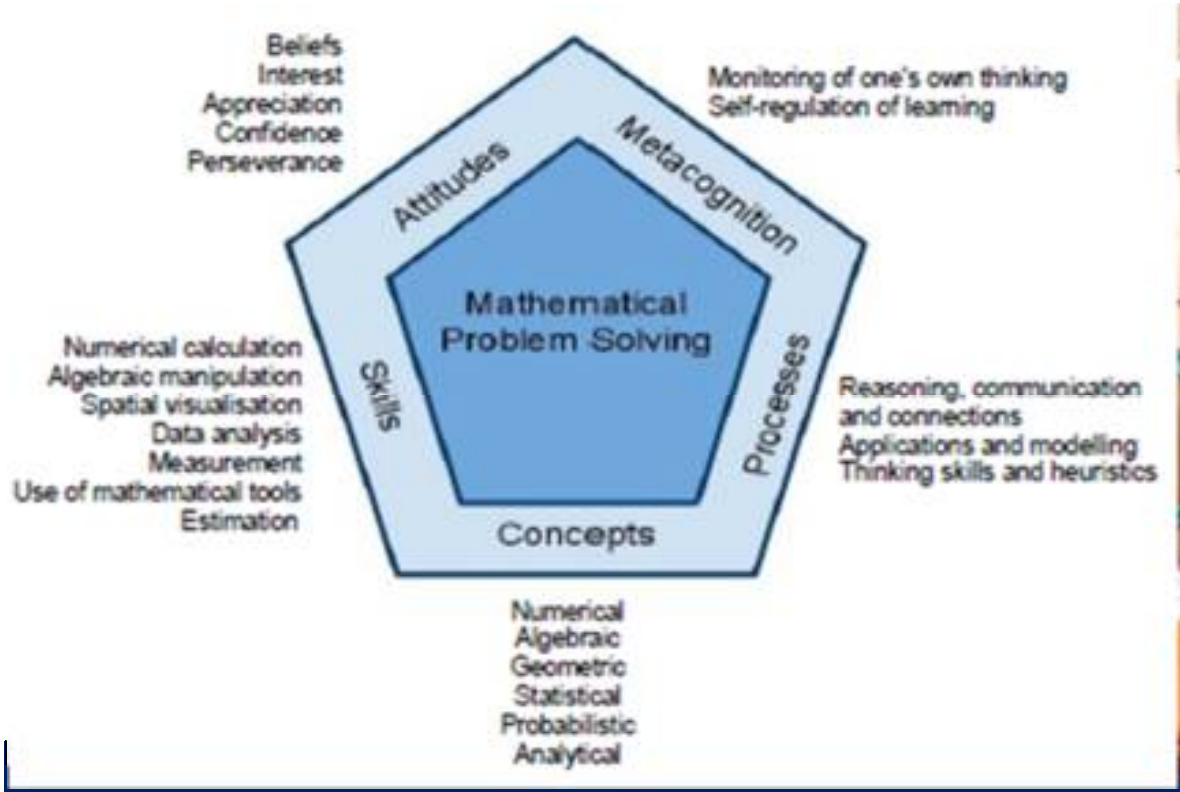
MATHEMATICS

RESPECT **TEAMWORK**

RESPONSIBILTY **LIFELONG LEARNING**



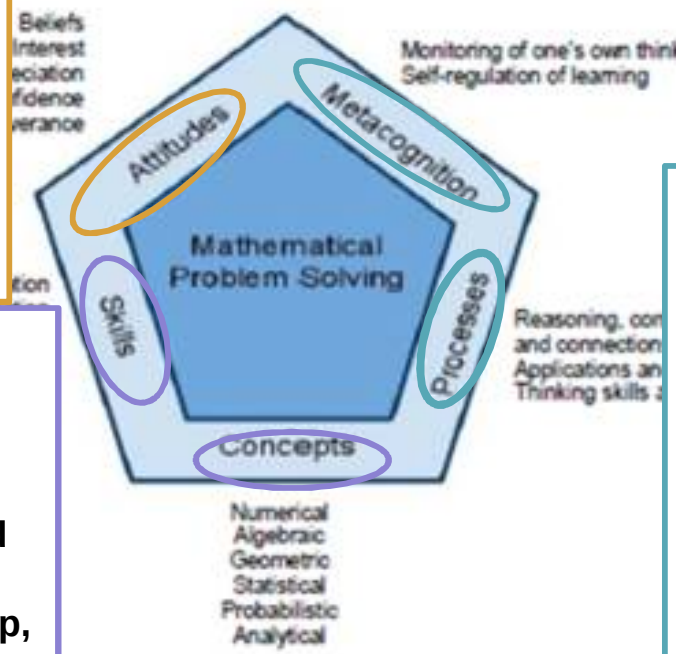
The Mathematics Framework

Attitudes

- Learning attitudes (interest, confidence and perseverance) towards the learning of mathematics
- E.g., Math Booster, Math Awareness

Concepts and Skills

- Learning experiences to develop deep understanding of mathematical concepts, and opportunities to use and practise skills acquired
- E.g., Math Trail, Learning Trip, Topical Revisions



Processes and Metacognition

- Learning opportunities to acquire and apply mathematical knowledge
- E.g., Reasoning and Communication package, Whiz In Math package

Teaching and Learning In BPPS

Content	P3	P4
Whole Numbers	Numbers up to 10 000	Numbers up to 100 000
	Four Operations	Four Operations
	Solving up to 2-step word problems involving the 4 operations	Solving up to 3-step word problems involving the 4 operations
		Factors & Multiples

P4 Mathematics Content

Content	P3	P4
Fractions	Equivalent Fractions	Mixed Numbers & Improper Fractions
	Addition & Subtraction of 2 related fractions within 1 whole	Addition & Subtraction of fractions with denominators not exceeding 12
		Solving up to 2-step word problems involving addition and subtraction
		Fraction of a set, Fraction as part of a set

P4 Mathematics Content

Content	P3	P4
Decimals	Adding & Subtracting money in decimal notation	Decimals up to 3 decimal places • Notation, representations and place value • Comparing and ordering • Dividing a whole number by a whole number with quotient as a decimal • Converting decimals to fraction n vice versa • Rounding decimals
	Solving word problems involving addition and subtraction of money in decimal notation	Four Operations
		Solving 3-step word problem involving the 4 operations

P4 Mathematics Content

Content	P3	P4
Measurement & Geometry	Angles • right angles, angles greater than/smaller than a right angle	Angles • Using notation to name angles • Measuring angles • Drawing angles of a given size. • 8-point compass
	Perpendicular and Parallel Lines	
	Area and Perimeter • Concept of area & perimeter • Measuring area in square units • Perimeter of rectangles, squares and rectilinear figure • Area of rectangles/squares	Area and Perimeter • Find one dimension of a rectangle given the other dimension and its area/perimeter • Find the length of one side of a square given its area/perimeter • Find the area of figures made up of rectangles and squares

P4 Mathematics Content

Content	P3	P4
Time	Measuring time in hours and minutes	Measuring time in seconds 24-hour clock
	Finding the start/ end time or duration given the other two quantities	Solving word problem involving time in 24-hour clock
	Solving word problem involving time in hours and minutes	
Data Representation & Interpretation	Bar Graph	Tables and Line Graphs

P4 Mathematics Content

New	Content
Introduced in P4	Decimals
	Line Symmetry
	Rectangles and Squares
	Tables and Line Graphs

P4 Mathematics Content

Format of P4 Math Paper

P4 CA1 & CA2

Booklet	Item Type	Number of Questions	Number of Marks per Question	Weighting
A	Multiple-choice (MCQ)	8	2	16
	Short-answer (SAQ)	8	2	16
B	Structured/ Long-answer	5	3, 4	18
TOTAL		21	-	50

Duration of paper: 1 h

P4 SA1 & SA2

Booklet	Item Type	Number of Questions	Number of Marks per Question	Weighting
A	Multiple-choice (MCQ)	16	2	32
	Short-answer (SAQ)	17	2	34
B	Structured/ Long-answer	10	3, 4	34
TOTAL		43	-	100

Duration of paper: 1 h 45 min

TERM 1	TERM 2	TERM 3	TERM 4
Non-weighted Performance Task Whiz in Math (WIM) Revision T1: 1 Strategies covered in WIM T1: 1 & 2 Rubrics 30 min **Weighted** CA1 50 marks (10%) 1 h Chapter 1 to 5* (Chapter 5 tested up to Lesson 2 only)	**Non-weighted** Performance Task Chapter 5, 6 & 7 Rubrics 30 min **Weighted** SA1 Chapter 1 to 9 100 marks (20%) 1 h 45 min	**Non-weighted** Performance Task Chapter 10 & 11 Rubrics 30 min **Weighted** CA2 50 marks (10%) 1 h Chapter 1 to 12	**Weighted** SA2 100 marks (60%) 1 h 45 min Chapter 1 to 15

P4 Assessment Plan

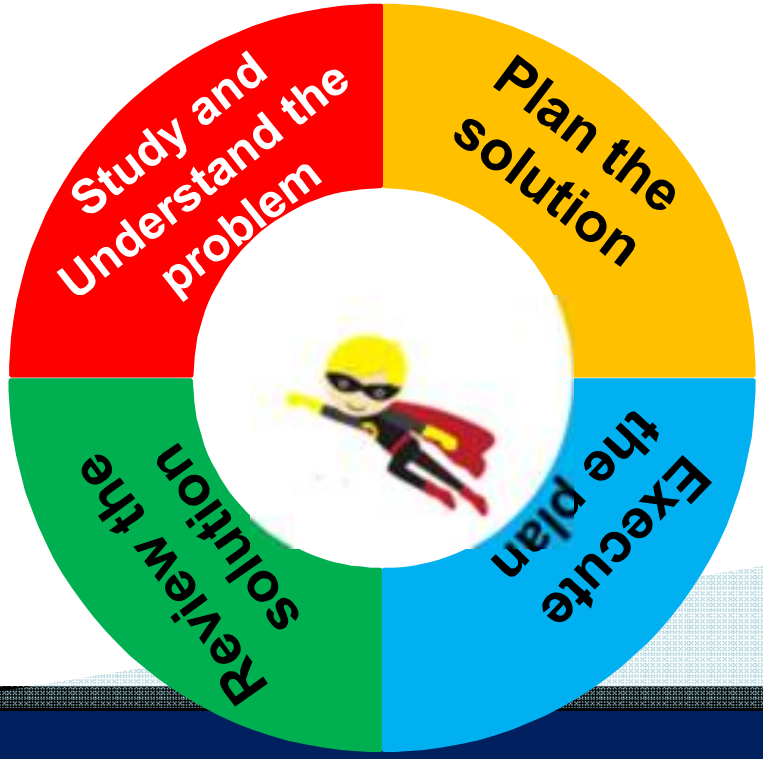
- **Problem Solving Process**
- **Problem Solving Approach**
- **Assessing Problem Solving**

Whiz In Math (WIM)

Problem Solving Process: SUPER

- What is the problem asking you to do?
- What are we trying to find out?
- Can we restate the problem in our own words?

- What do we know?
- What do we need to do to solve the problem?
- Do we need more information?
- Is there a hidden question?
- What strategies are useful?



- Compare with the original question.
- Does it make sense?
- Should we revise our plan to meet all the conditions?

- Carry out the plan.
- Apply mathematical skills, concepts and strategies.

- **Establish goals and purpose**
- **Models**
- **Think aloud**

I DO → **WE DO** → **YOU DO**

- **Checks, prompts, clues**
- **Provides additional modelling**

- **Clarifies confusion**
- **Provide support**

Problem Solving Approach

- ✓ Approach & Reasoning
- ✓ Solution
- ✓ Overall Presentation

Assessing Problem Solving

BUKIT PANJANG PRIMARY SCHOOL
P4 WHIZ IN MATHEMATICS (WIM) 2015
PROBLEM SOLVING RUBRIC

Name: _____ ( ) Class: P4 ( )

Date: _____ Group: _____

Approach and Reasoning
- strategies and skills used to solve the problem
- reasoning that support the approach

Level 1	Level 2	Level 3	Level 4
My method cannot work.	My method can be used • but it can solve only part of the problem. or • but there are some mistakes in my reasoning.	My method can be used to solve the whole problem.	My method works and • I use another method to show that my answer is correct. or • I prove it through explanation or application to other cases.

Solution
- answer(s) to the question(s) asked in the task
- mathematical work that supports the answer(s)

Level 1	Level 2	Level 3	Level 4
My working • is not shown. or • is wrong.	My working is correct for only part of the problem.	My working is correct but I make some careless mistakes.	My working and answer are correct.

Overall Presentation
- appropriate and accurate mathematical language and representation used
- appropriate and accurate documentation of how the problem was solved and the reasoning used

Level 1	Level 2	Level 3	Level 4
My presentation • is incorrect. or • does not show how the problem is solved.	My presentation is correct but • some serious mistakes are made. or • it is not complete.	My presentation is correct and complete but • some minor mistakes are made. or • some parts are not clear. or • it is not systematic.	My presentation is correct, complete, clear and systematic.

Approach and Reasoning

- **strategies and skills used to solve the problem**
- **reasoning that support the approach**

Level 1	Level 2	Level 3	Level 4
My method cannot work.	My method can be used • but it can solve only part of the problem. or • but there are some mistakes in my reasoning.	My method can be used to solve the whole problem.	My method works and • I use another method to show that my answer is correct. or • I prove it through explanation or application to other cases.

Assessing Problem Solving

Solution

- **answer to the question(s) asked in the task**
- **mathematical work that supports the answer(s)**

Level 1	Level 2	Level 3	Level 4
My working is not shown / is wrong.	My working is correct for only part of the problem.	My working is correct but I make some careless mistakes.	My working and answer are correct.

Assessing Problem Solving

Overall Presentation

- **appropriate and accurate mathematical language and representation used**
- **appropriate and accurate documentation of how the problem was solved and the reasoning used**

Level 1	Level 2	Level 3	Level 4
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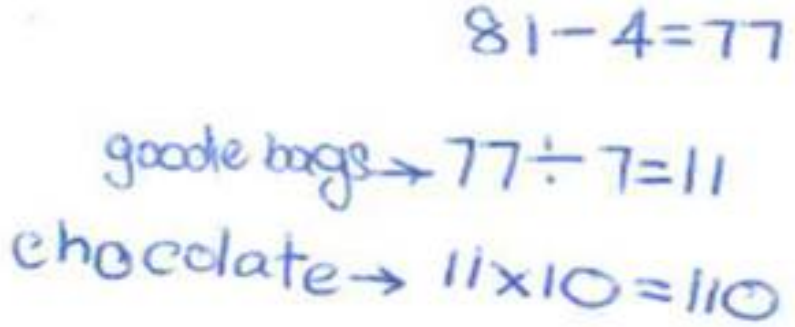
Assessing Problem Solving

Question:

Jimmy had some chocolates and 81 sweets. He packed 10 chocolates and 7 sweets into each goodie bag. He had 4 sweets left after packing the sweets into the goodie bags. If there were no chocolates left, how many chocolates did Jimmy have?

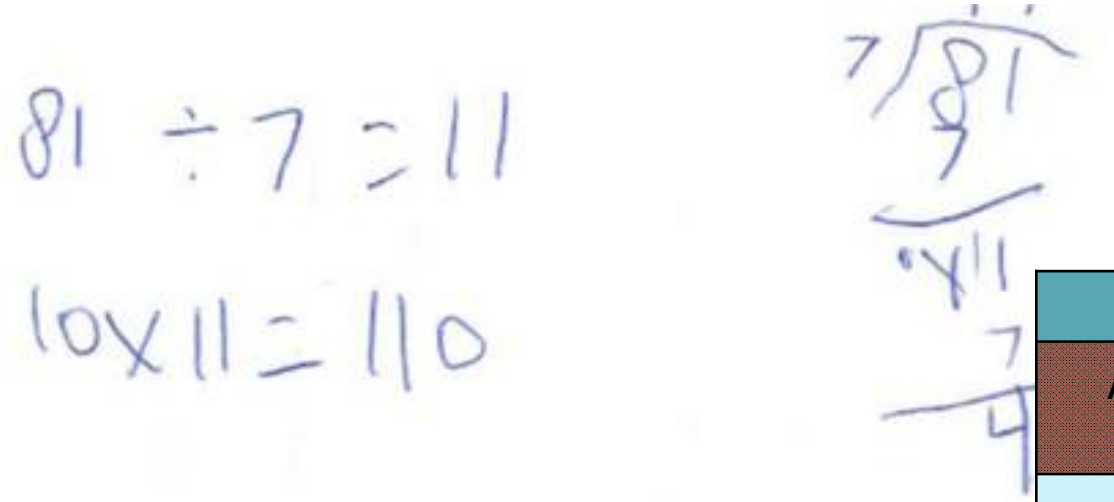
Samples of WIM Questions

Jimmy had some chocolates and 81 sweets. He packed 10 chocolates and 7 sweets into each goodie bag. He had 4 sweets left after packing the sweets into the goodie bags. If there were no chocolates left, how many chocolates did Jimmy have?



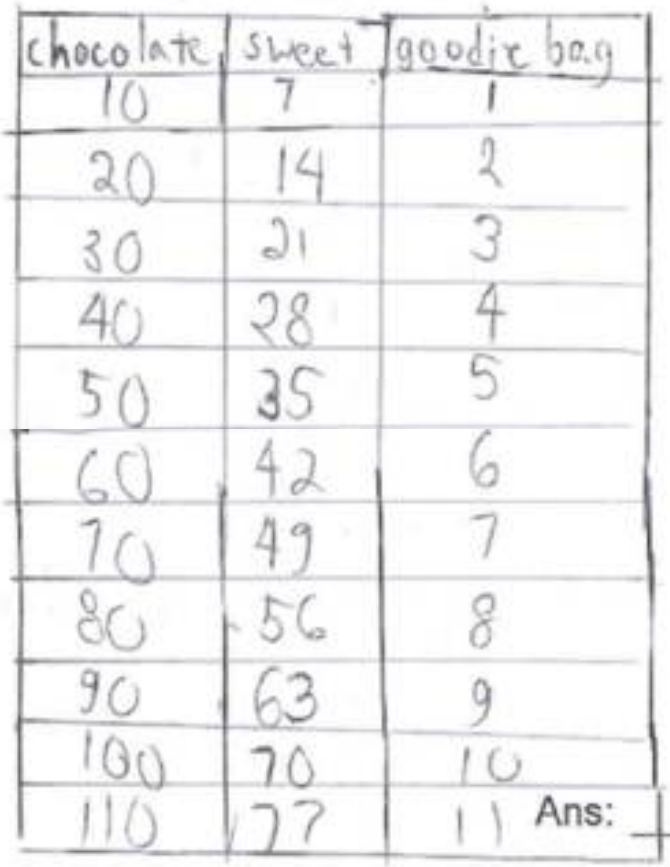
	L1	L2	L3	L4
Approach & Reasoning				
Solution				
Overall presentation				

Samples of Students' Work



	L1	L2	L3	L4
Approach & Reasoning				
Solution				
Overall presentation				

Samples of Students' Work



chocolate	sweet	goodie bag
10	7	1
20	14	2
30	21	3
40	28	4
50	35	5
60	42	6
70	49	7
80	56	8
90	63	9
100	70	10
110	77	11

Ans: 110

$10 \times 11 = 110$

	L1	L2	L3	L4
Approach & Reasoning				
Solution				
Overall presentation				

Samples of Students' Work

On-going formative assessment strategies used in class :

- clarifying, sharing & understanding learning objectives

Formative Assessment

On-going formative assessment used in class :

- classroom discussion, activities and tasks that elicit evidence of learning

Formative Assessment

On-going formative assessment strategies used in class :

- providing feedback that moves learning forward

Formative Assessment

On-going formative assessment strategies used in class :

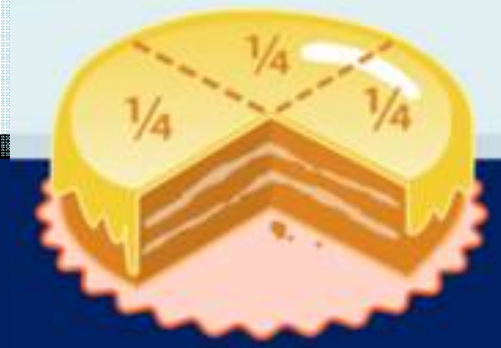
- activating learners as the owners of their own learning

Formative Assessment

Some tips for parents

- Talk positively about Maths so your child also values it.
- Play games with your child, e.g. Monopoly, to show them that Maths can be fun.
- Ask your child how they solve Maths problems, it helps build their knowledge and boosts their confidence.

- Encourage your child to explore alternative ways to solve a problem.
- Point out the uses of math in everyday life with your child whenever you can.
- Talk to the teacher if your child needs more help in the learning of math.



Some tips for parents

Pre-requisite to learning topics in P4:

- ✓ Numbers up to 10 000
- ✓ Multiplication & Division within Multiplication Tables of 6, 7, 8 and 9
- ✓ Fractions - Equivalent Fractions, Addition & Subtraction of 2 related fractions
- ✓ Money – Adding & Subtracting money in decimal notation

Partnership with Parents

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RESPECT **TEAMWORK**

RESPONSIBILTY **LIFELONG LEARNING**