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Thank you for your understanding.





Objectives

- New Math Syllabus approaches
 - New Assessment Format
 - JYPS Mathematical Strategies & Approaches
 - Examples of heuristics used in problem solving
 - KooBits

New Math Syllabus Approaches



- Chapter Opener
- SSM Activities (CPA Approach)
- SLS Lessons
- Learning Tasks & Let's Try
- Maths Around Us
- Thinking Aloud
- Practice Book

Chapter Opener

- Allows students to share their experiences to make connection to the real-world
- Share their prior knowledge for the topic





Sustained Support for Maths Activities

To learn new concepts for the topic



Example:

This activity helps students recall multiplication tables, place value and learn to multiply a number by zero

Use paper plates and cubes to represent 4 plates of 8 apples.

Ask,

"How many plates are there?" (4)

"How many apples are there on each plate?" (8)

"How many apples are there altogether?" (32)

Then, get students to write the equation, $4 \times 8 = 32$.

Remove one cube from each plate. Repeat the questions and get students to write '4 x 7 = 28' Remove another cube from each plate. Repeat until the plates have no more cubes..

Show the equations, $4 \times 6 = 24$, $4 \times 5 = 20$,.... $4 \times 1 = 4$.

Finally, say,

"If all the apples are distributed to the students, there are no apples left. How do we write the equation?" (There are 0 apples on each plate. $0 \times 4 = 0$)



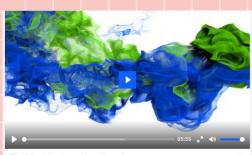
SLS Lesson

SLS lesson is an integral part in the learning of Math concepts. An example of this is the following lesson

on Multiplication.

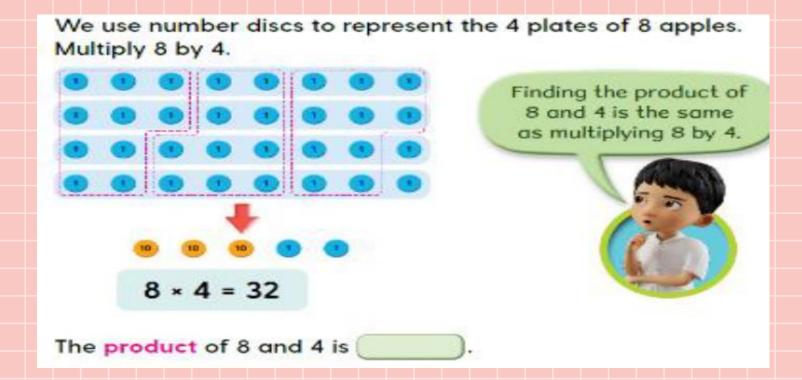
Multiplying Whole Numbers by a One - Digit Whole Number







Learning Task & Let's Try Reinforce new concepts learnt using learning tasks





Learning Task & Let's Try

- Reinforce new concepts learnt using Let's Try
- Worked example and a practice question for each concept

```
Multiply 4 ones by 9.
     4 ones * 9 =
                            ones = 36
     Multiply 3 tens by 9.
(b)
     3 tens * 9 =
                            tens = 270
(c)
     Multiply 7 tens by 8.
                                            tens =
               tens *
     Multiply 2 hundreds by 4.
(d)
                                 hundreds =
     2 hundreds × 4 =
```



Mathematics Around us

Students reinforce their learning by making connections between what was learnt in the classroom to real-world

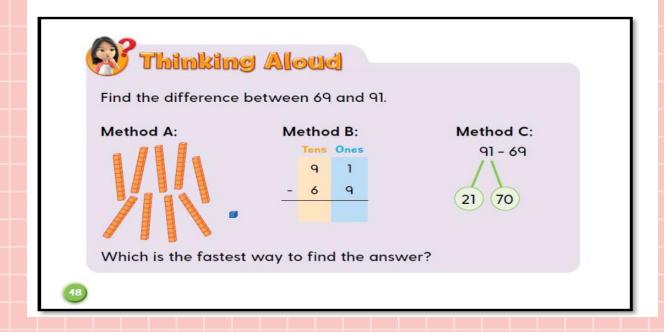
situations.



Thinking Aloud

The 'Thinking Aloud' activity provides opportunities for students to reason, think creatively and critically

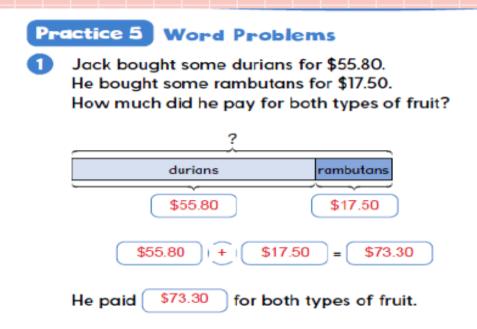




Practice Book

The exercises in the Practice Book helps to reinforce what students have learnt in class.







Assessments

Term	Assessment	No. of Questions	Total Marks	Duration
2	WA1	19	30	50 min
3	WA2	19	30	50 min
4	EYE	35	80	1 h 30 min

JYPS Mathematical Strategies & Approaches

- Factual Fluency
 - LI and SC
 - Visible Thinking Routines
 - Maths Handbook
 - STAR Hpack

Factual Fluency



Maths facts fluency refers to the ability to recall basic mathematical facts in all four operations accurately, quickly and effortlessly.



Factual Fluency

LI and SC

Learning intention (LI) is a statement, created by the teacher, that describes clearly what the teacher wants the students to know and understand. Success Criteria (SC) describe what the students can do as a result of the learning and teaching activities. LI can start with We are learning to (WALT) and SC can start with I can...

Example:

WALT

Add an amount of money in different ways using play money.

I can

- Find the total amount by adding the dollars first.
- Find the total amount by adding the cents first.
- Solve addition problems on money by adding either the dollars first or the cents first.





Visible Thinking Routines

Use of VTR (Visible Thinking Routines) to uncover student's thinking about thinking (Metacognition)

Examples of VTR:

- See-Think-Wonder
- What makes you say that
- Think-Puzzle-Explore

VTR: Think-Puzzle-Explore

Think: "What do you think you know about the question?"

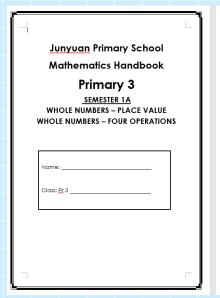
Puzzle: "What puzzles you?"

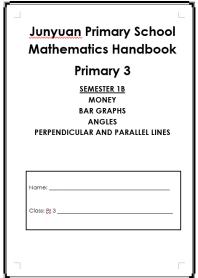
Explore: "What can you do to find out?"

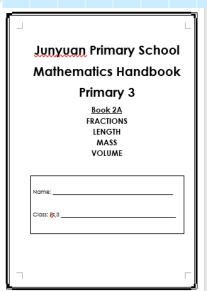
"What are the different ways?"

Maths Handbook

- Summarise important concepts students need to attain in each topic.
- A form of revision

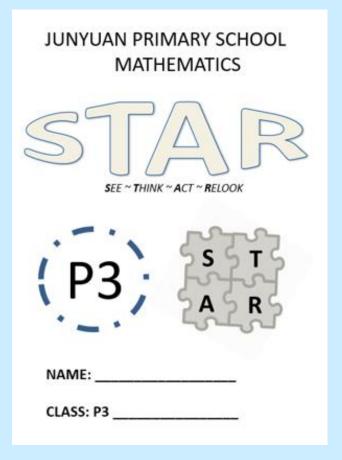






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	Junyuan Primary School
	Mathematics Handbook
	Primary 3
	Book 2B
	AREA & PERIMETER HEURISTICS IN PROBLEM SOLVING <u>TIME</u>
	Name:
	Class: 8, 3
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Problem Solving Approach



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:

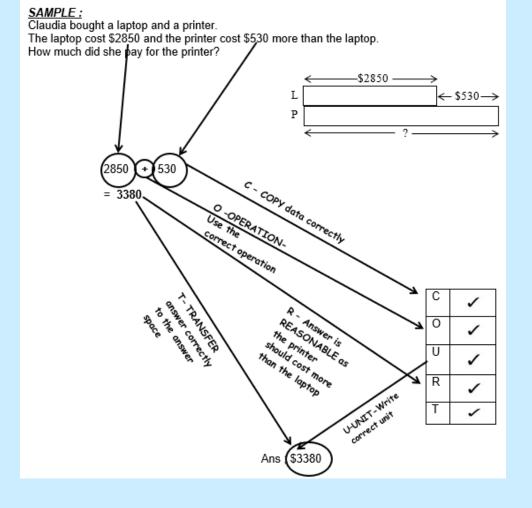
Act(What do I need to do?)

Relook(Reflect and Check)

Checking the working steps

What is COURT?

- **C COPY**: Copy data correctly
- **O OPERATION**: Use the correct operation
- **U UNIT**: Write the correct unit in the answer
- R REASONABLENESS of answer
- T TRANSFER answer correctly onto the answer space





STAR Hpack

No.	Heuristics
1	Model Drawing - Unitary
2	Model Drawing - Sharing
3	Working Backwards
4	Guess and Check



Examples of Heuristics used in problem solving

- 1. Model Drawing Equal Grouping
- 2. Model Drawing Part-Whole
- 3. Model Drawing Comparison
- 4. Model Drawing Unitary Method
- 5. Model Drawing Before and After
- 6. Working Backwards
- 7. Guess and Check

Q1: Model Drawing (Equal Grouping) – Find Group

There are 40 pupils in Class 3C.

Mr Chan divides the class into groups of 8 pupils.

How many groups of pupils are there?

See (What is given?)

Group \rightarrow ? groups

Each → 8 pupils

Total → 40 pupils

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 (Equal Grouping) – Find Group

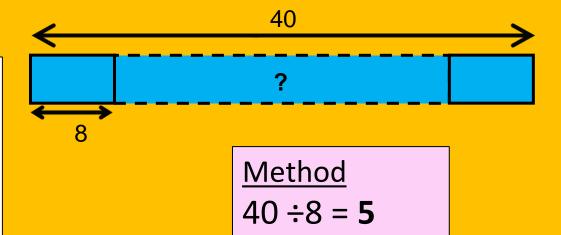
See (What is given?)

Group \rightarrow ? groups

Each → 8 pupils

Total → 40 pupils





There are **5 groups** of pupils.

Q1: Model Drawing (Equal Grouping) – Find Group

There are 40 pupils in Class 3C.

Mr Chan divides the class into groups of 8 pupils.

How many groups of pupils are there?

Act Method

There are **5 groups** of pupils.

Relook (Reflect and Check)

 $5 \times 8 = 40 \checkmark ok$



Q2: 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?

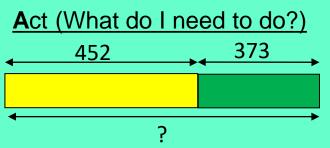
Can I use Guess and Check?

Other heuristic(s) I can use:

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

See (What is given?)

Aaron → 452
Benedict → 373
Altogether?



They have **825** cards altogether.

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

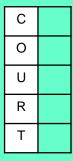
Aaron has 452 cards. Benedict has 373 cards. How many cards do they have altogether?

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

Relook (Reflect and Check)

825 - 373 = 452 **√**ok

They have **825** cards altogether.



Q3: Model Drawing (Comparison) – Find Difference

Hotel Pan Pacific Singapore charges \$330 per night. Hotel Amara Singapore charges \$198 per night. How much will Fed 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) – Find Difference

See (What is given?)

Pan Pacific → \$330 Amara → \$198

Save?

Method 1

Fed will save \$396.



Method 2

Q3: Model Drawing (Comparison) – Find Difference

Hotel Pan Pacific Singapore charges \$330 per night. Hotel Amara Singapore charges \$198 per night. How much will Fes 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

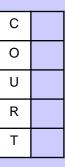
Relook (Reflect and Check)

\$396 + \$594 = \$990

 $$594 \div 3 = 198

\$990 ÷ 3 = \$330 **√**ok

Fes will save **\$396**.



Q4: Model Drawing (Comparison) – Unitary Method

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 → 234 m

Roy → 3x the distance ran
by Alex

Qn: Total distance run?

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) – Unitary Method

See (What is given?)

Alex → 234 m

Roy → 3x the distance ran by Alex

Qn: Total distance run?

Method 1

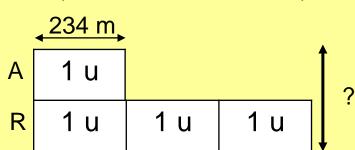
1 u = 234 m

 $3 u = 3 \times 234 m$

= 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.

Q4: Model Drawing (Comparison) – Unitary Method

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

```
Act

Method 1

1 u = 234 m

3 u = 3 x 234 m

= 702 m

234 m + 702 m = 936 m
```

```
Relook (Reflect and Check)

Total → 936 m

Roy → 936 - 234 = 702m

Alex → 702m ÷ 3

= 234m ✓ok
```

They ran **936 m** altogether.



Q5: 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?

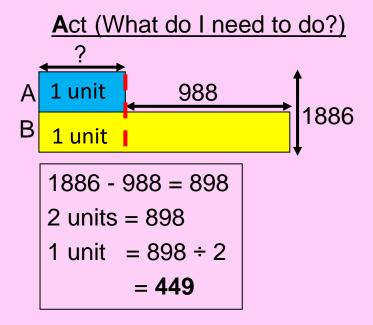
Can I work backwards?

Can I use Guess and Check?

Other heuristic(s) I can use:

Q5: Model Drawing (Comparison with 2 variables – Unequal Distribution)

See (What is given?) A + B → 1886 B → 988 more than A Qn: A?



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

Q5: 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

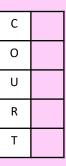
Relook (Reflect and Check)

1 unit = 449

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

$$898 + 988 = 1886 \checkmark ok$$

Worker A sorted **449** bottles in the morning.



Q6: Model Drawing (Comparison) – 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 \rightarrow 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:

Q6: Model Drawing (Comparison) – Unitary Method

See (What is given?)

Pencils and Pens → 212

Pens \rightarrow 3x as many as pencils

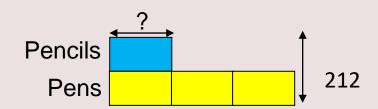
Qn: ? Pencils were sold

Method

$$4 u = 212$$

$$1 u = 212 \div 4$$

Act (What do I need to do?)



53 pencils were sold.

Q6: Model Drawing (Comparison) – 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?

Act

Method

$$4 u = 212$$

$$1 u = 212 \div 4$$

Relook (Reflect and Check)

$$1 u = 53$$

$$4 u = 4 \times 53$$

С	
0	
U	
R	
Т	

53 pencils were sold.

Q7: Model Drawing (Comparison) – Before & After

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:

Q7: Model Drawing (Comparison) – Before & After

See (What is given?)

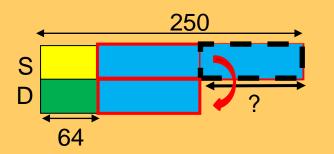
 $S \rightarrow 250$

 $D \rightarrow 64$

S give ? to D so that

$$S = D$$

Act (What do I need to do?)



Samy must give Darryl **93** erasers.

Q7: Model Drawing (Comparison) – Before & After

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

Act

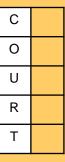
$$186 \div 2 = 93$$

Relook (Reflect and Check)

$$314 \div 2 = 157$$

$$250 - 93 = 157$$

Samy must give Darryl **93** erasers.



Q8: Working Backwards

Mr Lim thought of a number.

He multiplied the number by 5.

Then he subtracted 12 from the answer and arrived at the number 38.

What was the original number?

See (What is given?) (a) is the original number (b) is the next number after multiplying by 5 (a) x 5 = (b) (b) - 12 = 38

Think (What is my plan?)
Can I use Model Drawing?
Can I look for a pattern?
✓ Can I working backwards?
Can I use Guess and Check?
Other heuristic(s) I can use:

Q8: Working Backwards

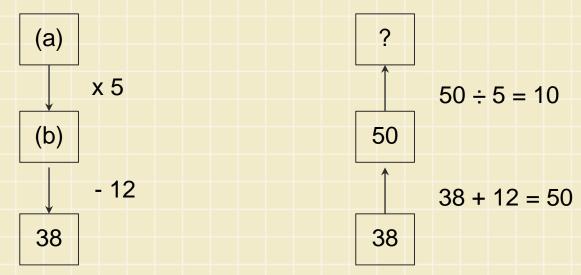
Mr Lim thought of a number.

He multiplied the number by 5.

Then he <u>subtracted</u> 12 from the answer and arrived at the number 38.

What was the original number?

Act (What do I need to do?)



The original number was 10

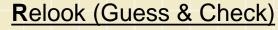
Q8: Working Backwards

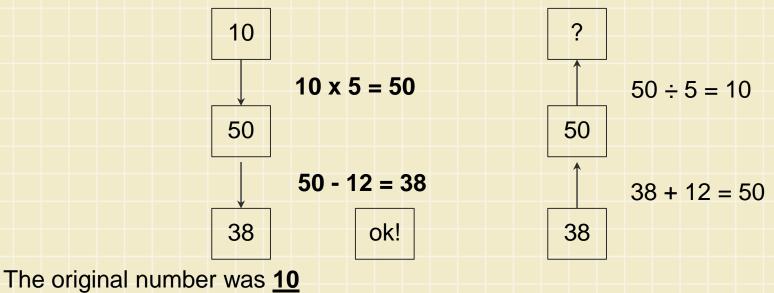
Mr Lim thought of a number.

He multiplied the number by 5.

Then he <u>subtracted</u> 12 from the answer and arrived at the number 38.

What was the original number?





Q9: Guess and Check

Mr Chew had a total of 11 ducks and cows on his farm.

There were 28 legs in all. How many ducks and how many cows did he have?

See (What is given?)
Total number of animals -> 11
Total number of feet -> 28
Ducks -> ?
Cows -> ?

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:

Q9: Guess and Check

Mr Chew had a total of 11 ducks and cows on his farm.

There were 28 legs in all. How many <u>ducks</u> and how many <u>cows</u> did he have?

Act (What do I need to do?)

	Total	Total number	Total	Total number	Total number of	Check
	number	of feet	number	of feet	feet	
	of	(2 feet each)	of cows	(4 feet each)		
	ducks					
	5	5 x 2 = 10	6	6 x 4 = 24	10 + 24 = 34	Х
	6	6 x 2 = 12	5	5 x 4 = 20	12 + 20 = 32	Х
Г	7	7 x 2 = 14	4	4 x 4 = 16	14 + 16 = 30	Х
	8	8 x 2 = 16	3	3 x 4 = 12	16 + 12 = 28	✓

There are **8 ducks** and **3 cows** in the farm

Q9: Guess and Check

Mr Chew had a total of 11 ducks and cows on his farm.

There were 28 legs in all. How many <u>ducks</u> and how many <u>cows</u> did he have?

Tot	al T	otal number	Total	Total number	Total number of	Check	
num	ber	of feet	number	of feet	feet		
0	f (2 feet each)	of cows	(4 feet each)			
duc	ks						
5		5 x 2 = 10	6	6 x 4 = 24	10 + 24 = 34	х	
6		6 x 2 = 12	5	5 x 4 = 20	12 + 20 = 32	х	
7		7 x 2 = 14	4	4 x 4 = 16	14 + 16 = 30	х	
8	_	8 x 2 = 16	3 3	3 x 4 = 12	16 + 12 = 28	√	
Relook (Guess & Check)							
1 110	Γ			Che	eck:	0	
		Check:				U	
		Total →11 (✓o	k)	Tot	cal feet → 28 (✓ok)	R	
Ther	e are 8	ducks and 3	cows in the	farm		т т	

KooBits

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Latest CP Submitted

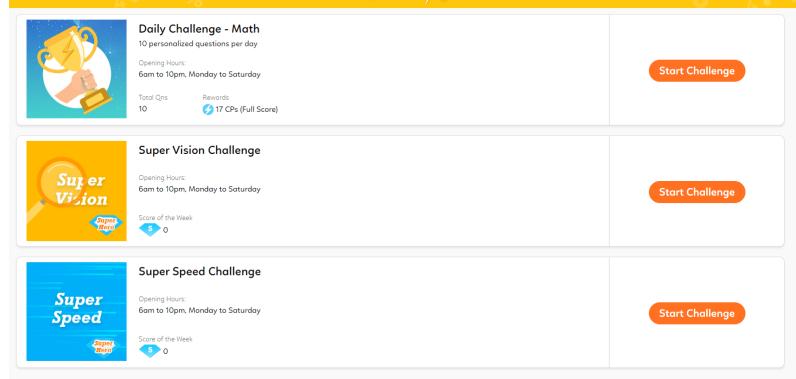
Name	School	Latest CP	Submission Time
Basco, *****	UST Angelicum College	3	10:07, 2023-Mar-29
Papa, L****	Cembo Elementary School	1	10:07, 2023-Mar-29
Ahmed U****	Madrasah Wak Tanjong Al-Islamiah	2	10:07, 2023-Mar-29
Berbano****	West Rembo Elementary School	1	10:07, 2023-Mar-29
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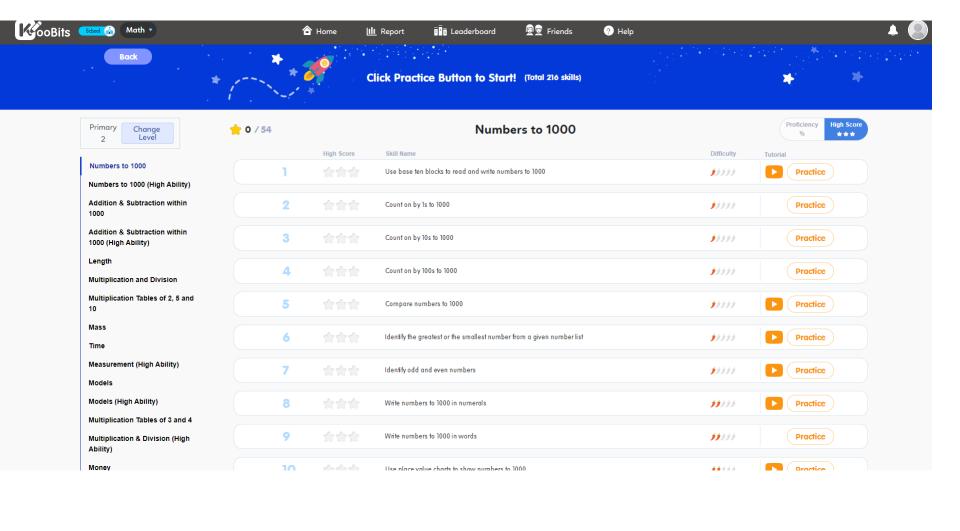
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Latest CP Submitted

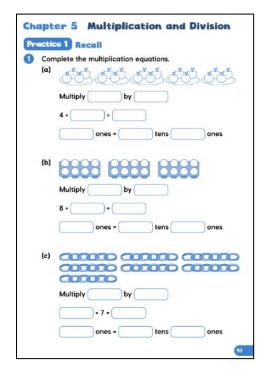
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Ahmed U****	Madrasah Wak Tanjong Al-Islamiah	2	10:07, 2023-Mar-29	
Berbano****	West Rembo Elementary School	1	10:07, 2023-Mar-29	





Support from parents

1) Help to ensure your child completes his/her homework, corrections, SLS assignments and Koobits assignments.



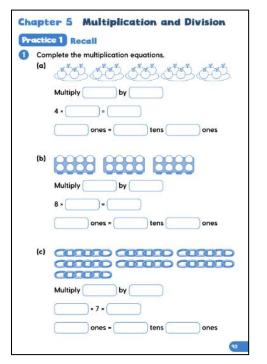


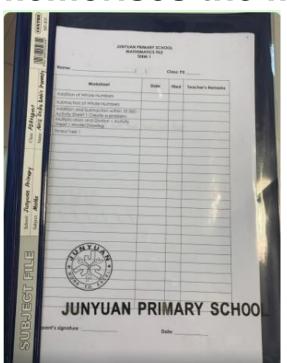




Support from parents

- 2) Sign his/her blue file and practice book.
- 3) Ensure he/she memorises the multiplication tables





1 – 10 Times Tables Chart					
1 X	2 X	3 X	4 X	5 X	
1 × 1 - 1 1 × 2 - 2	2×1-2 2×2-4	3 x 1 - 3 3 x 2 - 6	4 x 1 = 4 4 x 2 = 8	5 x 1 = 5 5 x 2 = 10	
1×3-3	2x3-6	3 x 3 - 9	4 × 3 = 12	5 x 3 - 15	
1 x 4 = 4 1 x 5 = 5	2 x 4 = 8 2 x 5 = 10	5×4=12 5×5=15	4 × 4 = 16 4 × 5 = 20	5 x 4 = 20 5 x 5 = 25	
1x6-6 1x7-7	2 × 6 - 12 2 × 7 - 14	3×6-18 3×7-21	4×6 - 24 4×7 - 28	5x6-30 5x7-35	
1 x 8 = 8 1 x 9 = 9	2 x 8 = 16 2 x 9 = 18	3 x8 = 24 3 x9 = 27	4×8×32 4×9×36	5 x 8 = 40 5 x 9 = 45	
$1\times 10=10$	2 x 10 = 20	3 x 10 = 50	4 x 10 = 40	5 x 10 = 50	
1 x 11 = 11 1 x 12 = 12	2 × 11 = 22 2 × 12 = 24	3 x 11 = 33 3 x 12 = 36	4 x 11 = 44 4 x 12 = 48	5 x 11 = 55 5 x 12 = 60	
6 X	7 X	8 X	9 X	10 X	
6 × 1 = 6	7 x 1 = 7	8×1-8	9×1-9	10 x 1 = 10	
6 x 2 + 12 6 x 3 + 18	7 x 2 + 34 7 x 3 + 21	3 x 2 = 16 3 x 3 = 24	9 x 2 - 18 9 x 3 - 27	10 × 2 = 20 10 × 3 = 30	
6 x 4 + 34	7 x 4 = 28	8.64 - 12	9 64 - 16	50 × 4 = 40	
6 x 5 = 30 6 x 6 = 36	7 x 5 = 35 7 x 6 = 42	8 x 5 - 40 8 x 6 - 46	9 x 5 = 45 9 x 6 = 54	10 × 5 = 50 10 × 6 = 60	
6 x 7 = 42	7 x 7 = 49	8 x 7 = 56	9 x 7 = 63	10×7 = 70	
6 x 8 + 48	7 x 8 = 54	8 x 8 - 64	9 x 8 - 72	10 × 8 = 80	
6 x 9 = 54	7 x 9 = 63	3 19 - 72	9 x 9 = 81.	$10 \times 9 = 90$	
6 × 1.0 - 60	7 × 10 - 70	8 x 10 - 80	9 x 10 - 90	10 × 10 - 100	
6 × 11 = 66 6 × 12 = 72	7 × 11 = 77 7 × 12 = 84	8 × 11 - 88 8 × 12 - 96	9 x 11 - 99 9 x 12 - 108	10 x 11 - 110 10 x 12 - 120	

Support from parents

4) Revise regularly with your child using TB especially the 'What Have I Learnt?' section and the Maths Handbook.

