

5 What's missing?

In "What's missing?" kind of tasks pupils are presented with tasks that cannot be solved because an important piece of information has been omitted. Pupils must identify what is missing, supply appropriate data, and then solve the problem. Such tasks provide an opportunity for pupils to engage in both critical thinking and creative thinking. Whole class discussion must precede individuals working on such tasks because there is a wide range of data that pupils can supply to solve each problem. As each different piece of missing information supplied by a pupil produces a different problem, interesting discussions based on the specific data chosen are possible.

EXAMPLE 1

Donuts

Mary bought 7 boxes of donuts for her class party.
She paid \$35 for the 7 boxes.
How much did each donut cost?

Can you find the cost of a donut?

Use the following prompts to guide you.

- (a) What information do you know from the problem?
- (b) What else do you need to know to solve the problem?
- (c) Pick a number that shows how many donuts might have been in a box.
How much would each donut cost?

How much would each donut cost?

Show your workings.

EXAMPLE 2

Rectangular picture

The area of a rectangular picture is 108 cm^2 .
Find the length and perimeter of the picture.

Can you find the length and perimeter of the picture?

Use the followings prompts to guide you

- (a) What information do you know from the problem?
- (b) What else do you need to know to solve the problem?
- (c) Pick a number that represents the breath of the rectangular picture.

How long is the picture?

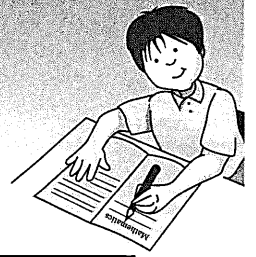
What is the perimeter of the picture?

**Teaching Goal**

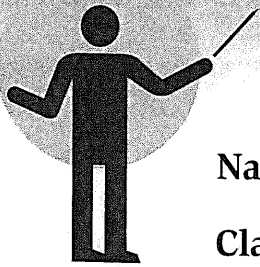
After participating in this lesson, pupils will be able to use a number of tools such as their experiences, prior knowledge and individual preferences to solve problems that are somewhat open-ended. Pupils will also be able to support their answers using logic and reasoning.

**Teaching Plan**

1. Present the problem to the pupils.
2. Have pupils read the problem individually.
3. Engage the whole class in a discussion and check for comprehension of the problem.
4. Create an awareness of need to "make assumptions" as the problem is somewhat open-ended.
5. Tell pupils that they must defend or justify the solution they choose.
6. Give pupils time to complete the problem.
7. Ask a few pupils to present their solutions.
8. Engage the whole class in examining the solutions presented.
9. Emphasise the non-uniqueness of the solution to the problem.



What's missing?



Name: _____ Date : _____

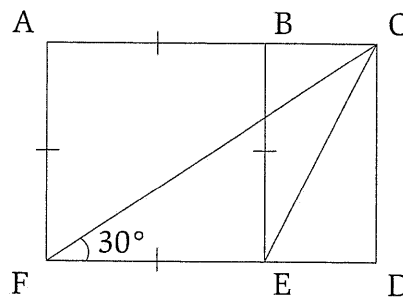
Class : _____ Levels 4 - 6

1

Topic: Rectangles and Squares

Unknown angle

ABEF is a square. Given that $\angle CFD = 30^\circ$, find $\angle CED$.



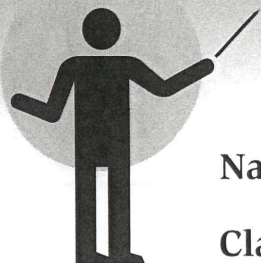
Can you find $\angle CED$?

Use the followings prompts to guide you.

- (a) What information do you know from the problem?
- (b) What else do you need to know to solve the problem?
- (c) Give a value to the angle you need.

What is $\angle CED$?

Created by Evelyn Chee



What's missing?



Name: _____ Date : _____

Class : _____ Levels 4 - 6

2

Topic: Numbers

Apples

A shopkeeper bought 1257 apples.

He threw away the rotten apples.

He packed the remaining good apples in boxes of 12.

How many boxes did he pack?

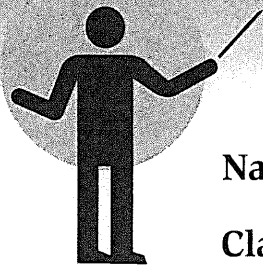
Can you find how many boxes he packed?

Use the following prompts to guide you.

- (a) What information do you know from the problem?
- (b) What else do you need to know to solve the problem?
- (c) Pick a number to represent the rotten apples.

How many boxes did he pack?

Created by Dorothy Ho



What's missing?



Name: _____

Date : _____

Class : _____

Levels 4 - 6

3

Topic: Ratio

Book Fair

8000 people visited the annual book fair.

There were 3 times as many children as adults.

How many boys and how many girls visited the book fair?

Can you find the number of boys who visited the book fair?

Can you find the number of girls who visited the book fair?

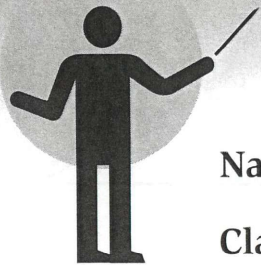
Use the following prompts to guide you.

- (a) What information do you know from the problem?
- (b) What else do you need to know to solve the problem?
- (c) Pick a ratio that represents the number of boys : number of girls at the book fair.

How many boys were at the book fair?

How many girls were at the book fair?

Created by Wan Mohamed & Harry Lim



What's missing?



Name: _____ Date : _____

Class : _____ Levels 5 - 6

4

Topic: Whole Numbers

Marbles

Raja and Devi have some marbles. Raja has more marbles than Devi.
If Raja gives Devi 9 marbles, they will have the same number each.
How many marbles do they have altogether?

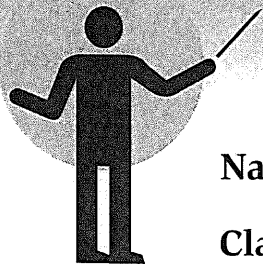
Can you find how many marbles Raja and Devi have altogether?

Use the following prompts to guide you

- (a) What information do you know from the problem?
- (b) What else do you need to know to solve the problem?
- (c) Pick a number to show how many more marbles Raja has.

How many marbles do Raja and Devi have altogether?

Adapted from : Shaping Maths (Course book 5A Part 1, Q12, p27)
by Nor Azila & Wang Kaifen



What's missing?



Name: _____ Date : _____

Class : _____ Levels 5 - 6

5

Topic: Ratio

Mrs Chong's money

Mrs Chong gave money to her three daughters in the ratio 2 : 3 : 5.

Her youngest daughter received the smallest share and her eldest daughter received the biggest share.

How much more money did her eldest daughter receive than her youngest daughter?

Can you find how much more money did the eldest daughter received than the youngest?

Use the following prompts to guide you.

- (a) What information do you know from the problem?
- (b) What else do you need to know to solve the problem?
- (c) Pick a number that represents the total amount of money Mrs Chong gave her three daughters.

How much did the youngest and eldest daughters get respectively?

How much more money did Mrs Chong's eldest daughter receive than her youngest daughter?

Adapted from : Shaping Maths (Text book 5A, p97)
by Lim Yong Ming