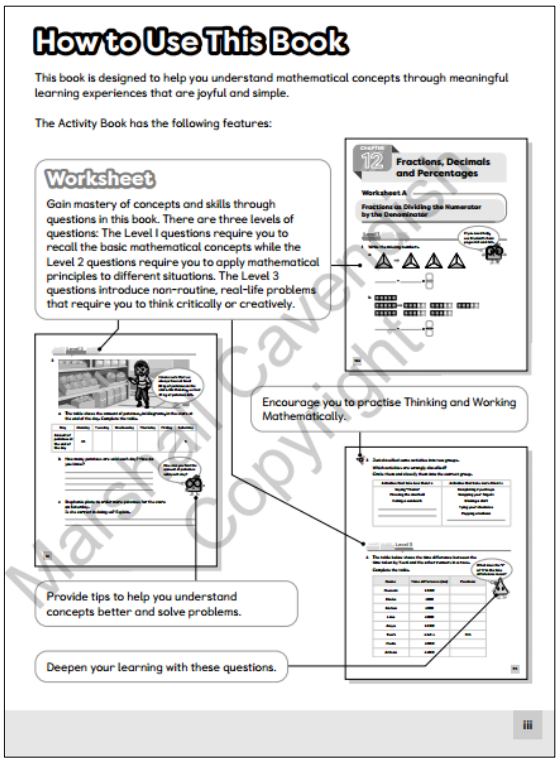
At the end of the lesson, have students explain the definition of prime numbers to check that they have cleared up their misconception. Have students use arrays or counters to find the divisors for 3, 4 and 5. Get students to explain how they find the divisors for these numbers to one another. Then have them identify which number is different from the other two. Ask questions such as *"Which numbers have exactly 2 divisors? (3 and 5) Which number has more than 2 divisors? (4) Which are prime numbers? (3 and 5)"*

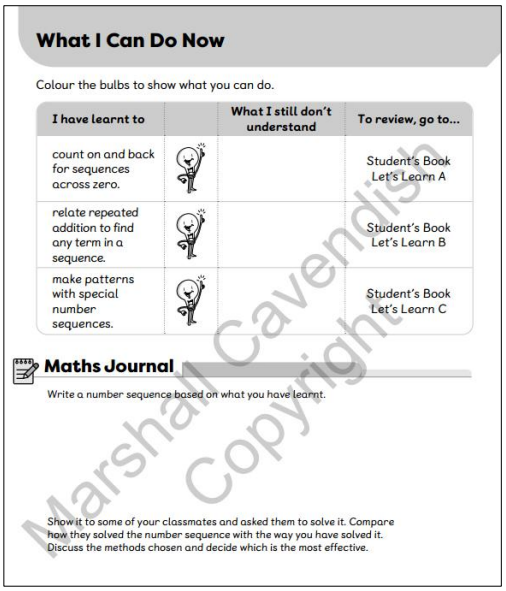
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G5 Activity Book (Work Book) G5 иш китеби (жумуш китеби)

You may go through briefly and highlight key features

Сиз кыскача карап чыгып, негизги өзгөчөлүктөрүн баса белгилей аласыз





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In the PPT slides, you have already gone through the features of the Grade 7 book. You can further illustrate here if you have time

PPT слайддарында сиз 7-класстын китебинин өзгөчөлүктөрү менен таанышып чыктыңыз. Убактыңыз болсо, бул жерден дагы мисал келтирсеңиз болот

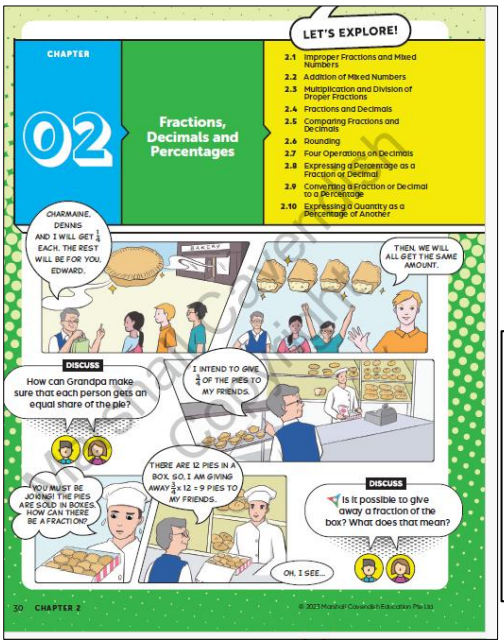
Illustrate some features in G7 Student Book (no time, can skip)
The Grade 7 key textbook design concepts are the same as that of G5 textbooks – student-centred approach

G7 Студенттик китебинин айрым функцияларын иллюстрациялаңыз (убакыт жок, өткөрүп жиберсеңиз болот)

7-класстын негизги окуу китептеринин дизайн концепциялары G5 окуу китептеринин концепциялары менен бирдей - окуучуга багытталган мамиле

Example: Grade 7 Chapter 2

G7 SB 1st page of each chapter

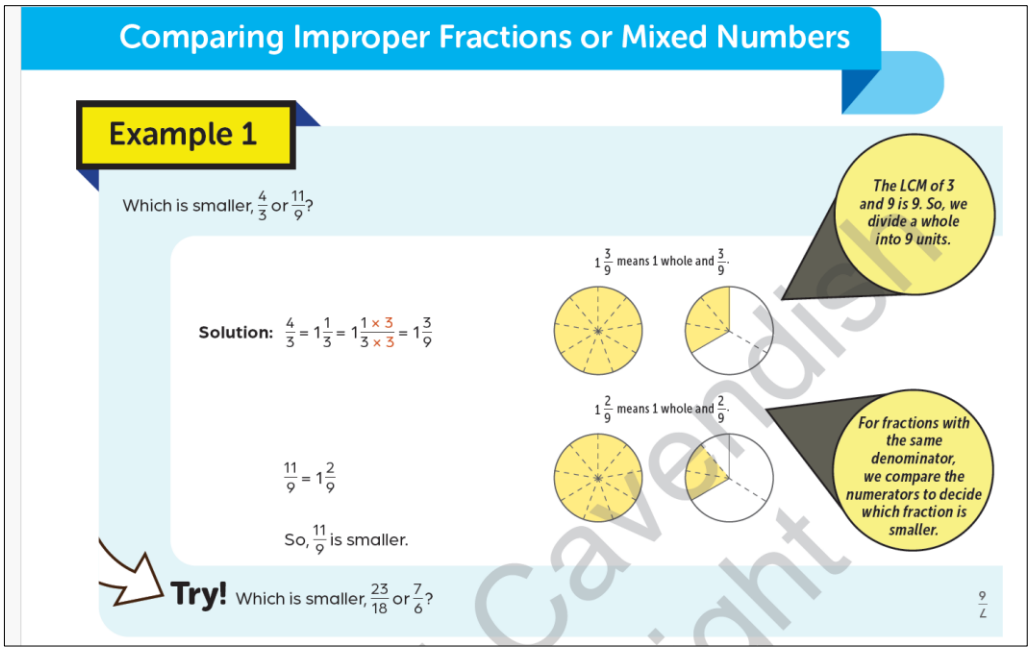


Chapter opener: comics with a real-world situation

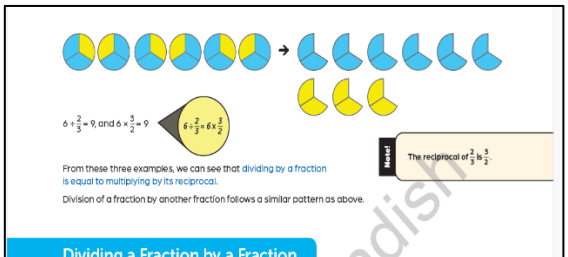
Бөлүмдү ачкыч - реалдуу кырдаал менен комикс

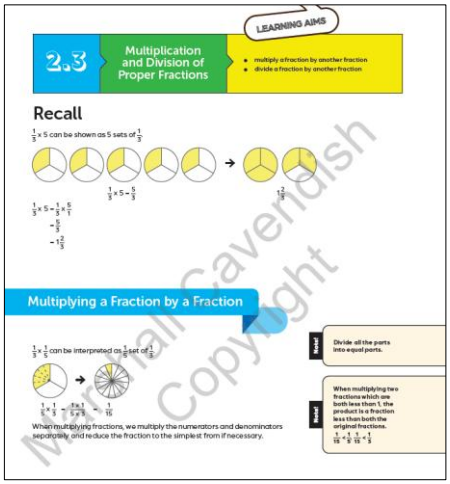
Feature : Worked Examples with explanations followed by Try

Өзгөчөлүктөрү: Түшүндүрүүлөрү менен иштеген мисалдар, андан кийин аракет кылуу



You may see "side note" or "Think" in Recall or Example





What are the objectives of these side notes ?

Think

Help to trigger students thinking

Бул кошумча ноталардын максаттары кандай?

Ойлон

Окуучулардын ой жүгүртүүсүн жандандырууга жардам берүү

After each section of a chapter , there are Practice questions

Бөлүмдүн ар бир бөлүгүнөн кийин Практикалык суроолор бар

Practice 2A

Concept-Building Questions

1. For each of the following pairs of fractions, circle the greater fraction.
   - a $\frac{11}{7}, \frac{33}{28}$
   - b $\frac{11}{9}, \frac{29}{18}$
   - c $\frac{27}{10}, \frac{37}{15}$
   - d $\frac{9}{2}, \frac{14}{3}$
   - e $\frac{19}{10}, \frac{15}{8}$
   - f $\frac{19}{12}, \frac{31}{15}$
2. Arrange the fractions in ascending order.
   - a $\frac{3}{2}, \frac{6}{5}, \frac{13}{10}$
   - b $\frac{7}{4}, \frac{23}{12}, \frac{11}{6}$
   - c $\frac{45}{19}, \frac{89}{38}, \frac{7}{2}$
3. Arrange the fractions in descending order.
   - a $\frac{19}{14}, \frac{10}{7}, \frac{3}{2}$
   - b $\frac{32}{13}, \frac{61}{26}, \frac{31}{13}$
   - c $\frac{39}{11}, \frac{7}{2}, \frac{81}{22}$

Context-Based Questions

4. Nurul thinks of a number x such that $5\frac{2}{3} < x < 5\frac{8}{9}$. Write down a possible value of x.
5. Jake thinks of a number x such that $2\frac{1}{5} < x < 2\frac{1}{4}$. Write down a possible value of x.
6. Kylian is given these numbers $\frac{21}{10}, \frac{21}{11}, \frac{32}{15}$. Help him arrange the numbers from the smallest to the greatest.
7. Nellie is given these numbers $\frac{14}{11}, \frac{5}{2}, \frac{33}{22}$. Help her arrange the numbers from the greatest to the smallest.
8. Raju needs to fill in the missing fraction in the following expression.

   $\frac{11}{7} < \square < \frac{12}{7}$

   What could the missing fraction be? Explain how you arrived at the answer.
9. Arrange the following numbers in ascending order:

   $\frac{3}{2}, \frac{4}{3}, \frac{5}{4}, \frac{6}{5}$

   What can you observe from the comparison result?

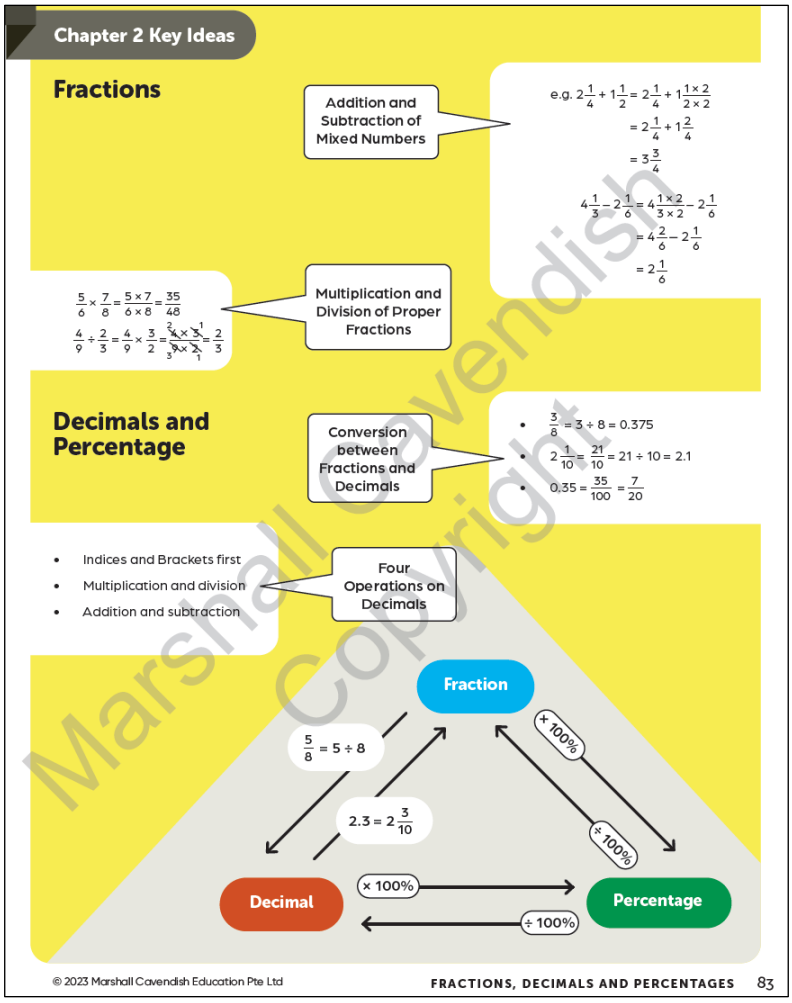
Workbook Exercise 2.1

Personalised AI-DRIVEN Assessment

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Summary of key ideas and concepts at the end of each chapter

Ар бир бөлүмдүн аягында негизги идеялардын жана концепциялардын кыскача мазмуну



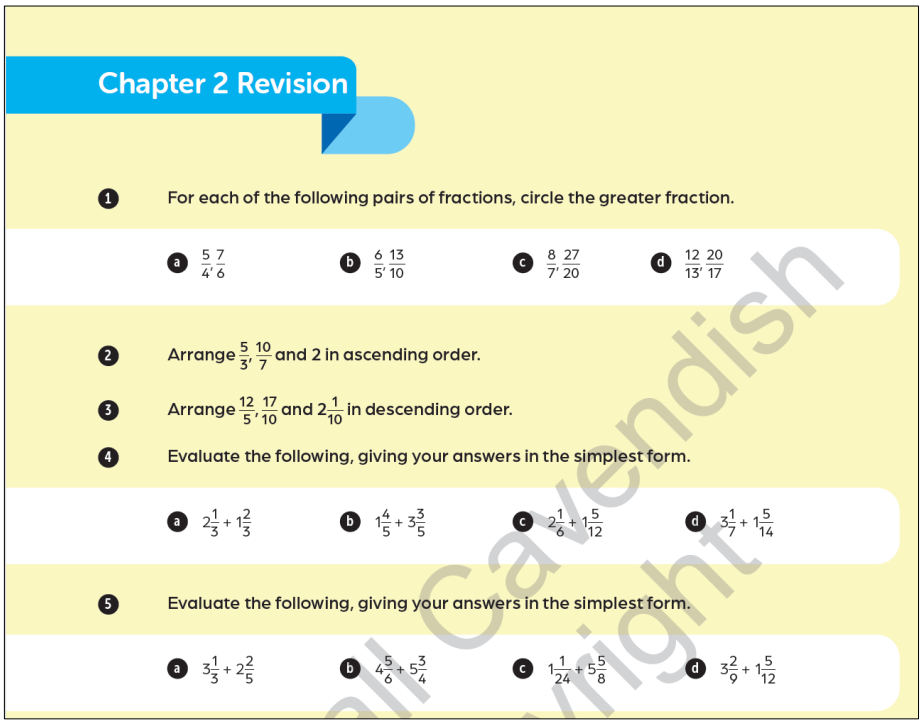
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End of Chapter Revision Questions

These are usually key and short questions that are useful for students to test their conceptual understand or essential mathematical procedures

Бөлүмдүн аягы Кайра карап чыгуу суроолору

Бул, адатта, студенттер үчүн алардын концептуалдык түшүнүгүн же маанилүү математикалык процедураларды текшерүү үчүн пайдалуу болгон негизги жана кыска суроолор



Chapter 2 Revision

1. For each of the following pairs of fractions, circle the greater fraction.

   a $\frac{5}{4}, \frac{7}{6}$ b $\frac{6}{5}, \frac{13}{10}$ c $\frac{8}{7}, \frac{27}{20}$ d $\frac{12}{13}, \frac{20}{17}$

2. Arrange $\frac{5}{3}, \frac{10}{7}$ and 2 in ascending order.

3. Arrange $\frac{12}{5}, \frac{17}{10}$ and $2\frac{1}{10}$ in descending order.

4. Evaluate the following, giving your answers in the simplest form.

   a $2\frac{1}{3} + 1\frac{2}{3}$ b $1\frac{4}{5} + 3\frac{3}{5}$ c $2\frac{1}{6} + 1\frac{5}{12}$ d $3\frac{1}{7} + 1\frac{5}{14}$

5. Evaluate the following, giving your answers in the simplest form.

   a $3\frac{1}{3} + 2\frac{2}{5}$ b $4\frac{5}{6} + 5\frac{3}{4}$ c $1\frac{1}{24} + 5\frac{5}{8}$ d $3\frac{2}{9} + 1\frac{5}{12}$

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right

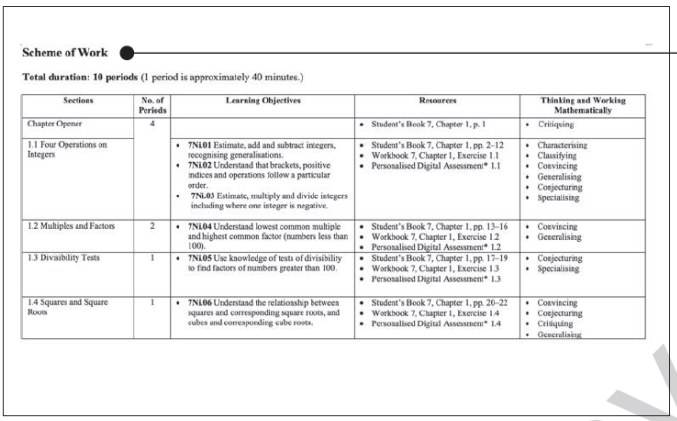
Now go through Grade 7 Teacher Guides

Эми 7-класстын мугалимдери үчүн колдонмолорду карап көрүңүз

How to Use This Book

This **Teacher's Guide** is part of the Marshall Cavendish Education (MCE) suite of resources, designed and created to support you as you teach the Cambridge Lower Secondary Mathematics curriculum framework (0862).

The lesson plans in the Teacher's Guide are made available in editable Word format for you to customise according to your classroom needs. The answer keys mentioned in the lesson plans are available online in MCEduhub (online resource hub).

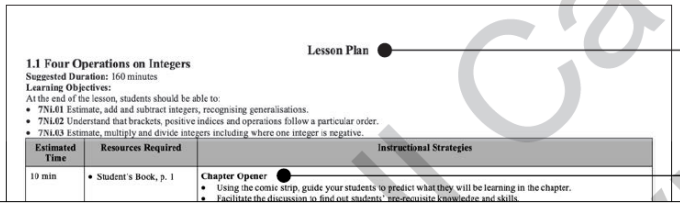


Scheme of Work

Total duration: 10 periods (1 period is approximately 40 minutes.)

Sections	No. of Periods	Learning Objectives	Resources	Thinking and Working Mathematically
Chapter Opener	4		• Student's Book 7, Chapter 1, p. 1	• Critiquing
1.1 Four Operations on Integers		• **7N1.01** Estimate, add and subtract integers, recognising generalisations. • **7N1.02** Understand that brackets, positive indices and operations follow a particular order. • **7N1.03** Estimate, multiply and divide integers including where one integer is negative.	• Student's Book 7, Chapter 1, pp. 2–12 • Workbook 7, Chapter 1, Exercise 1.1 • Personalised Digital Assessment* 1.1	• Characterising • Classifying • Convincing • Generalising • Conjecturing • Specialising
1.2 Multiples and Factors	2	• **7N1.04** Understand lowest common multiple and highest common factor (numbers less than 100).	• Student's Book 7, Chapter 1, pp. 13–16 • Workbook 7, Chapter 1, Exercise 1.2 • Personalised Digital Assessment* 1.2	• Convincing • Generalising
1.3 Divisibility Tests	1	• **7N1.05** Use knowledge of tests of divisibility to find factors of numbers greater than 100.	• Student's Book 7, Chapter 1, pp. 17–19 • Workbook 7, Chapter 1, Exercise 1.3 • Personalised Digital Assessment* 1.3	• Conjecturing • Specialising
1.4 Squares and Square Roots	1	• **7N1.06** Understand the relationship between squares and corresponding square roots, and cubes and corresponding cube roots.	• Student's Book 7, Chapter 1, pp. 20–22 • Workbook 7, Chapter 1, Exercise 1.4 • Personalised Digital Assessment* 1.4	• Convincing • Conjecturing • Critiquing • Generalising

Scheme of Work
Help teachers in lesson preparation by outlining all the learning requirements, resources required and the suggested teaching periods/lessons.



Lesson Plan

1.1 Four Operations on Integers
Suggested Duration: 160 minutes
Learning Objectives:
At the end of the lesson, students should be able to:
- **7N1.01** Estimate, add and subtract integers, recognising generalisations.
- **7N1.02** Understand that brackets, positive indices and operations follow a particular order.
- **7N1.03** Estimate, multiply and divide integers including where one integer is negative.

Estimated Time	Resources Required	Instructional Strategies
10 min	• Student's Book, p. 1	**Chapter Opener** • Using the comic strip, guide your students to predict what they will be learning in the chapter. • Facilitate the discussion to find out students' pre-requisite knowledge and skills.

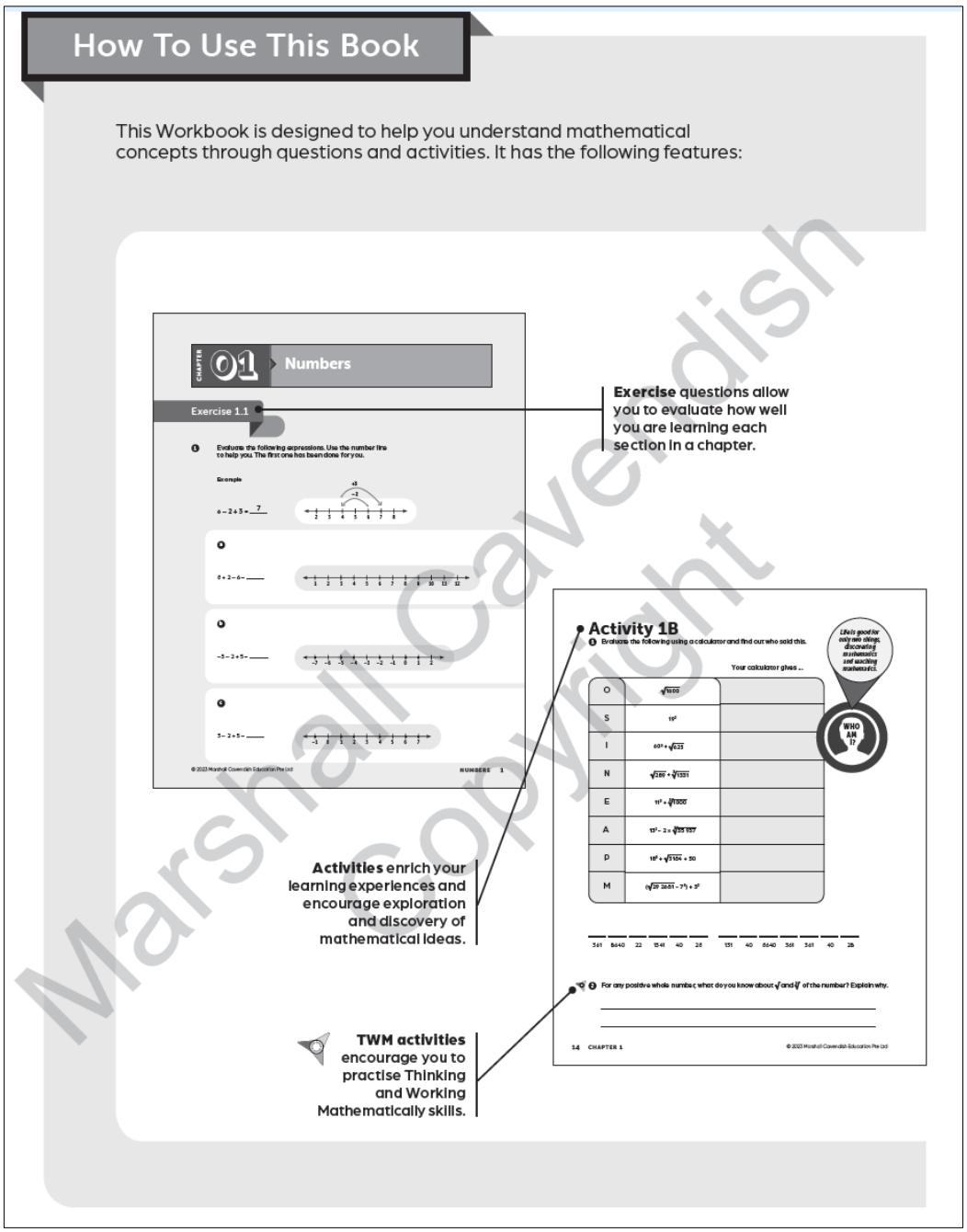
Lesson Plan
Introduce key mathematical concepts with instructional strategies, lesson suggestions and ideas, to help you deliver lessons effectively and efficiently.

Chapter Opener
This section helps you begin a lesson with a variety of teaching ideas. For example, to start off a new chapter, you are provided with teaching ideas to engage your students using the Chapter Opener which includes prompting question(s)

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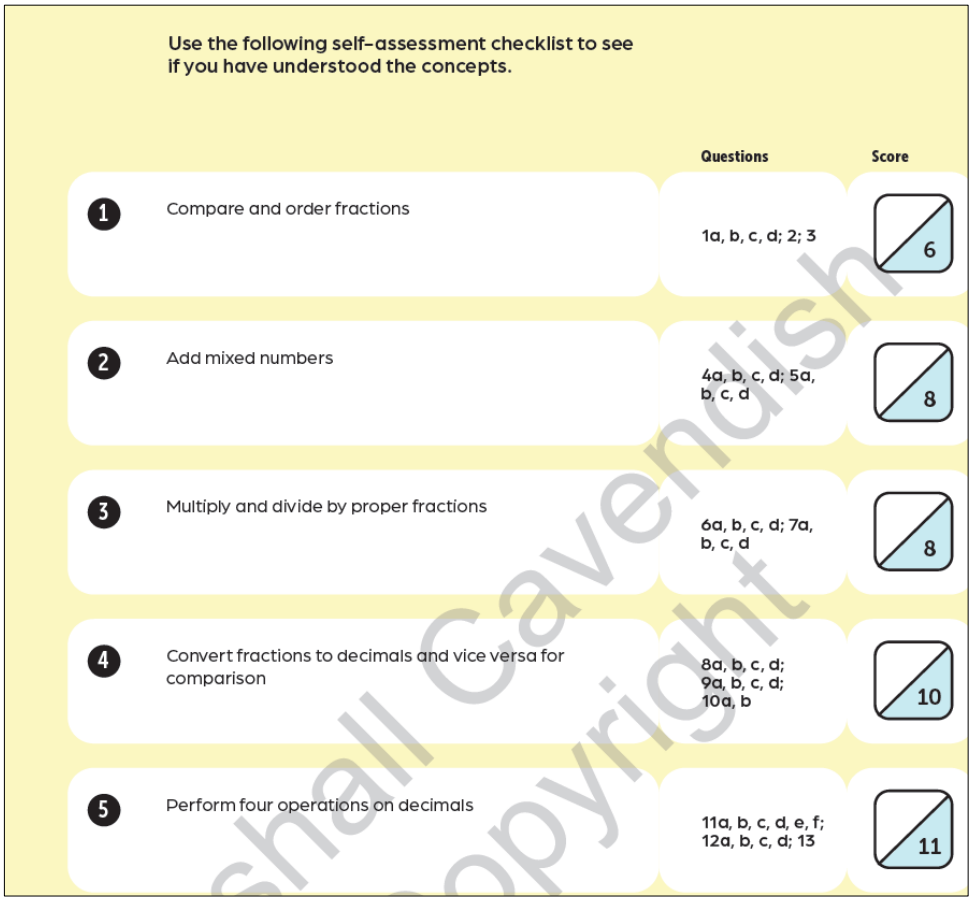
Go through and highlight Grade 7 Student Workbook

7-класстын окуучуларынын иш китебин карап чыгып, баса белгилеңиз



G7 Self-assessment checklist – to promote reflective thinking

G7 Өзүн-өзү баалоо текшерүү тизмеси – рефлексивдүү ой жүгүртүүгө көмөк көрсөтүү



Use the following self-assessment checklist to see if you have understood the concepts.

		Questions	Score
1	Compare and order fractions	1a, b, c, d; 2; 3	/6
2	Add mixed numbers	4a, b, c, d; 5a, b, c, d	/8
3	Multiply and divide by proper fractions	6a, b, c, d; 7a, b, c, d	/8
4	Convert fractions to decimals and vice versa for comparison	8a, b, c, d; 9a, b, c, d; 10a, b	/10
5	Perform four operations on decimals	11a, b, c, d, e, f; 12a, b, c, d; 13	/11

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Please try to assure teachers that they will be well-supported and try to get buy-in for them for adopting the Cambridge curriculum and the text books

Сураныч, мугалимдерди жакшы колдоого аларына ишендирүүгө аракет кылыңыз жана Кембридж окуу планын жана окуу китептерин кабыл алуу үчүн аларды сатып алууга аракет кылыңыз.