# Targeting <br> <br>  

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## Introduction

 pupils' learning of mathematics through a variety of approaches. Based on the latest syllabus implemented by the Ministry of Education (MOE), Singapore, the series is centered on the use of the Concrete-PictorialAbstract (CPA) approach to develop and enhance the understanding of concepts in pupils.

The lesson flow is designed based on the Readiness-Engagement-Mastery (REM) model, which introduces concepts through visual stimuli, hands-on activities, pair work and practices to cater to students of different cognitive levels.

The series focuses on developing pupils' mathematical reasoning and communication skills as well as their confidence in problem solving.


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## CPA Approach

The tergetury lajaymeltis series uses the CPA approach to mathematics teaching and learning．


Thers ine iz chiden
What roction of the chidhon woor glonses？ What frocten of the chlidhen do not wior glosses？

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Wh ove mente
$\frac{2}{6}$ of the chidiren weor plosses
$\frac{4}{6}$ ef the chitrin de net weer glosses

## 0009月 －Onse

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$\frac{2}{3}$ of the chidrin do net weor glassen．
0
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| $\Delta \Delta$ | $\begin{array}{l\|l} \Delta \\ \Delta & \mathbf{A} \end{array}$ | $\frac{\mathbf{A}}{\mathbf{4}}$ | $\frac{7}{3}$ |
|  | $\begin{aligned} & \text { B } \\ & \text { B } \\ & \text { a } \\ & \hline \end{aligned}$ | 号号吕 | $\frac{3}{7}$ |



The use of a multi-representational approach involving concrete, pictorial and abstract representations enables pupils to make connections towards acquiring mathematical concepts.

Pictorial examples use illustrations and photographs to help pupils visualise core concepts and assist in solving word problems.

There are 480 pupils in Primary 5
$\frac{3}{5}$ of the pupils are girls.
$\frac{1}{4}$ of the boys wear glasses.
(a) How many boys wear glasses?
(b) How many boys do not wear glasses?
(a) $1-\frac{3}{5}=\frac{2}{5}$
$\frac{2}{5}$ of the pupils are boys.
Method 1 $\frac{1}{4}$ of $\frac{2}{5}=\frac{1}{4} \times \frac{2}{5}$
$=\frac{1}{10}$ $\frac{1}{10}$ of the pupils who wear glasses are boys. $\frac{1}{10} \times 480=48$

48 boys wear glasses.
(b)
Method 2
$92-48=144$

$$
\begin{aligned}
& \text { Will drawing a model help } \\
& \text { you solve this problem? }
\end{aligned}
$$ (3) $\frac{2}{5} \times 480=192$ $\frac{1}{4} \times 192=48$

${ }_{3}^{3} \times \frac{2}{5}=\frac{3}{5}=\frac{3}{10}$
${ }_{3}^{3} \times \frac{2}{5}=\frac{3}{5}=\frac{3}{10}$
$\frac{3}{10}$ of the pupils who do not wear glasses
$\frac{3}{10}$ of the pupils who do not wear glasses
are boys.
are boys.
$\frac{3}{10} \times 480=144$
$\frac{3}{10} \times 480=144$
144 boys do not wear glasses
144 boys do not wear glasses

## Abstract examples

 provide pupils with the opportunity to familiarise themselves with the use of mathematical symbols and relate the use of these symbols with the concrete and pictorial examples previously learnt.
## Learning Experiences

Guided as well as exploratory learning experiences throughout the tergeting Lakhanchle series equip pupils with essential skills and techniques that can be applied to a range of mathematical concepts.

The tergeturblathoneties series is designed to encourage active learning. Through these learning experiences, pupils can understand mathematical concepts effectively, acquire the skills for everyday use and foster a greater interest in mathematics.

Learning experiences in the targeting Lakeneltes series include:
$\checkmark$ Use of manipulatives in activities
$\checkmark$ Hands-on Activities
$\checkmark$ Show and Say
$\checkmark$ Pair and Share
$\checkmark$ Play and Learn

(c) $\frac{100}{100}$
(c) 0.89

## she spend? she left?

 (6)tw
## Nin

Play and Learn (2)
Rhombus
The 4 -sided figure below is called a rhombus.

Each pupil will have a Bingo card. Every pair of pupils will have a stack of Calling cards. Divide the Calling cards between each pair and place them face down.

Each pupil turns over a Caling card at the same time.
Then cross out the measurement on the Bingo Card if the measurement is equivalent to the one on the Calling card. The pupil who has the most number of crosses wins the game.

## Exemple



Pair and Shane 9 ?
(a) Discuss with your partner.

What measurement does each letter represent?

(b) Work with your partner to design a similar activity as in (a) using other units of measurements (such as $\ell$ and $\mathrm{ml}, \mathrm{kg}$ and $\mathrm{g}, \mathrm{m}$ and cm ). Let other pairs of pupils work on your activity.

## Handeon Activity 8

## Work in pairs.

Cut out the rhombuses given by your teacher
Investigate the properties of a rhombus.
(1) Paste the first rhombus EFGH on a piece of square grid paper

Is HE parallel to GF? IS EF parallel to HG?

(2) Fold the second rhombus EFGH into 2 halves in two ways as shown below.

is $\angle e=\angle g$ ? is $\angle f=\angle h$ ?
夜


## Textbook Features



## See and Learn

Introduces concepts in a visual manner which pupils can relate to and progress further to understand the concepts on an abstract level.

## Do and Learn

Enables pupils to check their understanding of mathematical concepts by doing exercises.

Prepares pupils for the mathematical concepts that will be taught. Teachers facilitate the discussion and encourage pupils to talk about the picture.

## Hands-On Activity

Engages pupils and reinforces their grasp of mathematical concepts through the use of manipulatives in activities.

## Pair and Share

Provides opportunities for pupils to work in pairs to assess their learning.



WorkbookLink
Provides links to workbooks at appropriate junctures in the textbooks.
amount of money Amiya has.
$4:$
1. Fxplain how the number of units may be found for $Z$.
number of units may be found for $Z$.
(b) party ha


## Show and Say

Allows pupils to communicate and share what they have learnt with their classmates.

## 누눈



(c) $\frac{100}{100}$
 (a) 0.43 (b) 0.04 (c) 0.89
(5) Jane had $\$ 100$ at first. She spent $\$ 15$.
(b) What percentage of her money did she spend?
(b) What percentage of her money had she left?


## Buddies)

Janice, Siti, Peter, Ravi and Robi are good buddies who will learn mathematics with pupils through their comments, prompts and inquiries.

## Let's Think Alongi...

Encourages pupils to think and reason along as they attempt the activities or
exercises.
$\qquad$
(2) In the figure below, MON is a straight line, $\angle M O P=134^{\circ}$ and $\angle N O Q=132$
Find $\angle W$.



$$
Q^{\prime}
$$

${ }^{132^{\circ}}$


## Workbook Features

## Recall

## (LI) Worksheet

Assesses pupils' understanding of basic concepts and helps them acquire the necessary process skills.

## Worksheet

Assesses pupils' understanding of moderately difficult concepts and helps them acquire higher-order thinking skills.

## Name:

## Areas Involving Squares, Rectangles and Triangles

(42) Worksheet 3)
(1) Find the area of the shaded triangle in each figure. (a) ABCD is a square of side 12 cm and $\mathrm{DE}=\mathrm{EC}$

(b) The area of triangle $A B C$ is twice the area of triangle DBE


Idea of Ratio

## 4) Workshesty


 -: f hasketballs to the number of soccer balls is

(a) The ratio of the number of forks to the numberof spoons is
$\qquad$ b) The ratio of the number of spoons to the total number of forks and spoons is


Allows pupils to revise what they have learnt before.

Name: Class:
1
Whole Numbers
25) Recall INumbers to 1000001
(1) Write the number represented by the number discs.



The number is
(2) Write in figures.
(a) Twenty-four thousand, one hundred and sixteen
(b) Sixty-nine thousand and five
(c) One hundred thousand


Math Journall
Allows pupils to reflect on their learning.

43 Worksheet
Assesses pupils' understanding of concepts that require thinking at a deeper level to encourage creative and critical thinking to solve non-routine and challenging problems.

Encourages pupils to adopt a 4-stage structured process to solve problems creatively.

## Performance Task:

Serves as a form of alternative assessment for pupils to demonstrate their understanding of mathematical concepts and skill through hands-on approaches.

Do you understand the problem?

- What is your plan?
Show how you solve the problem.
Remember to check your solution
Plan)
Work in pairs.
un the squasquare grid to make a floor plan of a zoo. Use different colours
nclosures.

Note: There should be space for people to walk.

(a) Find the percentage of space occupied by each animal enclosure.
(b) Find the percentage of walking space.

Share your zoo plan with the class.

Math, Journall


(2)

Find the value of $\frac{7}{8} \times \frac{4}{21}$ Express your answer in the simplest form.

3D) $13=24: 52$

Review
Allows pupils to revise and consolidate mathematical concepts learnt.

## Support Resources

## Teacher's Resources



## Also includes:

* Mini Tests for pupils to revise
* Challenging Questions to develop higher-order thinking abilities


## *) Various Exam-Type Questions for extra practice




## Einhanced eBook

* Interactive games and quizzes
* Interactive tools such as drawing pens and pin-a-note
*Short stories with unique story telling rubrics
* Animated videos
* Embedded calculator for games and quizzes



## Our Authors

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Dr Eric Chan is a mathematics educator and author of mathematics books. He lectures on primary mathematics in both pre-service and in-service programmes at the National Institute of Education (NIE), Singapore. Prior to this, he has had more than 10 years' experience in teaching primary school mathematics and served as a Head of Department (Mathematics). He enjoys writing books on mathematics for the primary school level. His published books include Overcoming Learning Difficulties in Primary Mathematics, Assessment for Learning: Strategies to Enhance Primary Mathematics Learning, 101 Math Triggers, 101 More Math Triggers, Encounters with Problem Solving, Teacher's Notes - Techniques in Solving Higherorder Thinking Word Problems, 5 Maths Stories and 5 More Maths Stories.

## Daniel William Cole MICD, BSc, PGDE

Daniel Cole is an author of several successful series of primary textbooks in Southeast Asia. He has extensive experience in primary education. His books have been approved by the respective authorities in different countries and are currently being used throughout Southeast Asia. Besides writing textbooks, he has also designed and programmed educational media and software.

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