

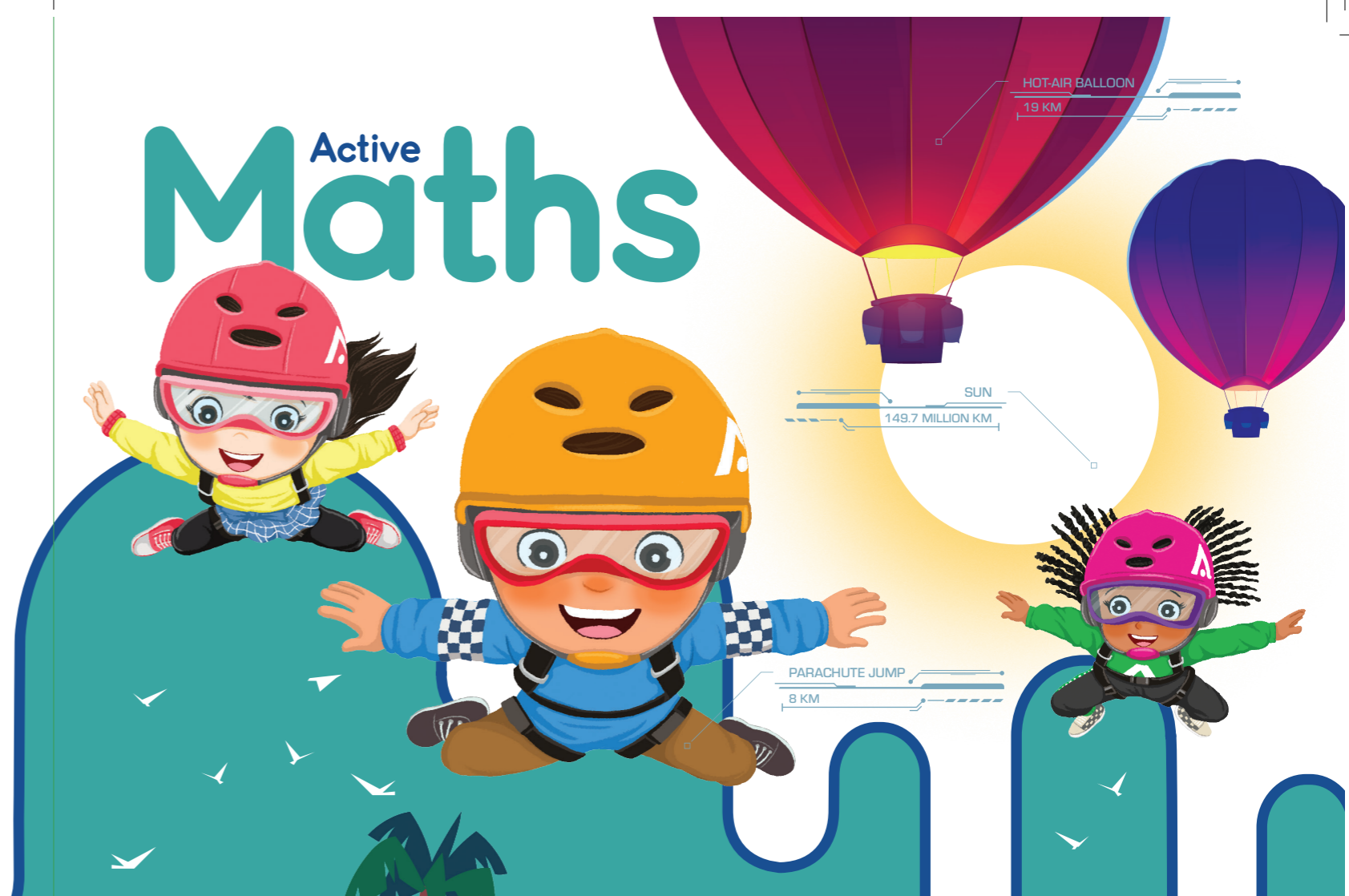
**Textbook** Stage 1-6



**Workbook** Stage 1-6



# Active Maths

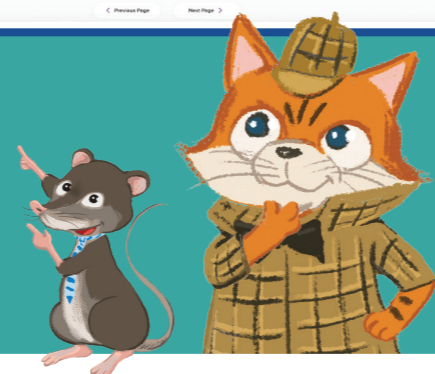
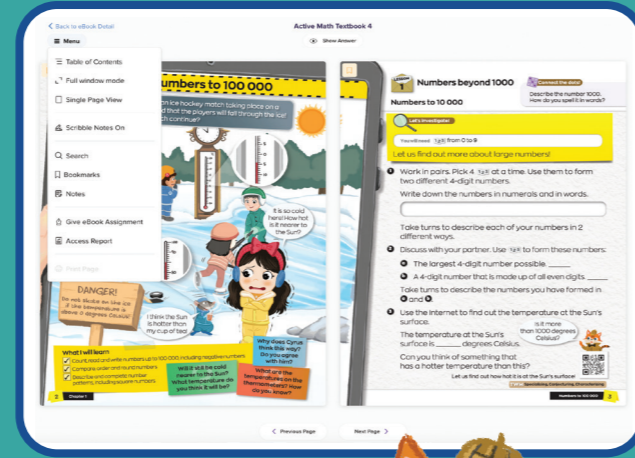


**Unique learning experience to develop mathematical thinkers**

- ✚ Combination of Singapore approach to maths teaching with new Cambridge Primary Mathematics (0096) Curriculum
- ✚ Mathematical concepts are scaffold through the effective Singapore approach maths teaching method which emphasises on the development of strong mathematical fluency and problem-solving skills
- ✚ Singapore approach to maths teaching is proven with the strong performance of Singapore students in international TIMSS Mathematics assessments, ranking 1st in 2015 and 2019

**Access to comprehensive Teacher's resources**

- Teacher's guide (Lesson plan, scheme of work, printables)
- Specimen testpapers
- Topical worksheets
- Enrichment worksheets
- Reinforcement worksheets
- STEM activities
- Weblinks
- Answer keys
- Flash cards
- Manipulative list
- Online access ([www.AlstonDigital.sg](http://www.AlstonDigital.sg))



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# Active Maths

Focuses on developing learners with “Thinking and Working Mathematically” skills using Problem-based Learning (PBL) strategy Using 5E instructional model to scaffold the learning process through variety of Active Learning activities



**CHAPTER 4 Shapes and Solids**

Help the children fix the boat before water enters into it and everyone is held!

Quick! We need to find something that fits the hole!

What will learn

- Identify and describe polygons.
- Classify, describe and sketch shapes and solids.
- Identify and draw lines of symmetry on shapes and patterns.

Can you describe the shape of the hole?

What can the children use to fill the hole?

## 2 Recall prior knowledge

- Prompting learners to recall mathematical concepts learnt

**Connect the dots!**

Do you remember what a tessellation is? How can you describe the tessellation shown here?

**Connect the dots!**

What is the time on the clock? \_\_\_\_\_ past 3

## 1 Examine the problem scenario

- Providing an interesting real-world problem to spark the curiosity of learners
- Gather clues to infer possible solutions

## 6 Revisit problem scenario

- Discovering possible solutions for the problems identified at the start of the after synthesising the mathematical concepts learnt

**CHAPTER 7 Perimeter and Area**

A gardener wants to dig some plots of land to grow 3 types of flowers: 40 square units. Help the gardener decide the size of each garden plot so that he can plant the seeds.

My tractor can only dig 4 square units at a time!

I am building fences so Momo cannot steal the seeds!

Each square unit measures 1m by 1m.

Let us help the gardener plant these seeds!

What will learn

- Calculate and measure lengths.
- Measure areas, rectangles and squares.
- Find the perimeter of a shape.
- Measure the area of a shape.

How much space should each garden plot take? How do you know?

What measuring tools can you find in the picture? How can they measure?

What is the total length of fencing that Coco can build around each garden plot?

## 7 Practise to mastery

- Reinforcing mathematical concepts learnt immediately

**Exercises**

Shade the correct number of parts to match each description below.

3 halves make one and a half.

One half and one quarter make three quarters.

Fill in the blanks.

- When we combine four \_\_\_\_\_, we get 1 whole.
- When we combine two quarters and \_\_\_\_\_ quarter, we get three quarters.
- When we combine four quarters and one half, we get \_\_\_\_\_.

**Level 2 Circles**

Let's investigate! You will need string, scissors, pencil, thumbtack, 1 piece of paper.

**Let us make a shape!**

**Step 1** Tie one end of the string to the pencil.

**Step 2** Using a thumbtack, pin the other end of the string in the middle of a piece of paper.

**Step 3** Pull the string tight and start drawing. Make sure the string remains tight as you draw. What shape did you draw? \_\_\_\_\_ Compare your answer with your partner's.

Let us find out more about this shape!

**Step 1** Label the point where the thumbtack is as Point A.

**Step 2** Place one end of the string at Point A. Pull the string to the edge of the shape.

**Step 3** Cut the string where it touches the edge of the shape.

**Step 4** Use this string to measure the lengths from Point A to 3 more points on the edge of the shape.

What do you notice? Share with your classmates.

The length from the centre of this shape to any point on its edge is \_\_\_\_\_.

## 3 Explore mathematic concepts through investigations

- Involving learners to proactively explore new mathematical concepts
- Building essential “Thinking and Working Mathematically” skills and develop confident 21st century mathematical thinkers

**CHAPTER 10 Fractions**

Worksheet 1: Parts and wholes!

Shade the shapes to match each description below.

$\frac{1}{2}$  of the shape is shaded.  $\frac{2}{3}$  of the shape is shaded.  $\frac{3}{4}$  of the shape is shaded.

Fill in the blanks to describe each circle below.

The circle is cut into \_\_\_\_\_ out of \_\_\_\_\_ parts are shaded. \_\_\_\_\_ of the circle is shaded.

The circle is cut into \_\_\_\_\_ out of \_\_\_\_\_ parts are shaded. \_\_\_\_\_ of the circle is shaded.

The circle is cut into \_\_\_\_\_ out of \_\_\_\_\_ parts are shaded. \_\_\_\_\_ of the circle is shaded.

- Doing further practices for mastery of concepts

## 4 Learn mathematical concepts

- Scaffolding and explaining using Concrete-Pictorial-Abstract, one of the methods from the Singapore Approach

**Glossary**

- Area** The amount of space that a shape or object takes up.
- Area** To give an address that near the road or number.
- Associative property of addition** To group different pairs of numbers, when these numbers are added, they give the same sum.
- Balance** To add numbers that have the same number of digits to the same value.
- Bar chart** A graph that shows data using bars.
- Change** The difference between the amount of money paid and the price of an item.
- Convert** A number or unit that does not change.
- Convert** To change from one unit of measurement to another.
- Common** Things that are used to help things.
- Commutative property of addition** To add numbers in any order, the sum is the same.
- Distributive property of multiplication** To divide a number by a number, when the number is multiplied by the same number, we get the same result.
- Dividing** To divide a number by another number.
- Divide** To divide a larger number by a smaller number.
- Double** To add a number to itself or twice of it.

Ada and Tim each cut a piece of cloth.

Tim cuts it into 4 unequal parts. The parts do not have the same size.

Ada cuts it into 4 equal parts, or quarters.

1 out of 4 equal parts can be written as  $\frac{1}{4}$ , which is a fraction. We read this as one quarter.

Find out more about parts of a whole. Sing along!

1 total number divided by 4 = 4 equal parts

Vera cuts a waffle into quarters. She gives 1 out of the 4 parts to Cyrus and keeps the rest.

There are four quarters, or one whole waffle!

The word fraction comes from the Latin word 'fractus', which means to break. Find some objects around you that can be broken into equal pieces!

Cyrus gets  $\frac{1}{4}$  of the whole waffle. Vera has  $\frac{3}{4}$  out of the 4 parts left. Vera gets  $\frac{3}{4}$  of the whole waffle. We read this as three quarters.

- Enabling learners to achieve mastery in reasoning, problem-solving and conceptual skills through worked examples

**Maths Talk**

When do we use kilometres, metres and centimetres to measure lengths? Share some examples with your partner.

**Maths @ Work**

We can find regular polygons all around us! For example, square tiles can be found in different parts of our houses. A stop sign is octagon-shaped. Can you count how many sides it has? What regular and irregular polygons can you find around you? Can you describe their properties?

## 8 Review and Reflect

- Evaluating the understanding of the learning objectives in the chapter

**Consolidation worksheet**

Sort the polygons into the table below. Write the matching letters.

Regular polygons	3 sides	4 sides	5 sides	6 sides
Irregular polygons				

**Word Wall**

length	trundle wheel	metric ruler	metric rule	measuring tape
centimetres	metres	convert	distance unit	
width	perimeter	square unit	area	

The gardener digs a square plot to plant some cabbage seeds and a rectangular plot to plant some tomato seeds. Both garden plots have perimeters of 20 m. Label the possible lengths and widths for each garden plot below.

Both are squares, so their perimeters should be the same!

Do you agree with Cyrus? Why or why not? Show and explain your answer below.

**You have a mission!**

Vera is helping a chef and his team to cook a big meal for an important event. She needs to find out the correct amount of ingredients needed for the new recipe. Help Vera to write down the new recipe so that there is no wastage of food!

100 people will be attending the event!

We must adjust the recipe! It was originally meant for 100 people!

**Original fried rice recipe:**

- 56 kg white rice
- 1400 eggs
- 14 kg prawn
- 1800 ml cooking oil
- 410 ml soy sauce
- 170 g salt
- 1100 cloves garlic
- 2 l water

Write the number of people attending the event as a fraction of the number of people the original recipe was meant for. Write your answer as a unit fraction.

- Demonstrating concepts learnt through reflective application activities

## 5 Extensions of mathematical concepts

- Providing opportunities to discuss mathematical concepts and practise verbalising maths vocabulary

**Give direction**

The picture below shows Ada's neighborhood. Which is further from Ada's house, the school or the park?

5 km 370 m

5 km 37 m

8 km 600 m

Shopping mall

Ada's house

School

Park

We compare the kilometres first, then we compare the metres.

The distance between Ada's house and the school is 5 km 370 m.

The distance between Ada's house and the park is 5 km 37 m.

The \_\_\_\_\_ is further from Ada's house.

- Applying and sharing the new mathematical knowledge through collaborative learning

**Work in pairs.**

- Take the  $\frac{1}{4}$  that looks like a square. How many vertices does it have? Describe how each vertex looks to your partner.
- Using a pair of scissors, cut the square into halves. How many vertices does each half have? Describe how each vertex looks to your partner.
- Compare the vertices in each half with the original  $\frac{1}{4}$ . What do you notice about how the vertices look? What do you notice about their sizes?
- Repeat this activity using different  $\frac{1}{4}$ ! What do you notice?

- Honing learners' higher order thinking skills through challenging tasks

## 9 Prepare for Tests

- Providing opportunities for learners to gain exam confidence

**End-of-year Review Paper 1**

Duration: 35 minutes

30

**Instructions:**

Answer all the questions. Show your working clearly in the spaces provided. The number of marks is given in brackets at the end of each question or part question. You are not allowed to use a calculator for this paper.

Estimate the mass of an apple. Circle the most suitable answer.

10 g 100 g 1 kg

What is the mass of the basket of cookies? Write your answer in grams.

The price of an adult ticket to a theme park is \$40. The price of a pair of children's tickets is \$65. Sally purchased tickets for herself and her 2 children. She gave the cashier \$100. How much change did she receive?