

 SCHOLASTIC



PRIMETM

Mathematics

BLENDED. PRINT. DIGITAL.

Every Child Counts.

K

Program Overview



Based on the world's best practice

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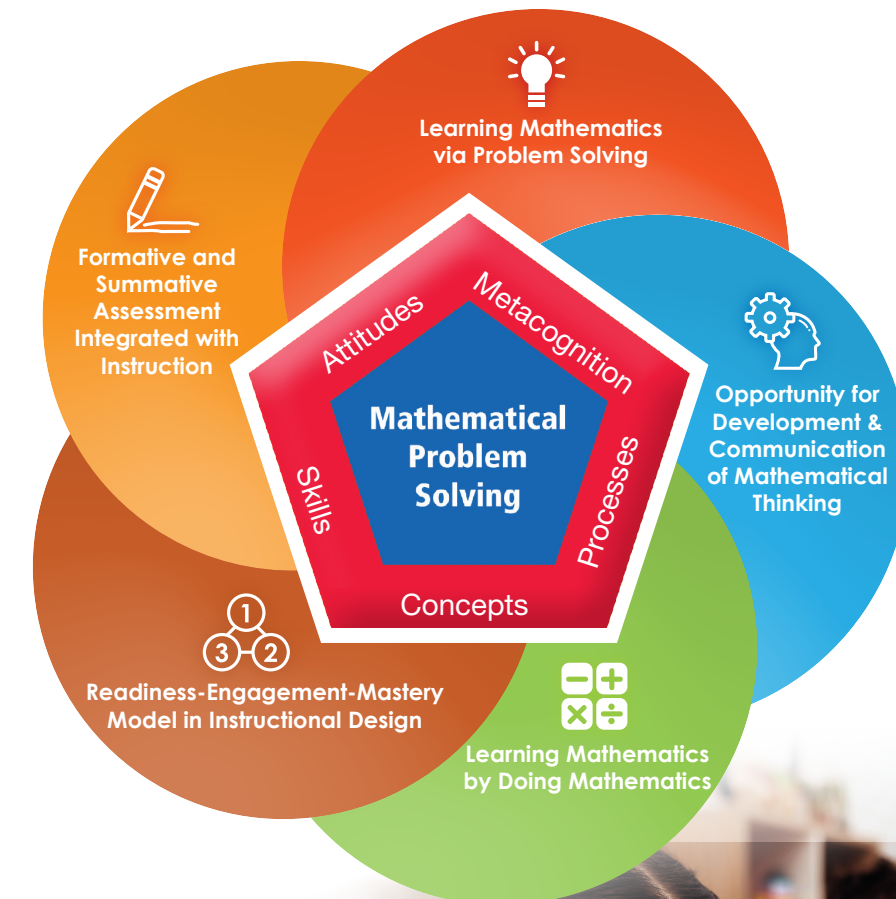
PRIME[™] Mathematics

Why PRIME[™] Mathematics K works



Scholastic PRIME[™] Mathematics K is the foundation level of PRIME[™] Mathematics, an innovative world-class mathematics program based on the effective teaching and learning practices of global top performers in Mathematics. The program focuses on the development of early numeracy and problem-solving skills to build a strong foundation for meaningful learning and to develop a problem-solving mindset.

Scholastic PRIME[™] Mathematics K follows a consistent and structured implementation model which embeds Singapore's mathematics pedagogy in its instructional design. These effective pedagogical practices are:



Based on the world's best practice

✓ Based on top-performing Singapore, Republic of Korea and Hong Kong

- ✓ **Lays a strong foundation** for numeracy for all students
- ✓ **Clear lesson routines** to make lesson delivery easy, effective and enjoyable
- ✓ **Teacher resources at point of use** to provide full support to deliver a well-organized and rigorous program





Learning mathematics via problem solving

Activities throughout the program are designed to support problem solving. New concepts are always introduced with a hands-on activity. An inquiry-based approach leads students to explore, investigate, ask questions and find answers.

Each chapter ends with a problem solving lesson using the Problem Solving Kit.

Each **problem solving lesson** is built around a story. As students engage with the story and encounter mathematical problems, learning is consolidated in a meaningful context and conceptual understanding is deepened. The **problem solving tasks** provide opportunities for students to apply learning and to communicate their thinking.

Three problems with their accompanying solutions are woven into each story as students solve problems together with the amicable cat family.

Purposeful questions in the Teacher's Guide help the teacher guide the inquiry process.

Picture It

Let's Learn SB p. 148

Refer students to the picture on SB p. 148.

Ask questions like the following.

- Who has more toys, King or Belle?
- Who has fewer toys, Bob or Helicopter?
- Which 2 cats have the same number of toys?

Direct students to the numbers on the cats T-shirts and compare the numbers. Ask questions like the following.

- Which number is greater than 12?
- Which number is less than 12?

Let's Learn

Count and say.

King Belle Bob Helicopter

Let's Do

1. Compare and write.

(a) Circle the set that has more.

12 is greater than 9

(b) Circle the set that has fewer.

10 is less than 11

2. Circle the sets that have an equal number of cubes.

At the end of each chapter, the teacher guides a class discussion around the picture in the **Chapter Workout**. Students apply the concepts and skills they have learned to solve problems in real-world contexts.

Chapter Workout

Look and talk.

157

There are 8 chocolate cupcakes. Oh, and 8 strawberry cupcakes! You knew? Yes, 8 vanilla cupcakes too!

6

Cupcakes everywhere! How many of each flavor are there?

5

The stories and accompanying small group, pair and independent learning center activities encourage rich discussion and communication of mathematical ideas and thinking.

Wrap up

Have students think about what they learned about sorting and graphs. (E.g. You can sort by color./Sorting helps you show information in a picture graph.)

Ask:

- What does 'fewer than' mean? (There are not as many objects as the other group.) What does 'the same as' mean? (Both groups are even./They have the same number in each group.) What does 'more than' mean? (You have a bigger number of objects than the other group does.)
- How do you check whether you have more or fewer objects? (E.g. Line up both groups. Make partners, and if every object has a partner in the other group, then you have the same number of objects./You can count each group and then check on the Number Line./Line up the groups. If one line is shorter, it has fewer objects. Then, count to check.)
- How do picture graphs help us? (E.g. We learn things about our friends when we collect and look at the information.)

Optional Activities

- Have students sort the different colored bowls on p. 5 and compare their totals using 'more than' or 'fewer than'.
- Have students sort the cupcakes by size on p. 6. (Some are small, some bigger and some very big.) Have students compare their totals using 'more than', 'fewer than' or 'the same as'.

Consolidate and Assess

Learning Center Activities

Activity 1

Prior to the lesson, prepare different graphs (one for each pair) based one of the following questions. Draw a simple picture for each category.

- What is your favorite flavor of cupcake? Banana, strawberry or apple?
- What is your favorite sandwich filling? Egg, tomato or cheese?
- What is your favorite sport? Swimming, basketball or soccer?

Then, have pairs conduct a survey from 8 students. Partners will ask the question to their friends and draw the picture or put a tick in the correct box in the **Picture Graph (TR 3.1)** based on their answers. Have students share the results of their survey question.

Ask:

- What was the question you asked your friends? Were you surprised by the information you collected? Explain your thinking.
- What else can you tell us about your graph? (E.g. More friends like to swim than to play soccer./The same number of friends like basketball and soccer.)

Activity 2

Distribute a copy of **Sorting and Comparing (TR 3.2)** to each student and a set of **teddy bear counters** to each pair.

Students take turns to randomly choose a counter from the bag. Each student chooses 10 times and then, sorts the chosen counters by color on his/her workmat. Explain to students when done, they are to share what they notice about the number of counters in each circle on their workmat. (E.g. I have more red counters than blue counters./I have 8 red counters and 2 blue counters./I have the same number of red and blue counters.)

Activity 3

Distribute a copy of **Favorite Muffin Flavor (TR 3.3)** to students and read the directions with students.

Have students write the total for each type of muffin and to indicate which type of muffin has more or fewer. Explain to students when done, they are to share their work with a partner.



Opportunities for development and communication of mathematical thinking

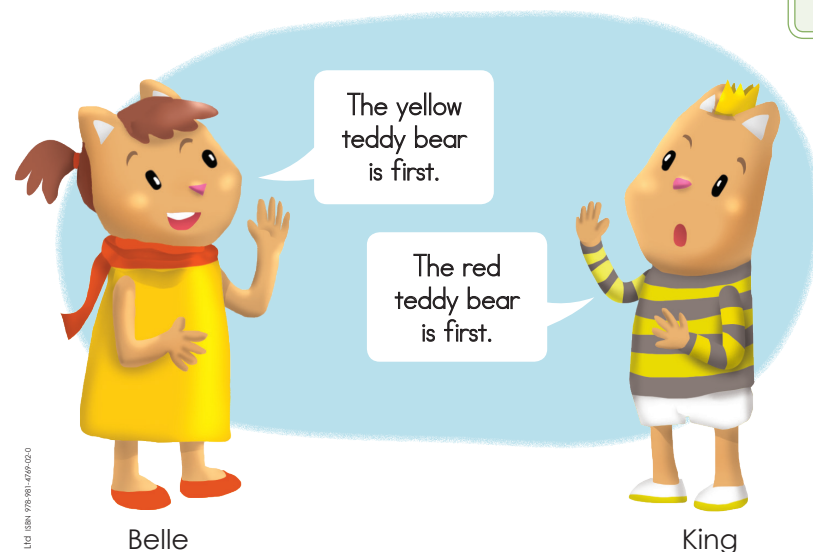
Students are encouraged to communicate their ideas, clarify their thoughts and share their thinking to develop mathematical thinking skills throughout the program.

Activity 1

Think, turn and talk.



As they solve non-routine and open-ended problems, students explain and reflect on their answers. They are encouraged to discuss their solutions, think aloud and reflect on what they are doing.



Belle

King

Who is right?

Why?



Learning mathematics by doing mathematics

The activity-based Concrete-Pictorial-Abstract approach is a key instructional strategy advocated in the Singapore approach to mathematics learning. All learning starts with a concrete experience. Opportunities to manipulate concrete materials help students relate mathematics to the real world and understand relationships between numbers and their representations. Authentic mathematical experiences in **Scholastic PRIME Mathematics K** enable a seamless transfer of knowledge from concrete to pictorial to abstract stages.

Concepts in **Let's Learn** are taught using the Concrete-Pictorial-Abstract approach to develop deep conceptual understanding. This approach is introduced in grade K and consistently applied in grades 1 to 6.

Concrete

Hands-on tasks suggested in the Teacher's Guide allow students to explore, investigate and participate in concrete mathematical experiences.

Pictorial

A crucial link to build a solid conceptual understanding, students are guided to understand mathematical ideas presented visually.

2+2 Abstract

Finally, students learn to represent concepts or skills in numbers and mathematical symbols.

Lesson 1 Put Together

Let's Learn

Add and write.



3 ducks stand.
2 ducks sit.
There are _____ ducks altogether.

Count all.
1, 2, 3,
4, 5.



2 balls are red.
2 balls are blue.
There are _____ balls altogether.



1 umbrella is open.
1 umbrella is closed.
There are _____ umbrellas in all.

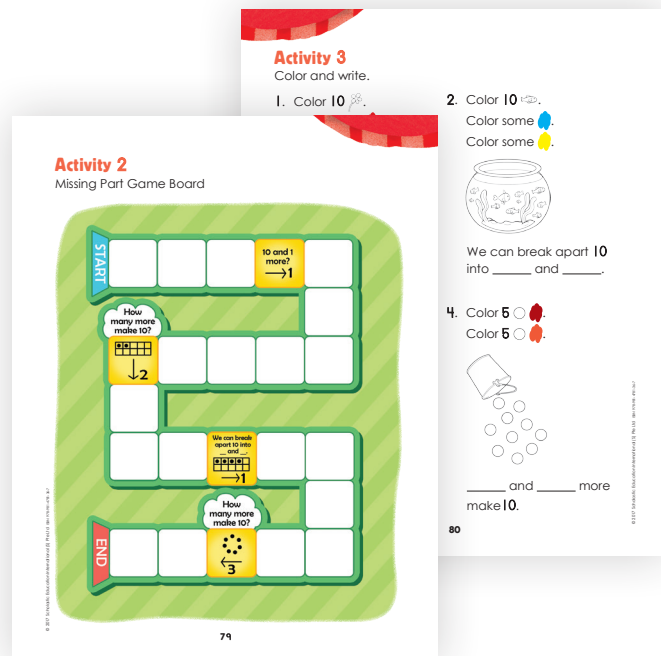
1
3
2

Incorporates the Readiness-Engagement-Mastery model in instructional design

The instructional design of the program incorporates the Readiness-Engagement-Mastery process of learning mathematics, making lesson delivery easy and effective.

Mastery

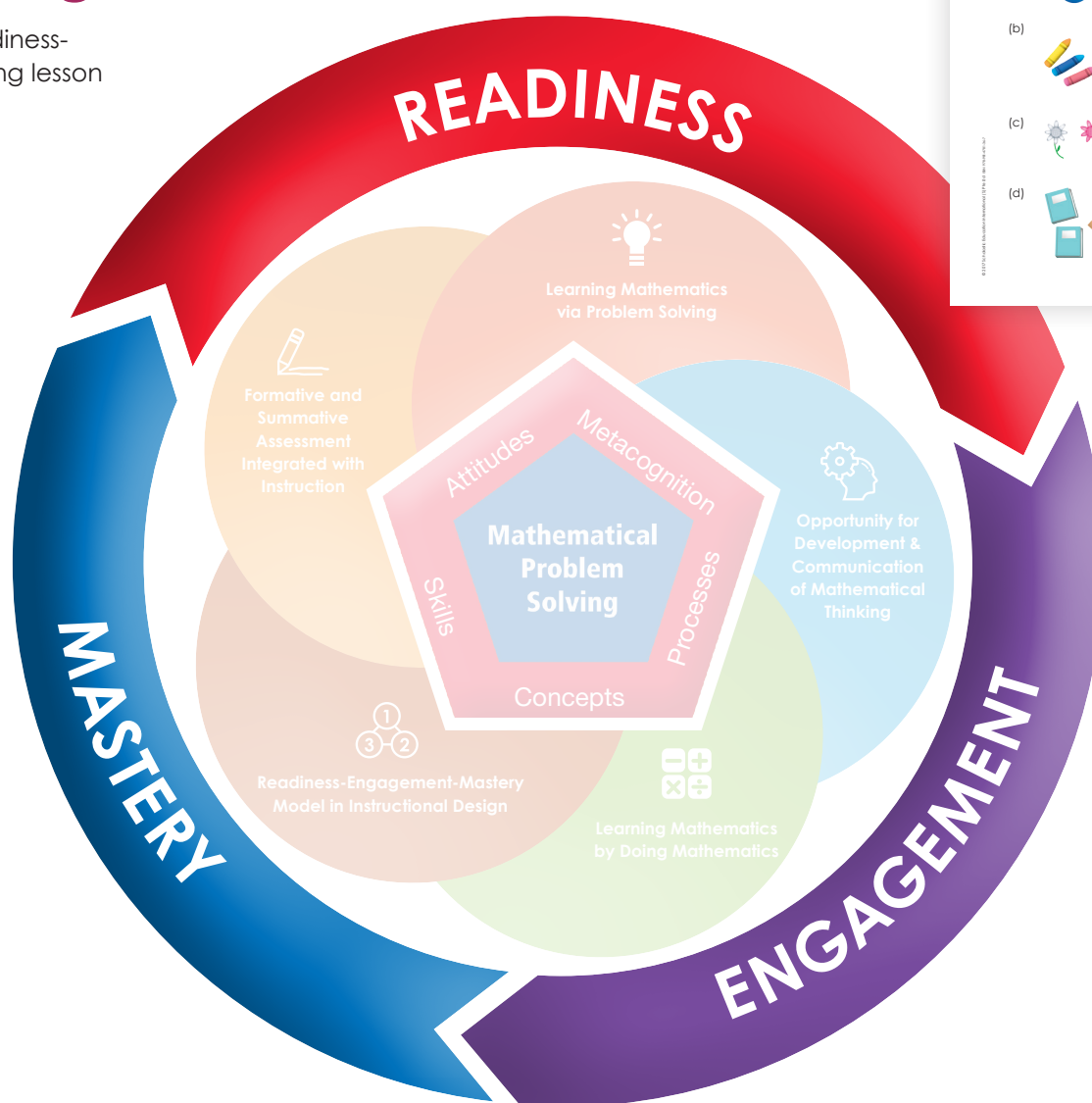
Each chapter ends with a one-hour lesson where non-routine problems are presented to consolidate and assess learning for the chapter. Purposeful play via the form of games and individual activities motivates students to practice what they have learned and offers an opportunity for formative assessment.



The stories in the big books and readers allow students to make meaningful connections to age-appropriate, real-life scenarios, and encourage students to practice math skills in innovative ways. Students can also evaluate their own learning as answers to each problem are provided within the story before readers move on to the next problem.



6



Readiness

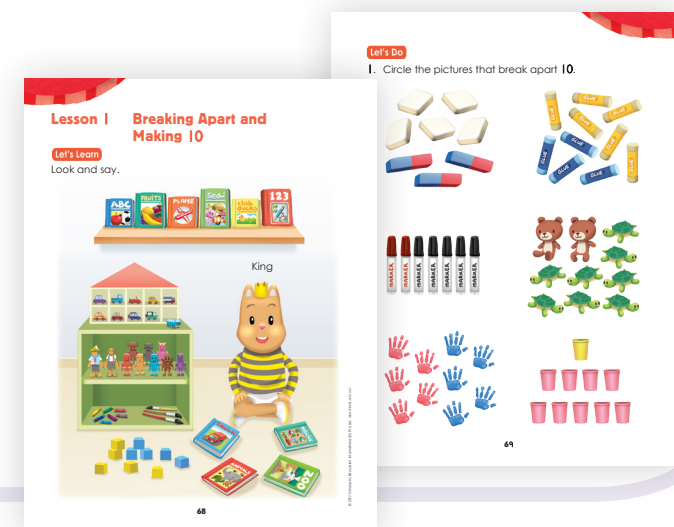
A 5-minute warm-up at the start of each lesson prepares the class for mathematics and builds mathematical fluency.

Each chapter opens with recalling prior knowledge in **Let's Remember**. Recalling concepts from previous lessons acts as a bridge and links to new learning.

Engagement

Students are deeply involved in constructing their own learning with ample opportunities to know, use and apply numeracy concepts and skills meaningfully in their daily lessons via **Let's Learn** and **Let's Do**.

Lessons follow the Gradual Release of Responsibility Model to encourage students to take responsibility for their own learning.



7



Formative and summative assessment is integrated with instruction

Purposeful questions provided in the Teacher's Guide allow teachers to check for understanding and assess learning progress throughout the lessons. The guided, varied and child-friendly tasks in **Let's Do** provide immediate feedback and identify remediation needs.

Clear, teaching-friendly lesson routines make lesson delivery easy, effective and enjoyable

PRIME Mathematics K provides teachers with a consistent and structured implementation model and instructional design to ensure that lesson delivery is consistent and effective.

Let's Do

1. Tick (✓) the pictures that break apart 4.

(a)

(b)

(c)

(d)

Let's Do SB p. 64

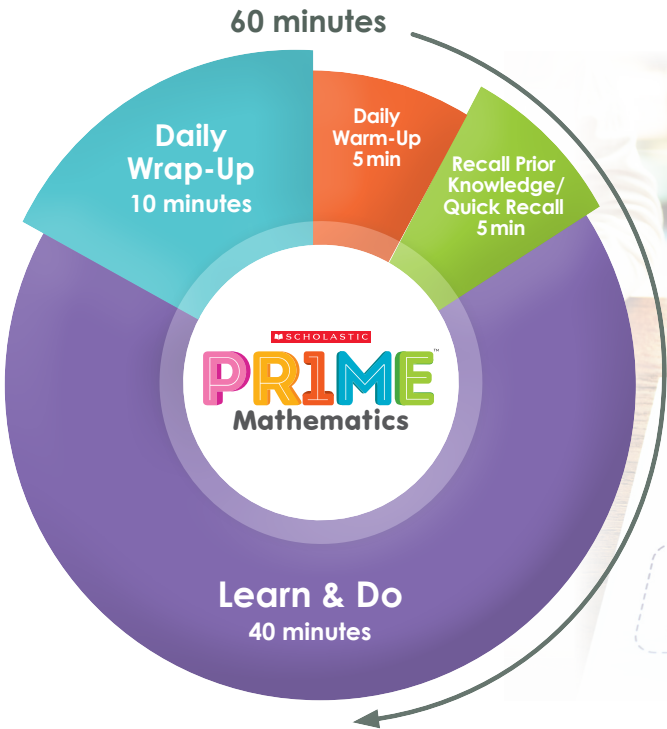
Task 1 requires students to identify different ways of breaking apart groups of 4 objects.

Reteach

Have students count out four 2-color **counters**, shake them in a **cup** and spill them on the table. Have them say, e.g. "I have 4. I have 2 red and 2 yellow." Ensure that students can count out small numbers by getting them to count out the numbers in each part, e.g. "1, 2. I have 2 red. 1, 2. I have 2 yellow."

The stories in the **Big Books** and **Readers** revisit all learning objectives covered in the chapter and can be used for a **Summative Assessment** of each child. Students are able to practice and demonstrate what they have learned as they work through each story.

Objectives	Big Book/Reader Pages	Teacher's Resources
Count groups of up to 20 objects (in a line, 5- or 10-frames, array, circular, scattered)	2, 3, 4, 5, 6, 7, 8	TR 8.1, TR 8.3
Write a numeral (0–20) to represent up to 20 objects		TR 8.2b
Understand that the number that comes next is 1 more	4	TR 8.1, TR 8.2b
Identify the number that comes before, after or in between other number(s) using a number tape		TR 8.2a
Compare 2 sets of up to 20 objects	7, 8	
Connect the language of "more than" to "greater than", "fewer than" to "less than" and "the same as" to "equal to"	7, 8	TR 8.1



Each lesson is planned in a one-hour block and consists of:

Daily Warm-Up

Each day's teaching starts with a quick five minute routine designed to build mathematical fluency and confidence.

Quick Recall

Students are required to remember prerequisite knowledge.

Each task is carefully crafted to check for readiness to learn new knowledge before new concepts are introduced.

Learn & Do

Each chapter is taught over several lessons, with each lesson focusing on a concept or part of it.

Each day's teaching follows a two-part structure of concept introduction in Let's Learn and guided practice and formative assessment in Let's Do.

Daily Wrap-Up

Students realize how much learning has taken place and solidify learning for future lessons. This is a crucial step to help students remember and apply the information they have learned.



Teacher Resources provide full support to deliver a well-organized and rigorous program

PRIME Mathematics K components are available in both printed and digital versions to offer teachers flexibility in preparing and conducting lessons.

Lesson planning is easy with comprehensive **teaching notes** alongside the associated student book pages in a wraparound format.

Picture It

Let's Learn **SB p. 122**

Go through the page with students to ensure understanding and familiarity with the written terms. Say the words as you point to the pictures together. Ensure students understand that we use 'bigger' and 'smaller' when we compare 2 items, and 'biggest' and 'smallest' for 3 items.

Let's Do **SB p. 123**

Explain Task 1 to students. They are to color the correct picture according to the superlative or comparative word.

Reteach

Ensure students understand the meaning of 'big' and 'small'. Then, review the meanings of the comparative and superlative adjectives using SB p.122.

Lesson 2 Comparing Size

Let's Learn

Say and point.

(a)

bigger

big

(b)

small

smaller

smallest

122

Let's Do

Color.

1.

bigger

2.

smaller

3.

biggest

123

Daily Wrap-Up

Mix up the **boxes** used in the Math Lab, but keep the **labels** in order of big to biggest. Have a student volunteer arrange the boxes in the correct order from big to biggest. Ask the class to check the student's answer. Repeat this with the **erasers** and another student.

Teachers can opt to teach using the **instructional software** or the **print coursebook** with guiding points and questions from the **Teacher's Guide**.

Picture It

Let's Learn **SB p. 164**

Go through the page with students and have them read aloud the months in the correct sequence. Point randomly at months to check if students can name them correctly.

Say: We see Helicopter holding some books and a pencil.

Ask: Which months does he have school?

Say: We see Belle holding a birthday cake.

Ask: Which month is your birthday? What do you do on your birthday?

Say: We see Mother holding an umbrella and Bob in a raincoat.

Ask: When do we use an umbrella or a raincoat? Which months are especially rainy?

Say: We see Father with a suitcase and he is standing next to a car.

Ask: Where is he going? (**He is going on a holiday.**)

Ask: Do you go for a holiday too? Where do you go? When do you go? In which month do you go on a holiday?

Lesson 2 Months of the Year

Let's Learn

Look and say.

January

February

March

April

May

June

July

August

September

October

November

December

Helicopter

Belle

Bob and Mother

Father

Let's Do

1. Read and write.

(a) In which month is your birthday? _____

(b) Which month is before your birthday? _____

164

7 Measurement		Total Duration: 11 days (1 day = 1 hour)		
Lesson	Objectives	Materials	Resources	Vocabulary
Lesson 1: Height, Length, Size and Weight				
Exploring Attributes	- Describe the measurable attributes of an object using 'big', 'small', 'long', 'tall', 'short', 'heavy' and 'light' - Compare objects based on size and use 'big' and 'small' to describe comparisons	2 containers (1 tall and 1 short, e.g. a vase and a cup) - Short eraser - Long ruler - Thin (light) book - Thick (heavy) book - A collection of pairs of big/small, light/heavy and short/tall/long objects found in a classroom, e.g. pencils, crayons, erasers, sharpeners, cups, containers, pipe cleaners, paper clips, a paperweight or hole punch, a thin (light) book and a thick (heavy) book (1 collection per table)	SB pp. 118-121	- big - small - long - short - tall - heavy - light - more - less - full - empty - hold
Lesson 2: Comparing Size				
Big, Bigger, Biggest	Compare and arrange up to 3 objects according to size and describe their relationship	- Chart paper - Attribute blocks, 1 triangle and 1 circle (1 big and 1 small), 1 bag per student - Slicker notes, 1 per student 3 large boxes of different sizes 3 labels: big, bigger, biggest 3 erasers of different sizes 3 labels: small, smaller, smallest	SB pp. 122-123	- big - bigger - biggest - small - smaller - smallest - compare
Bigger than and Smaller than	Compare 2 objects using 'bigger than' and 'smaller than'	- Large box - Eraser - Pencils, 1 per pair	SB p. 124	- bigger than - smaller than
Lesson 3: Comparing Length and Height				
Long, Longer, Longest	- Compare up to 3 objects and order them by length or height, and describe their relationship - Compare the length of 2 objects by placing them side by side - Compare 2 objects using measurement and comparison language	- Paper clip - Ruler - Connecting cubes, about 50 per table 3 objects that can be ordered by length (e.g. pencil, pointer stick, crayon) 3 objects that can be ordered by height (e.g. tall vase, cup, bucket)	- SB pp. 125-128 3-Dot Cards (TR 5.4) 4-Dot Cards (TR 5.5) - Number Cards 1-10 (TR 2.9), 1 per pair	- longer than - shorter than - taller than - length - height - shortest - longest - tallest
Short, Shorter, Shortest				
Taller than and Shorter than				
Lesson 4: Measuring Length and Height				
Exploring How to Measure	Measure the length and height of objects using 10 or less common nonstandard units of the same size	30 connecting cubes, 1 container - Marker - Paper clips (about 5 cm long), 1 box per table - Pencils (unsharpened, about 19-20 cm long), 1 per student - Pipe cleaners (or other objects that are about 30 cm long), 1 per student - Connecting cubes - Container (no more than 10 connecting cubes tall)	- SB pp. 129-130 3-Dot Cards (TR 5.4) 4-Dot Cards (TR 5.5)	- measure - length - long - longer - short - shorter
Lesson 5: Comparing Volume				
Comparing Volume	Compare the volume of a liquid in 2 identical containers and describe them	- String or yarn (about 25 cm long) 10 paper clips (about 5 cm long) 2 identical tall and clear containers - Labels, A and B - Buckets of water - Number cubes (1-6), 1 per pair - Small cups, 1 per pair - Identical large drinking cups, 2 per pair	SB pp. 131-132	- empty - more than - less than - full

A **Scheme of Work** for each chapter assists teachers in planning the curriculum.

PRIME Mathematics K is your complete suite of easy to use teaching and learning resources to make mathematics fun for your students.

Problem Solving Kit

20 stories - each story is available in Big Book format and in Reader format (6 copies of each reader)

Comprises twenty stories aimed at consolidating students' understanding of core mathematical concepts through solving problems and developing a problem-solving mindset using age-appropriate contexts

Instructional Software

A teacher resource for front-of-class teaching, practice and assessment which enables teachers to use technology to teach and engage the whole class

Problem Solving Teacher's Guide

Provides lesson plans that encourage mathematically-rich discussion and communication of mathematical ideas and thinking

Student Book A & B

Contains activities and practices for students to reinforce learning

Teacher's Guide A & B

Provides comprehensive lesson plans to support each lesson



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Mathematics

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