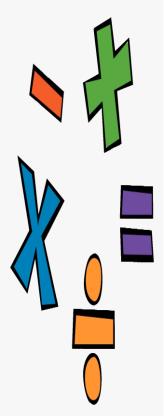


JUNYUAN PRIMARY SCHOOL



Welcome to P4 Math Alive Workshop for Parents Fri, 14 April 2023 2.30 pm - 4pm



The material shared in today's workshop is under the property of Junyuan Primary School, Mathematics Department.

Please do NOT take any photos or videos throughout the sharing session.

The Presentation Slides will be removed after one month.

Thank you for your understanding and cooperation.

Singapore Mathematics Framework

Mathematics Curriculum Framework

Belief, appreciation, confidence, motivation, interest and perseverance

Conversion of units **Perimeter Geometry** Money **Fractions Percentage**

Proficiency in carrying out operations and algorithms, visualising space, handling data and using mathematical tools

Awareness, monitoring and Metacognition regulation of thought processes Attitudes Mathematical Processes Problem Solving Skills Concepts

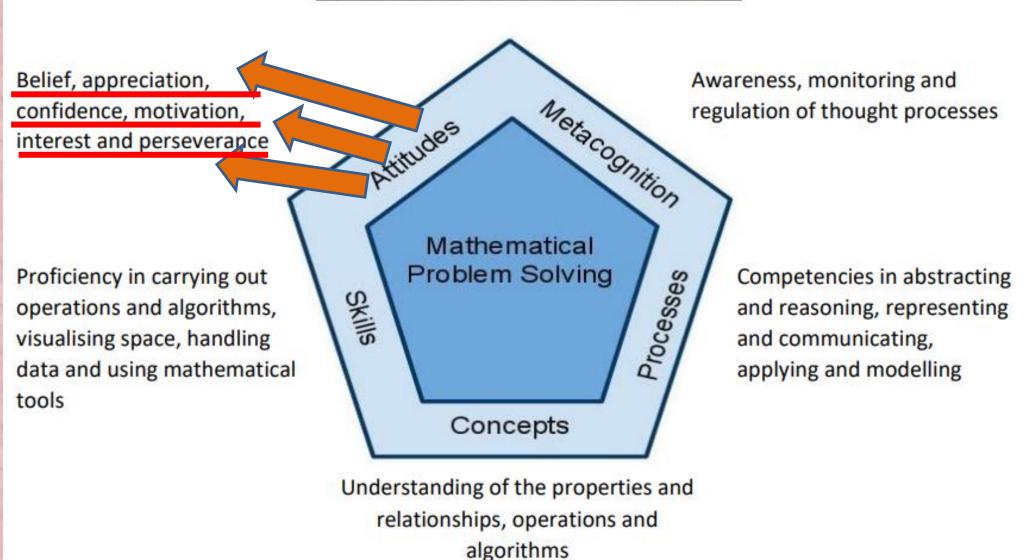
Competencies in abstracting and reasoning, representing and communicating, applying and modelling

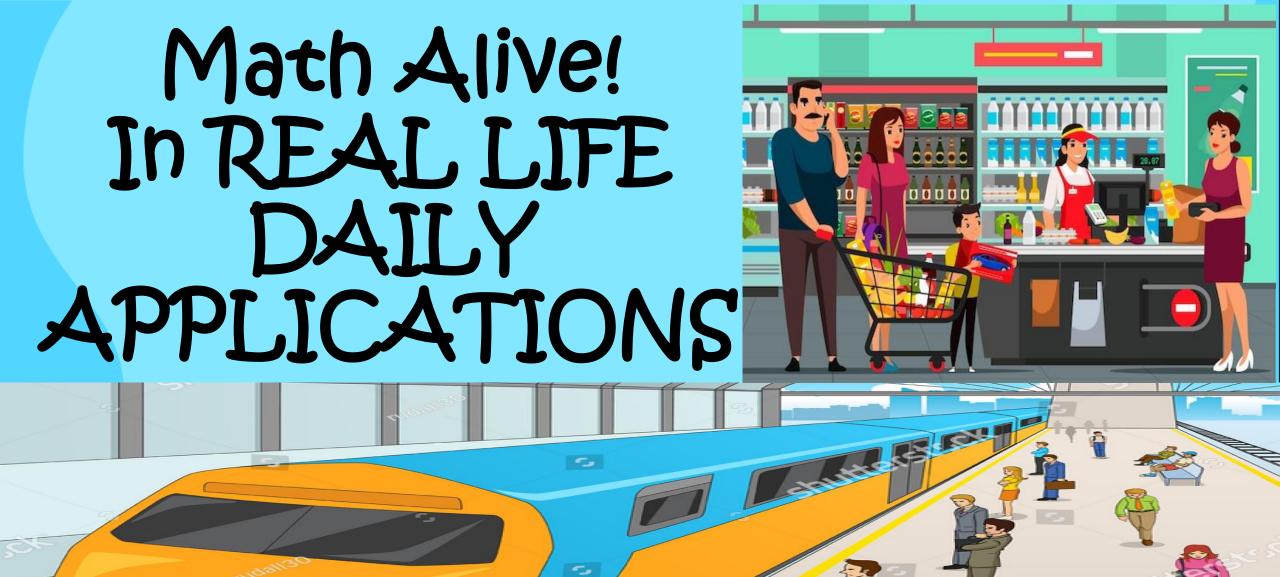
Understanding of the properties and relationships, operations and algorithms

Bar Graph Area Volume Mass **Decimals Algebra**

Singapore Mathematics Framework

Mathematics Curriculum Framework





1 km = 1000 m Math Alive!

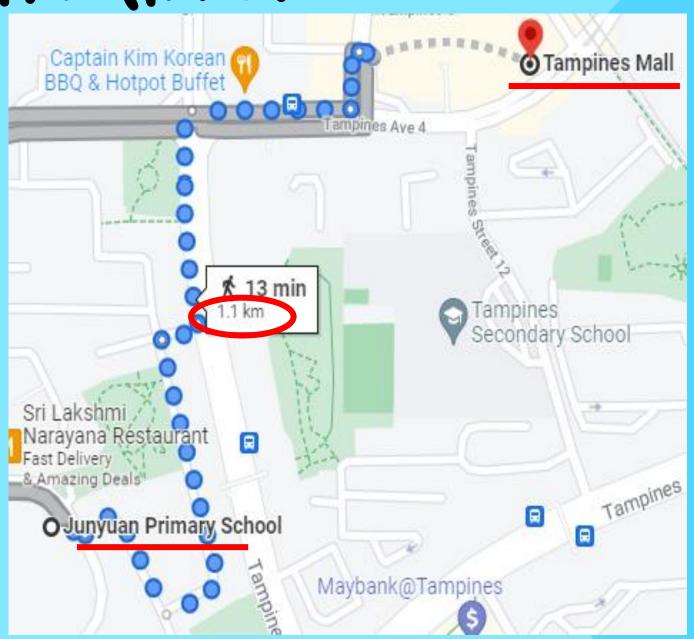


via Tampines Ave 5

Mostly flat



The distance from JYPS to Tampines Mall is about 1 km. Time taken is 13 min.



Math Alive!



6-INCH
350 grams
10 grams
3 grams
254 grams
298 grams
5 grams
4 pieces
273 grams
40 minutes

1 cup butter or margarine
1½ cups sugar
4 eggs
1 teaspoon vanilla extract
½ teaspoon salt
4 cups sifted cake flour
4 teaspoons baking powder
1⅓ cups milk

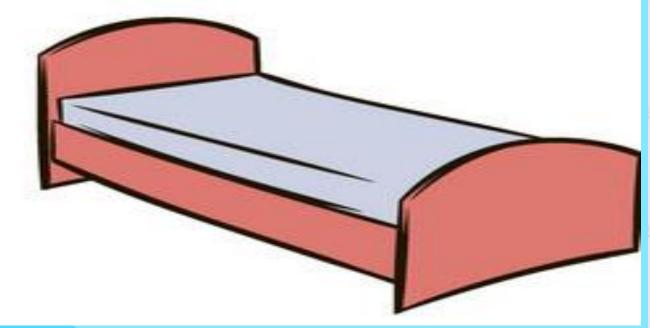




Math Alive!









Workshop Content

- 1)Introduction to Metacognition in Problem Solving using STAR approach
- 2)Heuristics of Problem Solving
- 3)KooBits
- 4)Q & A



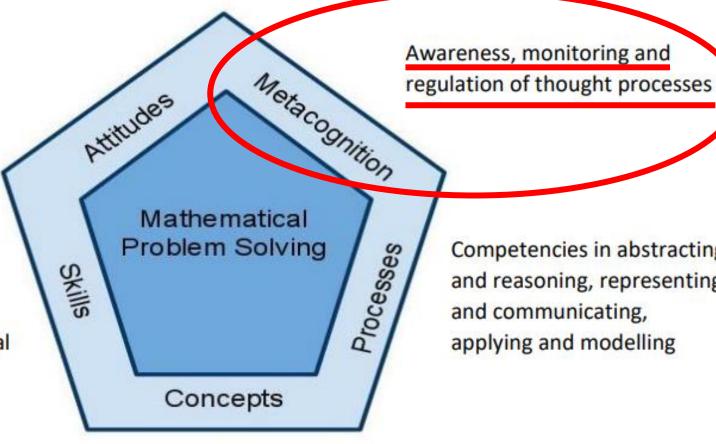


Singapore Mathematics Framework

Mathematics Curriculum Framework

Belief, appreciation, confidence, motivation, interest and perseverance

Proficiency in carrying out operations and algorithms, visualising space, handling data and using mathematical tools



Competencies in abstracting and reasoning, representing and communicating, applying and modelling

Understanding of the properties and relationships, operations and algorithms

Metacognition Definition

Think about one's **own** thinking

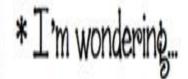
To be critically aware of one's thinking and learning.

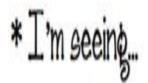
Process

- Monitor one's own thinking and one's existing state of knowledge
- Self-regulate one's learning through goal setting, selfmonitoring and self instruction







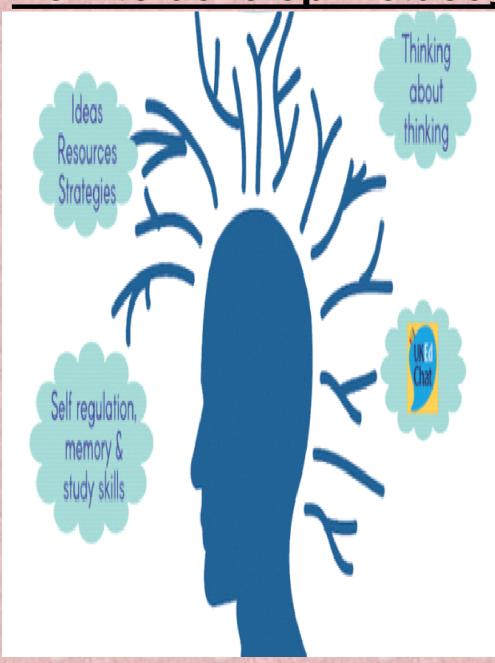


* I'm feeling...

* I'm realizing



How to develop metacognitive awareness



- Exposure to general problem solving skills
- Thinking aloud using the strategies and methods taught
- Attempting problems that require planning and evaluation
- Seeking alternative ways to solve a problem
- Checking reasonableness of answers

Metacognition @ JYPS

JUNYUAN PRIMARY SCHOOL MATHEMATICS



SEE ~ THINK ~ ACT ~ RELOOK

P4



NAME : _____

CLASS: P4 - _____

5 - See (What is given?)

-Think (What is my plan?)

Can I use Model Drawing?

Can I look for a pattern?

Can I work backwards?

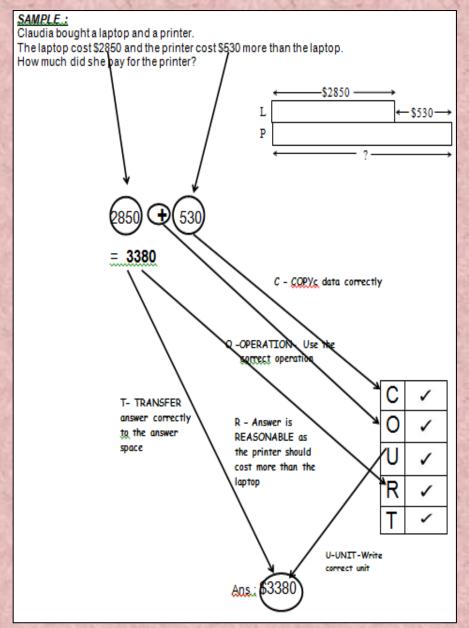
Can I use Guess and Check?

Other heuristic(s) I can use: _____

- Act(What do I need to do?)

- Relook(Reflect and Check)

CHECKING Strategy Using



C-0-U-R-T

C — Copy data correctly

O — Operation sign

U — Unit of measurement

R — Reasonableness of answer

T — Transfer answer correctly

Heuristics Of Problem Solving Model Drawing

- 1. Part-Whole Model
- 2. Comparison Model (2 Variables)
- 3. Comparison Model (3 Variables)
- 4. Unitary Method
- 5. Stacking Model
- 6. Fraction of a Set
- 7. Before and After

Q1: Model Drawing (Part-Whole) – Find Total

Aaron has 452 cards. Benedict has 373 cards. How many cards do they have altogether?

See (What is given?)

Aaron \rightarrow 452

Benedict → 373

Altogether?

Think (What is my plan?)

✓ Can I use Model Drawing?

Can I look for a pattern?

Can I work backwards?

Can I use Guess and Check?

Other heuristic(s) I can use:

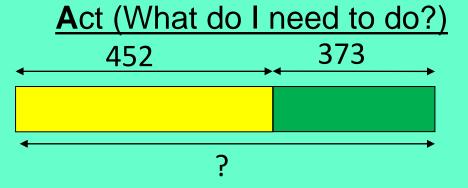
Q1: Model Drawing (Part-Whole) – Find Total

See (What is given?)

Aaron \rightarrow 452

Benedict → 373

Altogether?



<u>Method</u> 452 + 373 = 825

They have 825 cards altogether.

Q1: Model Drawing (Part-Whole) – Find Total

Aaron has 452 cards. Benedict has 373 cards. How many cards do they have altogether?

<u>Act</u>

<u>Method</u>

452 + 373 = 825

Relook (Reflect and Check)



Q2: Model Drawing (Part-Whole) – Find Part

Rachel and Sally have 263 hair clips altogether. Sally has 91 hair clips.
How many hair clips does Rachel have?

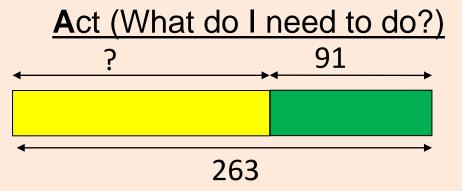
See (What is given?)
Rachel & Sally → 263
Sally → 91
Rachel ?

Think (What is my plan?)

✓ Can I use Model Drawing?
 Can I look for a pattern?
 Can I work backwards?
 Can I use Guess and Check?
 Other heuristic(s) I can use:

Q2: Model Drawing (Part-Whole) – Find Part

See (What is given?)
Rachel & Sally → 263
Sally → 91
Rachel ?



<u>Method</u> 263 – 91 = 172

Rachel has 172 paper clips.

Q2: Model Drawing (Part-Whole) – Find Part

Rachel and Sally have 263 hair clips altogether. Sally has 91 hair clips.

How many hair clips does Rachel have?

Act Method

263 - 91 = 172

Relook (Reflect and Check)



Q3: Model Drawing (Comparison with 2 variables) – Finding Difference

Hotel Pan Pacific Singapore charges \$330 per night. Hotel Amara Singapore charges \$198 per night. How much will Mr Ong save if he decides to stay in Amara Singapore instead of Pan Pacific Singapore for three nights?

See (What is given?)
Pan Pacific → \$330
Amara → \$198
Save?

Think (What is my plan?)

✓ Can I use Model Drawing?
 Can I look for a pattern?
 Can I work backwards?
 Can I use Guess and Check?
 Other heuristic(s) I can use:

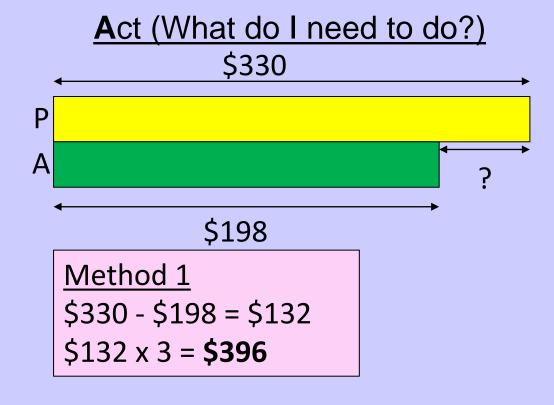
Q3: Model Drawing (Comparison with 2 variables) – Finding Difference

See (What is given?)

Pan Pacific → \$330

Amara \rightarrow \$198

Save?



Mr Ong will save \$396.

Q3: Model Drawing (Comparison with 2 variables) – Finding Difference

Hotel Pan Pacific Singapore charges \$330 per night. Hotel Amara Singapore charges \$198 per night. How much will Mr Ong save if he decides to stay in Amara Singapore instead of Pan Pacific Singapore for three nights?

Act

Method 2

\$330 x 3 = \$990

\$198 x 3 = \$594

\$990 - \$594 = **\$396**

Relook (Reflect and Check)

\$396 + \$594 = \$990

\$594 ÷ 3 = \$198

\$990 ÷ 3 = \$330 ✓ ok

Mr Ong will save \$396.

С	✓	
0	✓	
U	✓	
R	✓	
Т	✓	

Q4: Model Drawing (Comparison with 2 variables – Unequal Distribution)

At a factory, Worker A and Worker B sorted 1886 plastic bottles altogether. Worker B sorted 988 more bottles than Worker A. How many bottles did Worker A sort?

See (What is given?)

 $A + B \rightarrow 1886$

 $B \rightarrow 988$ more than A

Qn: *A*?

Think (What is my plan?)

✓ Can I use Model Drawing?

Can I look for a pattern?

Can I work backwards?

Can I use Guess and Check?

Other heuristic(s) I can use:

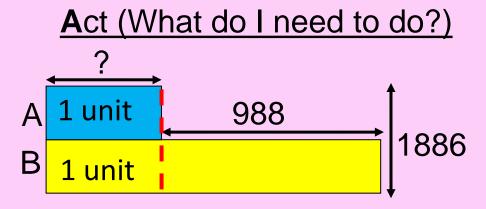
Q4: Model Drawing (Comparison with 2 variables – Unequal Distribution)

See (What is given?)

 $A + B \rightarrow 1886$

 $B \rightarrow 988$ more than A

Qn: *A*?



1886 - 988 = 898
2 units = 898
1 unit = 898
$$\div$$
 2
= **449**

Worker A sorted 449 bottles in the morning.

Q4: Model Drawing (Comparison with 2 variables – Unequal Distribution)

At a factory, Worker A and Worker B sorted 1886 plastic bottles altogether. Worker B sorted 988 more bottles than Worker A. How many bottles did Worker A sort?

Act

1886 - 988 = 898

2 units = 898

1 unit $= 898 \div 2$

= 449

Relook (Reflect and Check)

1 unit = 449

 $2 \text{ units} = 449 \times 2$

= 898

 $898 + 988 = 1886 \checkmark ok$

Worker A sorted <u>449</u> bottles in the morning.

С	✓
0	✓
U	\
R	✓
Т	✓

Q5: Model Drawing (Comparison with 3 variables)

Mr Li saved \$5304 in January. He saved \$1509 more in February than in January. He also saved \$357 more in March than in February. How much did he save in March?

See (What is given?)

 $J \rightarrow 5304

 $F \rightarrow 1509 more than J

 $M \rightarrow 357 more than F

Qn: M saved?

Think (What is my plan?)

✓ Can I use Model Drawing?

Can I look for a pattern?

Can I work backwards?

Can I use Guess and Check?

Other heuristic(s) I can use:

Q5: Model Drawing (Comparison with 3 variables)

See (What is given?)

 $J \rightarrow 5304

 $F \rightarrow 1509 more than J

 $M \rightarrow 357 more than F

Qn: M saved?

Act (What do I need to do?) \$5304 \$1509 F \$357 M \$5304 + \$1509 = \$6813 \$6813 + \$357 = **\$7170**

$$$5304 + $1509 = $6813$$

 $$6813 + $357 = 7170

He saved \$7170 in March.

Q5: Model Drawing (Comparison with 3 variables)

Mr Li saved \$5304 in January. He saved \$1509 more in February than in January. He also saved \$357 more in March than in February. How much did he save in March?

Act

\$5304 + \$1509 = \$6813

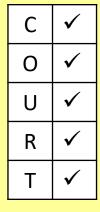
\$6813 + \$357 = **\$7170**

Relook (Reflect and Check)

\$7170 - \$357 = \$6813

\$6813 - \$1509 = \$5304 ✓ok

He saved \$7170 in March.



Q6: Model Drawing (Comparison with 3 variables – *Hidden Part*)

Jimmy paid \$3480 for a <u>laptop</u>, <u>camera and printer</u>. The <u>laptop</u> cost \$450 more than the <u>camera</u>. The <u>camera</u> cost \$300 more than the <u>printer</u>. How much did he pay for the <u>laptop</u>?

See (What is given?)

$$L + C + P \rightarrow $3480$$

$$L \to $450 + C$$

$$C \to $300 + P$$

Qn: Laptop?

Think (What is my plan?)

✓ Can I use Model Drawing?

Can I look for a pattern?

Can I work backwards?

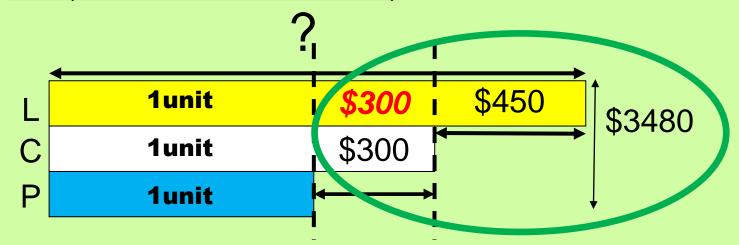
Can I use Guess and Check?

Other heuristic(s) I can use:

Q6: Model Drawing

(Comparison with 3 variables – *Hidden Part*)

Act (What do I need to do?)



$$3u = $2430$$

$$1u = $2430 \div 3 = $810$$

Laptop
$$\rightarrow$$
 \$810 + \$300 + \$450 = **\$1560**

He paid **\$1560** for the laptop.

Q6: Model Drawing (Comparison with 3 variables – *Hidden Part*)

Relook (Reflect and Check)

```
$1560 - $450 = $1110 (A camera)
```

$$$1110 - $300 = $810 (A printer)$$



Q7: Unitary Method (Find Total)

Alex ran 234 m. Roy jogged thrice the distance ran by Alex. What was the total distance run by both Alex and Roy?

See (What is given?)

Alex \rightarrow 234 m

Roy → 3x the distance ran by Alex

Qn: Total distance ran?

Think (What is my plan?)

✓ Can I use Model Drawing?
Can I look for a pattern?

Can I work backwards?

Can I use Guess and Check?

Other heuristic(s) I can use:

Q7: Unitary Method (Find Total)

See (What is given?)

Alex \rightarrow 234 m

Roy → 3x the distance ran by Alex

Qn: Total distance ran?

Method 1

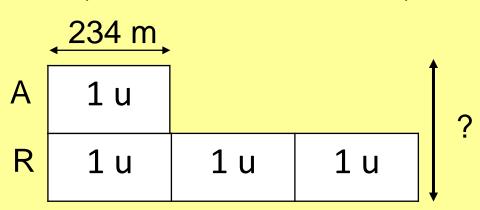
1 u = 234 m

 $3 u = 3 \times 234 m$

= 702 m

234 m + 702 m = 936 m

Act (What do I need to do?)



Method 2

1 u = 234 m

 $4 u = 4 \times 234 m$

= 936 m

They ran <u>936 m</u> altogether.

Q7: Unitary Method (Find Total)

Alex ran 234 m. Roy jogged thrice the distance ran by Alex. What is the total distance ran by both Alex and Roy?

```
Act

Method 1

234 m x 3 = 702 m

234 m + 702 m

= 936 m
```

```
Relook (Reflect and Check)

Total \rightarrow 936 m

Roy \rightarrow936 - 234 = 702m

Alex \rightarrow 702m \div 3

= 234m \checkmark ok
```

They ran <u>936 m</u> altogether.

Q8: Unitary Method

A bookshop sold 212 pencils and pens in a day. The number of pens sold was thrice the number of pencils sold. How many pencils were sold?

See (What is given?)

Pencils and Pens → 212

Pens → 3x as many as Pencils

Qn: ? Pencils were sold

Think (What is my plan?)

✓ Can I use Model Drawing?

Can I look for a pattern?

Can I work backwards?

Can I use Guess and Check?

Other heuristic(s) I can use:

Q8: Unitary Method

See (What is given?)

pencils and pens → 212 pens → 3x as many as pencils

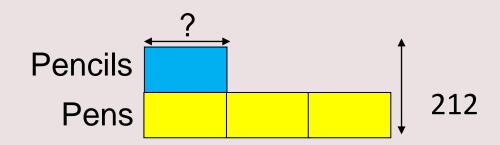
Qn: ? Pencils were sold

Method

$$4 u = 212$$

$$1 u = 212 \div 4$$

Act (What do I need to do?)



53 pencils were sold.

Q8: Unitary Method

A bookshop sold 212 pencils and pens in a day. The <u>number of pens sold</u> was thrice the <u>number of pencils sold</u>. How many <u>pencils were sold</u>?

<u>Act</u>

Method

$$1 u = 212 \div 4$$

Relook (Reflect and Check)

$$1 u = 53$$

$$4 u = 4 \times 53$$

С	✓
0	✓
U	✓
R	✓
Т	✓

Q9: Model Drawing (Stacking Model)

A pair of shoes and 3 bags cost \$60. The pair of shoes cost twice as much as the bag. Find the cost of the pair of shoes.

See (What is given?)

 $1S + 3B \rightarrow 60

 $1S \rightarrow 1B \times 2$

Qn: 1S?

Think (What is my plan?)

Can I use Part-Whole Model Drawing?

Can I use Comparison Model Drawing?

Can I use Stacking method? ✓

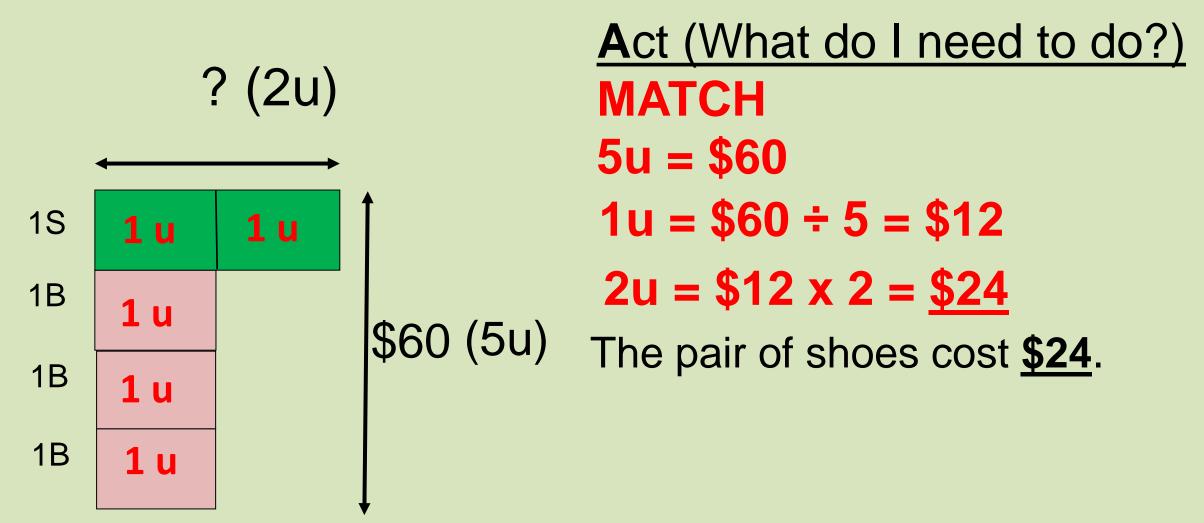
Can I act it out?

Can I use Guess and Check?

Can I use Working Backwards?

Other heuristic(s) I can use:

Q9: Model Drawing (Stacking Model)

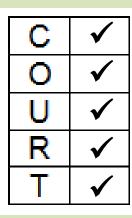


Q9: Model Drawing (Stacking Model)

Relook (Reflect and Check)

$$$24 + $12 + $12 + $12 = $60$$





Q10: Model Drawing (Stacking Model)

Mr Koh paid \$1145 for a dining table and 4 chairs.

The table cost \$270 more than each chair.

What was the cost of each chair?

See (What is given?)

 $1T + 4C \rightarrow 1145

 $1T \rightarrow 1C + 270

Qn: 1C?

Think (What is my plan?)

Can I use Part-Whole Model Drawing?

Can I use Comparison Model Drawing?

Can I use Stacking method? ✓

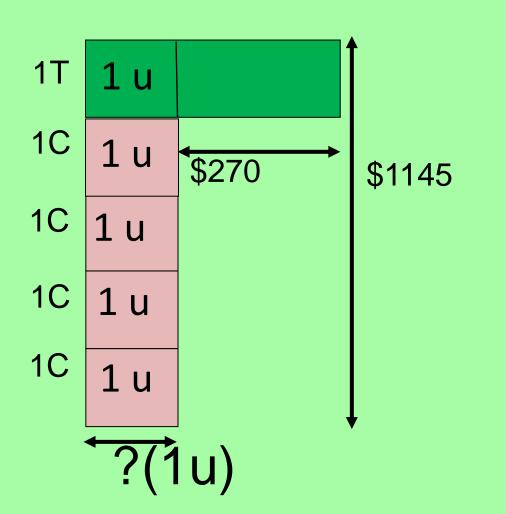
Can I act it out?

Can I use Guess and Check?

Can I use Working Backwards?

Other heuristic(s) I can use:

Q10: Model Drawing (Stacking Model)



Act (What do I need to do?

\$1145 - \$270 = \$875

MATCH

$$5u = $875$$

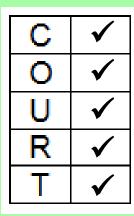
$$1u = \$875 \div 5 = \$175$$

A chair cost **\$175**.

Q10: Model Drawing (Stacking Model)

Relook (Reflect and Check)

Table
$$\rightarrow$$
 \$175 + \$270
= \$445
4 chairs \rightarrow 4 x \$175
= \$700
Total cost \rightarrow \$445 + \$700
= \$1145 ✓ ok



Q11: Model Drawing (Fraction of a Set)

Annie baked 252 cookies $\frac{4}{7}$ of the cookies were chocolate cookies and the <u>rest</u> were <u>butter cookies</u>. How many <u>butter cookies</u> did she bake?

See (What is given?)

Total → 252 cookies

Chocolate $\rightarrow \frac{4}{7}$ of the cookies

Rest → Butter cookies

Qn: Number of butter cookies?

Think (What is my plan?)

Model drawing ✓

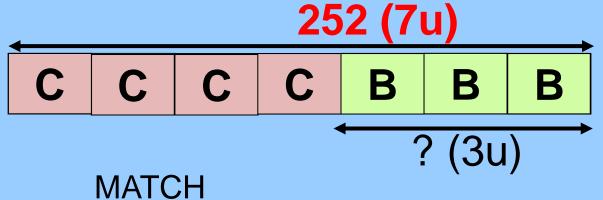
Working backwards

Restate the problem

Stacking Method

Q11: Model Drawing (Fraction of a Set)

Act (What do I need to do?)



7 u = 252

$$1 u = 252 \div 7 = 36$$

$$3 u = 36 \times 3 = 108$$

She baked 108 butter cookies.

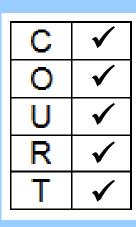
Q11: Model Drawing (Fraction of a Set)

Relook (Reflect and Check)

$$108 \div 3 = 36$$

$$36 \times 7 = 252$$

√ok



Q12: Model Drawing (Fraction of a Set)

Mrs Liz had a birthday party. $\frac{3}{5}$ of the children were girls. There were 36 boys at the party. How many children were there altogether?

See (What is given?)

Girls $\rightarrow \frac{3}{5}$ of the children

Boys \rightarrow 36

Qn: total number of children?

Think (What is my plan?)

Model drawing ✓

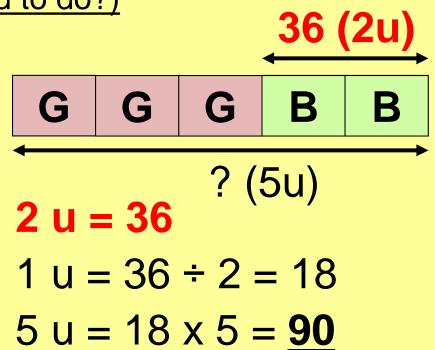
Working backwards

Restate the problem

Stacking Method

Q12: Model Drawing (Fraction of a Set)

Act (What do I need to do?)



There were **90** children altogether.

Q12: Model Drawing (Fraction of a Set)

Relook (Reflect and Check)

$$90 \div 5 = 18$$

$$18 \times 2 = 36$$

√ok



Q13: Model Drawing (Fraction of a Set)

There are men and women in a room $\frac{7}{8}$ of the people were men. There were 72 more men than women. How many people were there in the room altogether?

See (What is given?)

 $M \rightarrow \frac{7}{8}$ of the people

M - W = 72

Qn: total number of children?

Think (What is my plan?)

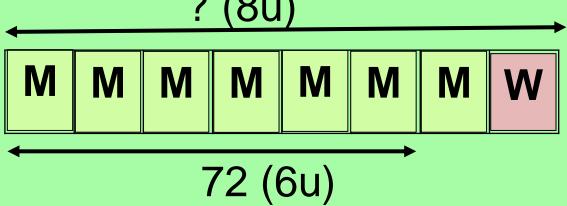
Model drawing ✓

Working backwards

Restate the problem

Stacking Method

Q13: Model Drawing (Fraction of a Set)



Act (What do I need to do?)

$$6 u = 72$$

 $1 u = 72 \div 6 = 12$
 $8 u = 12 \times 8 = 96$

There were **96** people altogether.

Q13: Model Drawing (Fraction of a Set)

Relook (Reflect and Check)

$$96 \div 8 = 12$$
 $12 \times 6 = 72$
✓ ok



Q14: Model Drawing (Before and After) – Make Equal

Samy has 250 erasers and Darryl has 64 erasers. How many erasers must Samy give to Darryl so that both have the same number of erasers?

See (What is given?)

 $S \rightarrow 250$

 $D \rightarrow 64$

S give ? to D so that S = D

Think (What is my plan?)

✓ Can I use Model Drawing?

Can I look for a pattern?

Can I work backwards?

Can I use Guess and Check?

Other heuristic(s) I can use:

Q14: Model Drawing (Before and After) – Make Equal

See (What is given?)

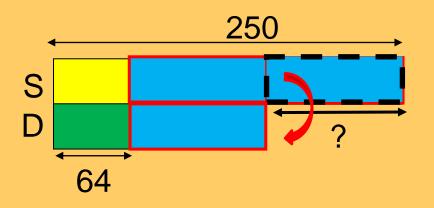
 $S \rightarrow 250$

 $D \rightarrow 64$

S give ? to D so that

$$S = D$$

Act (What do I need to do?)



Samy must give Darryl **93** erasers.

Q14: Model Drawing (Before and After) – Make Equal

Samy has 250 erasers and Darryl has 64 erasers. How many erasers must Samy give to Darryl so that both have the same number of erasers?

Act

$$186 \div 2 = 93$$

Relook (Reflect and Check)

$$250 + 64 = 314$$

$$314 \div 2 = 157$$

$$250 - 93 = 157$$

Samy must give Darryl **93** erasers.

С	✓
0	✓
U	✓
R	√
Т	✓

KooBits

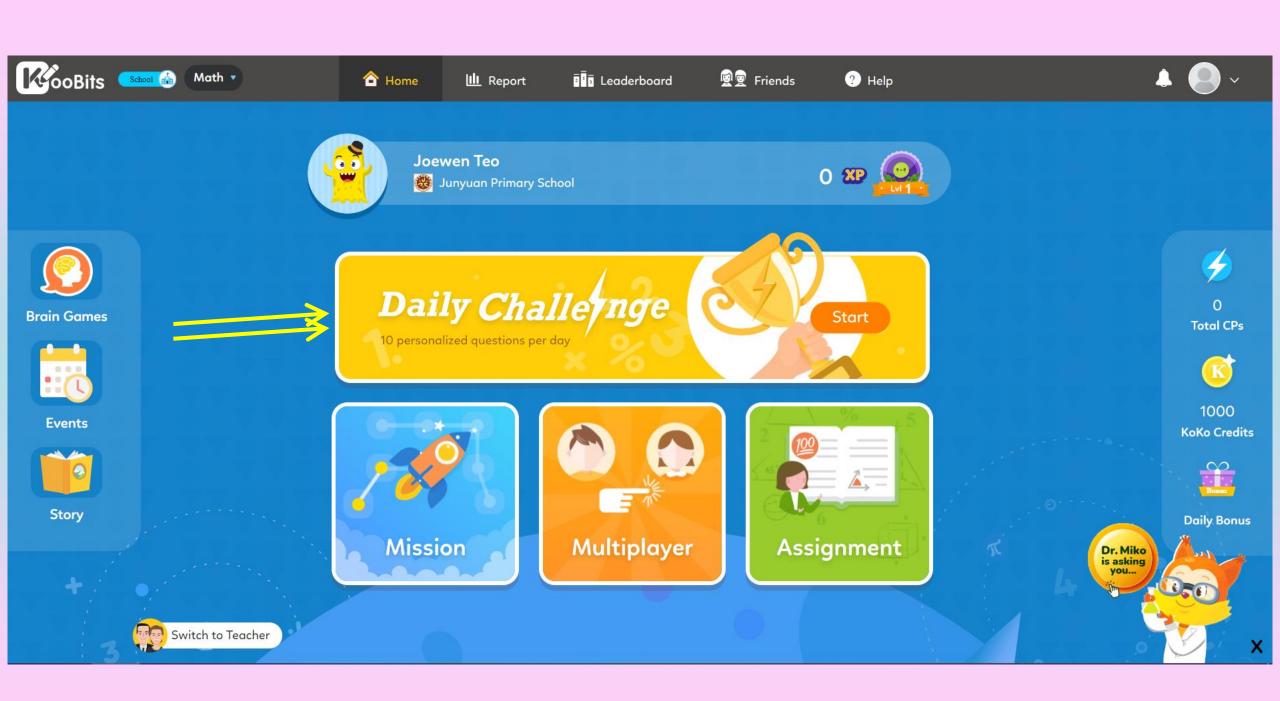
member.koobits.com

Latest CP Submitted

Name	School	Latest CP	Submission Time
Basco, ****	UST Angelicum College	3	10:07, 2023-Mar-29
Papa, L****	Cembo Elementary School	1	10:07, 2023-Mar-29
Ahmed U****	Madrasah Wak Tanjong Al-Islamiah	1 2	10:07, 2023-Mar-29
Berbano****	West Rembo Elementary School	1	10:07, 2023-Mar-29







Daily Challe nge



Daily Challenge - Math

10 personalized questions per day

Opening Hours:

6am to 10pm, Monday to Saturday

Total Qns

Rewards

17 CPs (Full Score)





Super Vision Challenge

Opening Hours:

6am to 10pm, Monday to Saturday

Score of the Week





Start Challenge



Super Speed Challenge

Opening Hours:

6am to 10pm, Monday to Saturday

Score of the Week

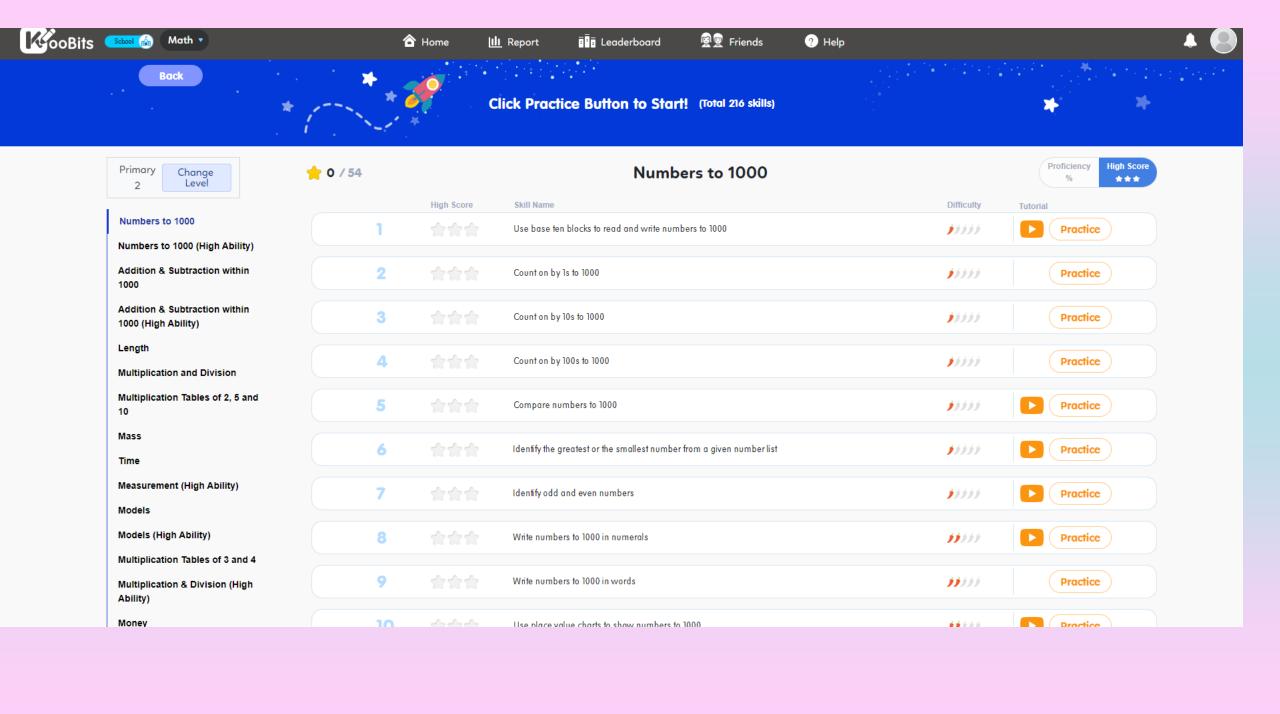


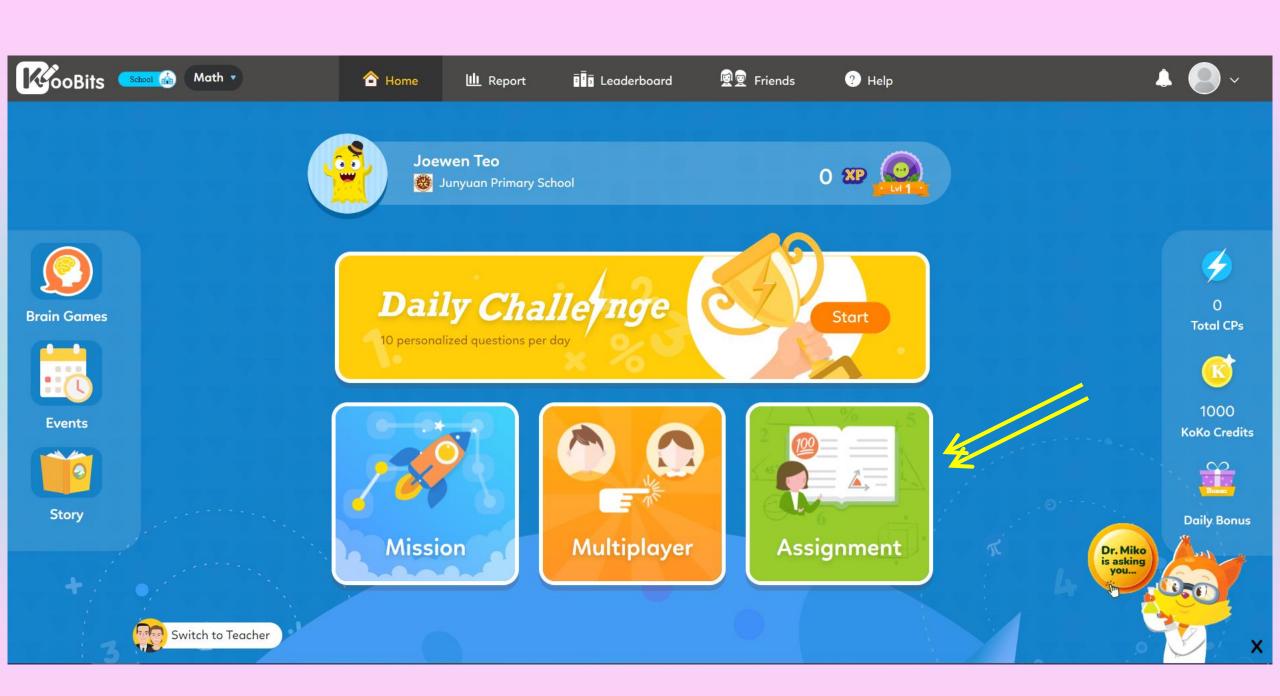
Start Challenge











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