

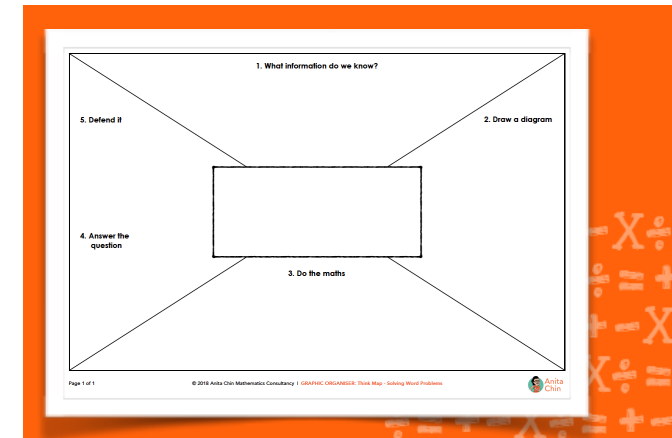
Graphic Organiser: Think Map

(solving word problems using the Bar Model Method)



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1. What information do we know?

2. Draw a diagram

5. Defend it

Toy Cars: Problem 1

Marcus has 15 toy cars. John has 3 times as many toys cars as Marcus. How many toy cars does John have?

REF: *Mathematical Problem Solving: The Bar Model Method* (2014, p.18, Liu Yueh Mei & Soo Vei Li)

3. Do the maths

4. Answer the question

1. What information do we know?

GIVENS

Marcus = 15 toy cars

John = 3 times as many as Marcus

John = ? toy cars

GAP

2. Draw a diagram

5. Defend it

Marcus = 15

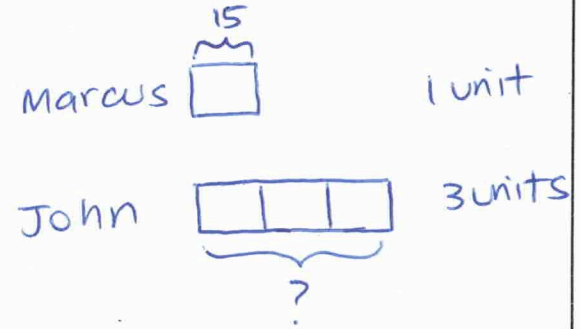
John = 45

$45 \div 15 = 3$

Toy Cars: Problem 1

Marcus has 15 toy cars. John has 3 times as many toys cars as Marcus. How many toy cars does John have?

REF: *Mathematical Problem Solving: The Bar Model Method* (2014, p.18, Liu Yueh Mei & Soo Vei Li)



4. Answer the question

GOAL

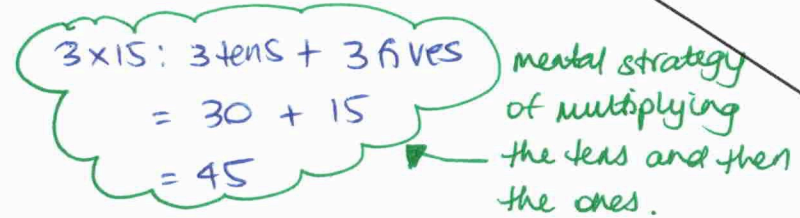
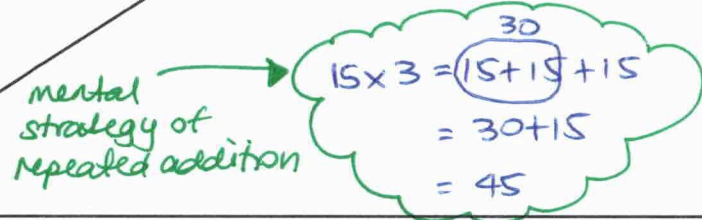
John has 45 toy cars.

3. Do the maths

GAP

Marcus = 1 unit = 15 cars

John = 3 units = $15 \times 3 = 45$ cars



1. What information do we know?

2. Draw a diagram

5. Defend it

Toy Cars: Problem 2

John has 3 times as many toys cars as Marcus.
They have 92 cars altogether. How many toy cars
does Marcus have?

REF: *Mathematical Problem Solving: The Bar Model Method* (2014, p.19, Liu Yueh Mei & Soo Vei Li)

3. Do the maths

4. Answer the
question

1. What information do we know?

GIVENS

John = 3 times as many toy cars as Marcus

Marcus = ? toy cars

Altogether = 92 cars

GAP

2. Draw a diagram

5. Defend it

Marcus = 23 cars

John = $3 \times 23 = 69$ cars

Altogether = $23 + 69$
= $22 + 1 + 69$
= $22 + 70$
= 92 cars

4. Answer the question

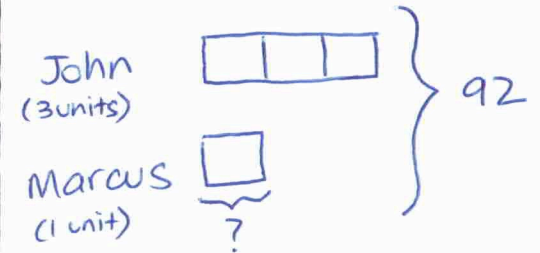
GOAL

Toy Cars: Problem 2

John has 3 times as many toys cars as Marcus.

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3. Do the maths

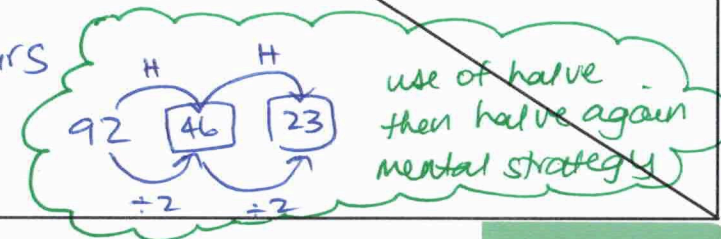
GAP

Marcus has 23 toy cars.

units Altogether = John + Marcus = $3 + 1 = 4$ units

Altogether = 4 units = 92 cars

Marcus = 1 unit = $92 \div 4 = 23$ cars



1. What information do we know?

2. Draw a diagram

5. Defend it

Toy Cars: Problem 3

John has 3 times as many toys cars as Marcus.
Marcus has 42 toy cars fewer than John. How many
toy cars do they have altogether?

REF: *Mathematical Problem Solving: The Bar Model Method* (2014, p.19, Liu Yueh Mei & Soo Vei Li)

3. Do the maths

4. Answer the
question

1. What information do we know?

GIVENS

John = 3 times as many as Marcus
Marcus = 42 fewer than John
Altogether = ? cars

GAP

2. Draw a diagram

5. Defend it

$$\begin{aligned} \text{John} &= 3 \times \text{Marcus} \\ &= 3 \times 21 \\ &= 63 \end{aligned}$$

$$\begin{aligned} \text{Marcus} &= 42 \text{ fewer than John} \\ &= 63 - 42 \\ &= 21 \end{aligned}$$

$$\text{Altogether} = 63 + 21 = 84$$

4. Answer the question

GOAL

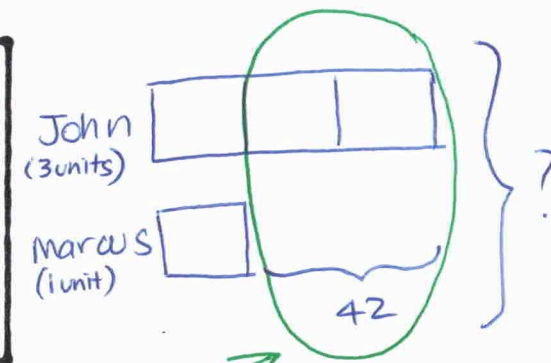
they have 84 toy cars altogether.

Toy Cars: Problem 3

John has 3 times as many toys cars as Marcus.

Marcus has 42 toy cars fewer than John. How many toy cars do they have altogether?

REF: Mathematical Problem Solving: The Bar Model Method (2014, p.19, Liu Yueh Mei & Soo Vei Li)



3. Do the maths

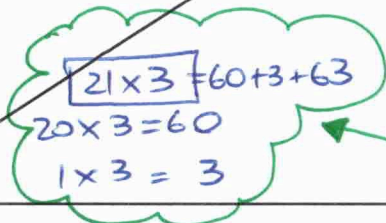
GAP

$$2 \text{ units} = 42 \text{ cars}$$

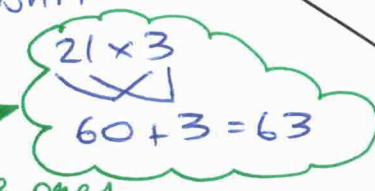
$$\text{so, } 1 \text{ unit} = 42 \div 2 = 21 \text{ cars} = \text{Marcus}$$

$$\text{therefore, } 3 \text{ units} = 21 \times 3 = 63 \text{ cars} = \text{John}$$

$$\text{Altogether} = 21 + 63 = 84 \text{ cars}$$



mental strategy of multiplying the tens and then the ones



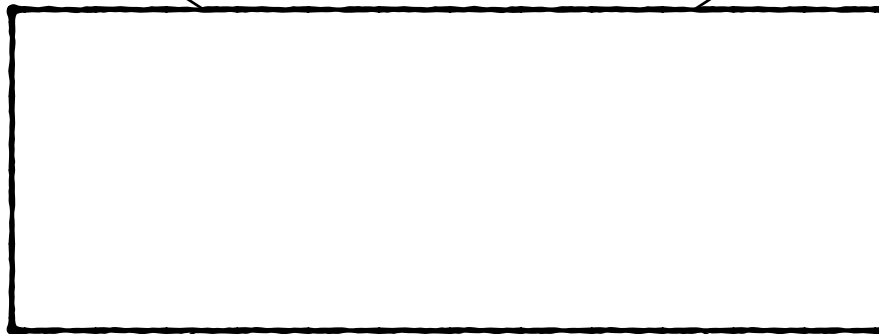
1. What information do we know?

2. Draw a diagram

3. Do the maths

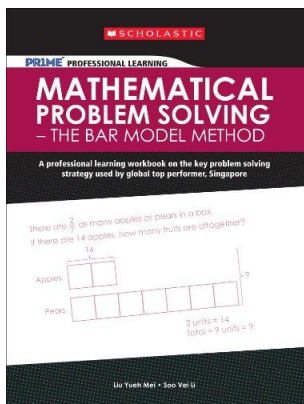
5. Defend it

4. Answer the question



Teacher resources: The Bar Model Method

Teacher reference book



Yueh, M.L & Soo, V.L (2014). *Mathematical problem solving: The Bar Model Method*. Singapore: Scholastic Education International.

The Bar Model Method is a key problem solving strategy consistently taught to primary school students in Singapore. It enables students to understand, visualise and represent conceptually complex problems and their solutions elegantly, and in doing so, further reinforces and builds students conceptual and procedural knowledge, making them more effective problem solvers.

I've had the privilege of seeing Vei Li present at the 2015 AAMT conference in Adelaide and from that moment on, I fell in love with the elegance of the Bar Model Method!

Classroom equipment



Connecting Cubes, 2 cm Small group set Yr 3-6

It contains 10 'loose blocks' of the one colour, connected to make 'towers of 10'. 10 different coloured towers are then placed into a snap lock bag (22 x 25) cm to make a 'bag of 100' blocks.



Connecting Cubes, 2 cm Class Kit K-6

It contains 10 'bags of 100' blocks to make a 'tub of 1000' blocks. Stored in a 12 L clear tub with a clip-on lid.

For further details visit the Resources page of my website at www.anitachinmaths.com.au/resources