



**MERIDIAN
PRIMARY SCHOOL**



Nurturing Future Learners, Future Citizens, Future Leaders

11 February 2023

Primary 5 and 6 Mathematics Curriculum Sharing

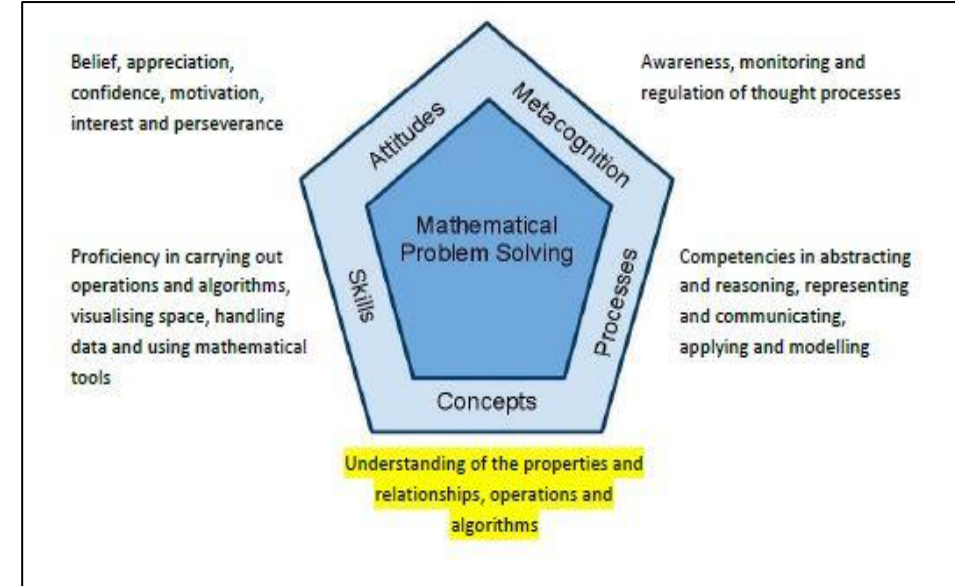
Building Strong Foundation in Numeracy

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HOD Mathematics

Resilience · Responsibility · Care · Respect · Integrity · Teamwork ·

Broad Aims of Primary Mathematics Education

- Acquire mathematical concepts and skills for everyday use and continuous learning in mathematics
- Develop thinking, reasoning, communication, application and metacognitive skills through a mathematical approach to problem-solving
- Build confidence and foster interest in mathematics



Singapore Mathematics Framework, 2021

Importance of Learning Mathematics

- Mathematics contributes to the development and understanding in many disciplines and provides the foundation for many of today's innovations and tomorrow's solutions.
- ... underpins many aspects of our everyday activities, from making sense of information around us to making informed decisions about personal finances.

-Singapore Mathematics Teaching and Learning Syllabus 2021



MPS Mathematics Department

Vision

Enjoy, appreciate Mathematics and use it in everyday life.

Mission: 3R Approach

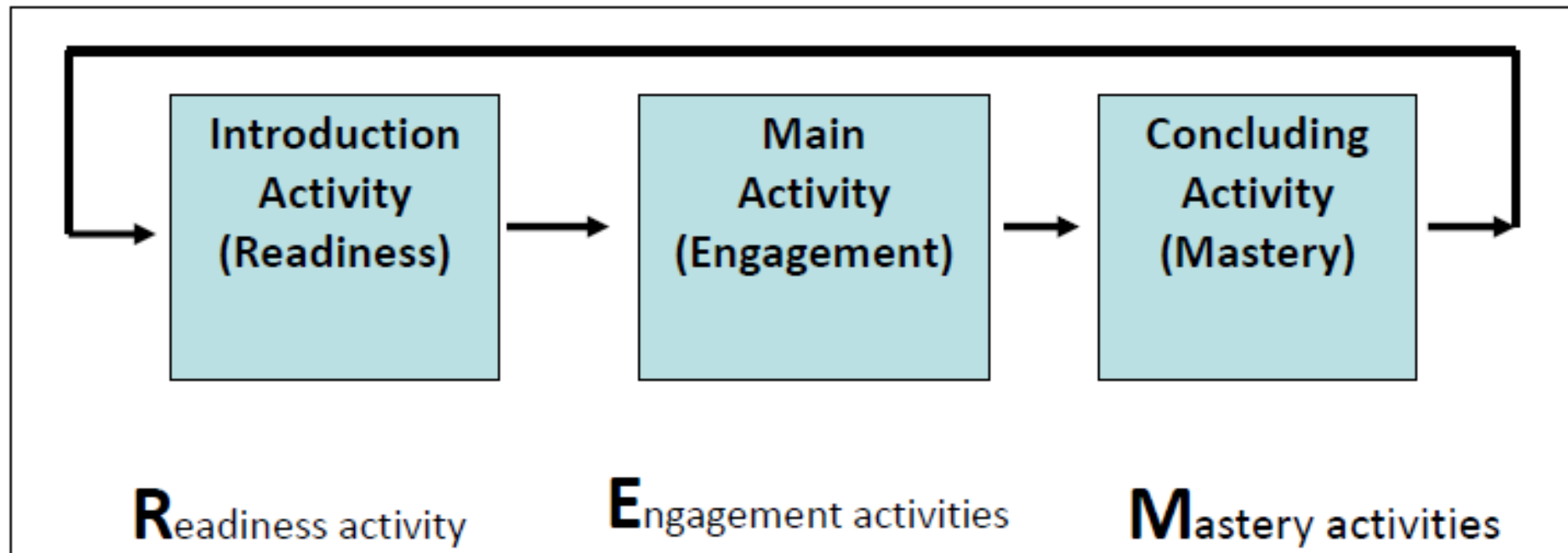
Rigorous – A spiral and coherent curriculum with progression in learning objectives.

Responsive – Differentiated approaches to respond to the diverse needs of learners.

Relevant – Motivating context for pupils to learn and see connections of math in their daily lives and real world situations.

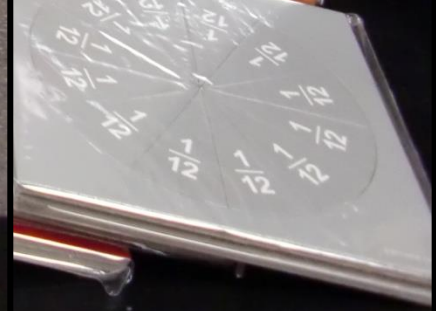
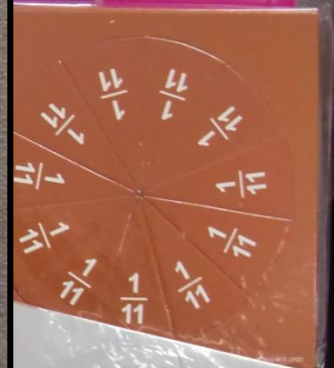
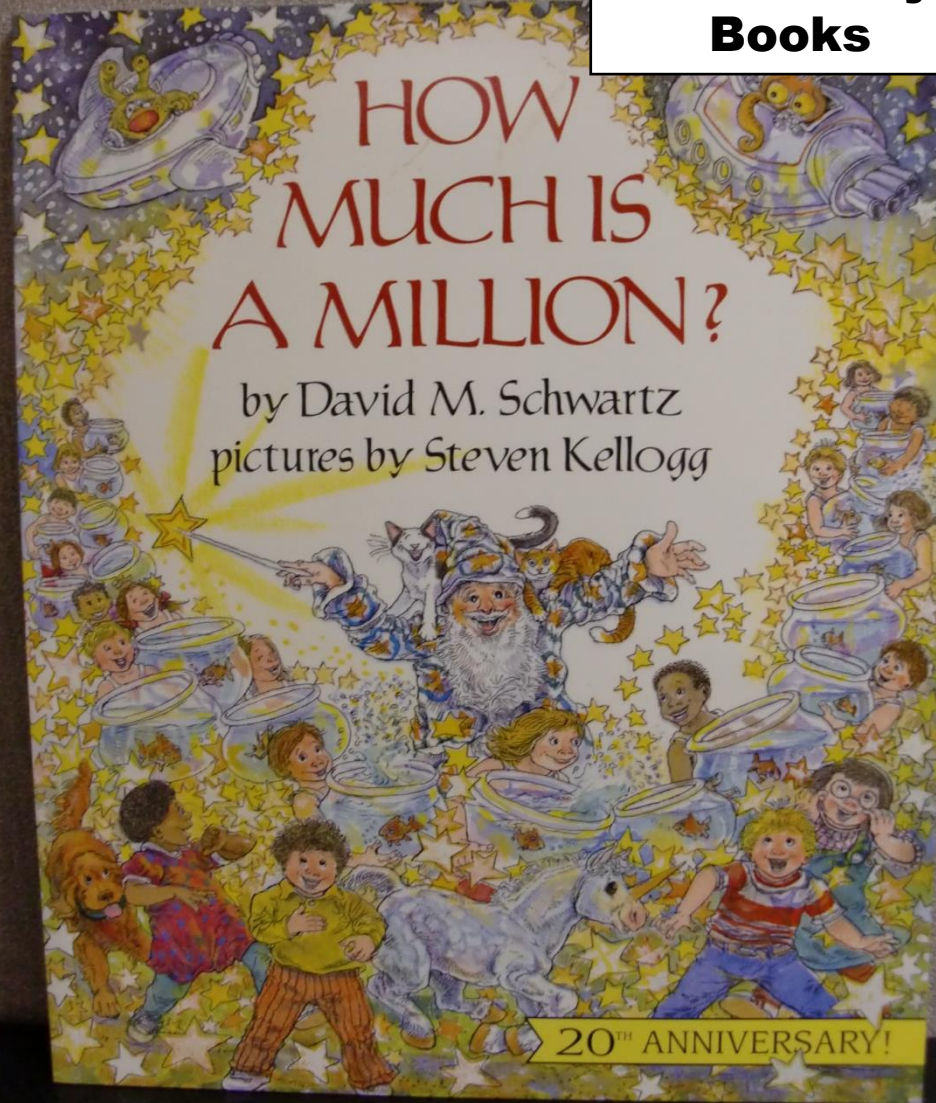


Pedagogical Approaches and Strategies



Teaching and Learning Resources

Math Story Books



Providing Rich Mathematical Experience

Learning mathematics is beyond just rote learning of concepts and skills.

Equally important are the Process Skills and they are learned through carefully constructed Learning Experiences (LE).



Learning Experiences (LE)

LE provide opportunities for students to:

- Enhance and develop conceptual understanding through use of hands-on learning materials and ICT tools
- Apply concepts and skills learnt to solve problems in real-world contexts and to solve non-routine problems
- Communicate their reasoning and connections and be engaged in exploratory and metacognitive activities.
- Build confidence and foster interest in mathematics

- Singapore Mathematics Teaching and Learning Syllabus 2021

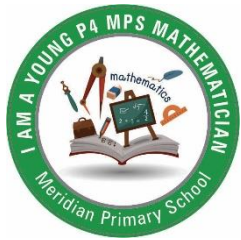


Providing Rich Mathematical Experience





I AM A YOUNG MPS MATHEMATICIAN (P2-P5)



Opportunity to *Enrich* learning through real-life experiences

Joy Of Learning



MERIDIAN PRIMARY SCHOOL

I AM A YOUNG MATHEMATICIAN CARD

Name: _____ ()

Class: Primary _____ (Math Group: _____)

I AM A YOUNG P5 MPS MATHEMATICIAN

No.	Task (Earn at least 11 Stars)	Star	Date of Completion	Teacher's Signature
1	Use origami paper to create at least 2 symmetric figures.	★		
2	Take photos of real-life examples in decimal notation related to length/ mass/ volume e.g. 3.65kg. Order the pictures in ascending or descending order.	★		
3	Find 5 different real life examples of symmetric figures and present them in pictorial forms. Pupils will need to determine and draw the lines of symmetry in these 5 symmetric figures.	★		
4	Create 2 equations using the four order of operations (+, -, x, ÷) such that the answer is 100.	★★		
5	Create a fraction bar chart to show equivalent fractions $\frac{2}{100} = \frac{2}{100}$. (Show at least five equivalent sets)	★★		
6	Find the area of the parade square by measuring its length and breadth. (Suggestion: You can use your feet and walk around the perimeter)	★★		
7	Draw and cut out squares of different sizes, ranging from 1cm ² to 100 cm ² , using whole numbers only. Paste these squares on an A4 side paper. Label the length and area of each square. What is the relationship between the length of each square and its area?	★★		
8	Describe the events of a fun day you had using 24-hour clock, including starting time, finishing time and duration. Represent your schedule in a table form.	★★★		
9	Plant a green bean seed. Measure the height of the seedling over a period of one month. Represent the data in a spreadsheet (e.g. Excel) and construct a line graph using the spreadsheet.	★★★		
10	Work in pairs. Look for a newspaper article showing supermarket items on sale and cut it out. Imagine you and your partner have \$100. Choose suitable items that you can buy with \$100 such that the amount left is as little as possible. Cut out the items that you chose from the newspaper article and paste it on an A4 paper. You may also present your working on your A4 paper.	★★★		
TOTAL STARS COLLECTED				
DATE SUBMITTED:				



What are Heuristics?

- They are methods and strategies that can be helpful in problem solving. (Bruner 1960)
- They are different problem-solving strategies that can help us solve unfamiliar or non-routine math problems.

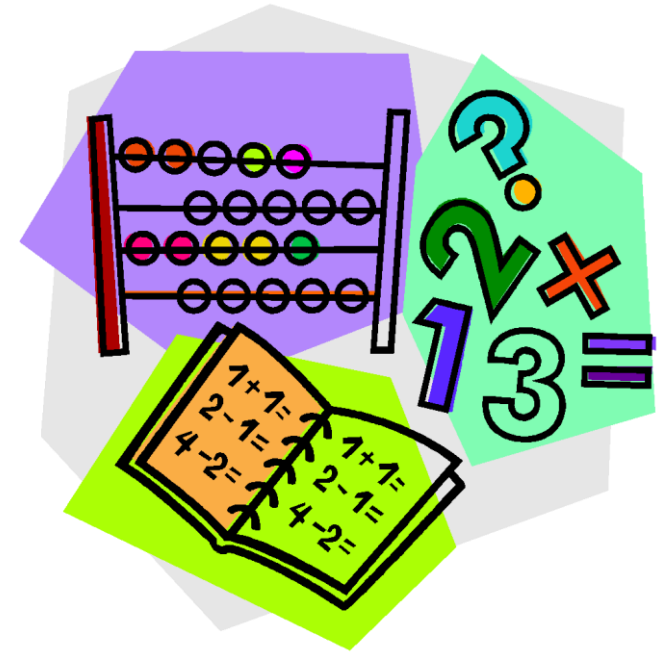


Background

- Curriculum Planning and Developing Division (CPDD) and Ministry of Education Singapore (MOE), have identified thirteen heuristics that are applicable to mathematical problem solving.



- 1. Act it out
- 2. Use a diagram/model
- 3. Use guess-and-check
- 4. Make a systematic list
- 5. Look for patterns
- 6. Work backwards
- 7. Use before-after concept
- 8. Make suppositions
- 9. Restate the problem in another way
- 10. Simplify the problem
- 11. Solve part of the problem
- 12. Think of a related problem
- 13. Use equations
- **(Heuristics 12 and 13 are not in the primary syllabus.)**



Heuristics	P1	P2	P3	P4	P5	P6
Patterns	*	*	*	*	*	*
Draw a Diagram *	*	*	*	*	*	*
Listing		*	*	*	*	*
Act It Out	*	*	*	*	*	*
Before-after			*	*	*	*
Working Backwards		*	*	*	*	*
Guess and Check				*	*	*
Make Suppositions/Assumptions					*	*
Restate the Problem					*	*

* Draw a diagram includes : Model drawing, cutting and stacking, gaps and difference



KEY MATH PROGRAMMES

P5	P6
<ul style="list-style-type: none">• REMEDIAL• ICAN• YOUNG MATHEMATICIAN CARD• EXCELLENCE 2000 (E2K)• MATH OLYMPIAD PROGRAMME• TEACH PROGRAMME (SINDA) - NEW	<ul style="list-style-type: none">• REMEDIAL• ICAN• EXCELLENCE 2000 (E2K)• MATH OLYMPIAD PROGRAMME• TEACH PROGRAMME (SINDA) - NEW



2018 PSLE Mathematics: Exam Format

Paper	Booklet	Item Type	Number of questions	Number of marks per question	Number of marks	Duration
1	A	Multiple-choice	10	1	10	1 h
			5	2	10	
	B	Short-answer	5	1	5	
			10	2	20	
2		Short-answer	5	2	10	1 h 30 min
		Structured/ Long-answer	12*	3, 4, 5	45	
Total			47	-	100	2 h 30 min

Note:

The use of an approved calculator is allowed in Paper 2 but not Paper 1.

2018 PSLE Foundation Mathematics: Exam Format

Paper	Booklet	Item Type	Number of questions	Number of marks per question	Number of marks	Duration
1	A	Multiple-choice	10	1	10	1 h
			10	2	20	
	B	Short-answer	10	2	20	
2		Short-answer	10	2	20	1 h
		Structured	6	3, 4	20	
Total			46	-	90	2 h

Note:

The use of an approved calculator is allowed in Paper 2 but not Paper 1.

Standard Mathematics (Primary 5)

Topics	Term 1	Term 2 (15%)	Term 3 (15%)	Term 4 (70%)
<p>Whole Numbers</p> <ul style="list-style-type: none"> • Numbers to 10 million • Four Operations • Order of Operations <p>Fractions</p> <ul style="list-style-type: none"> • Concepts of Fraction • Four Operations <p>Ratio</p> <p>Decimals</p> <ul style="list-style-type: none"> • Four Operations <p>Rate</p> <p>Measurement</p> <ul style="list-style-type: none"> • Length, Mass and Volume • Area & Perimeter of Square, Rectangle & Triangle • Volume of Cube and Cuboid <p>Percentage</p> <p>Geometry</p> <ul style="list-style-type: none"> • Angles • Triangles • Four-sided Figures <p>Data Analysis</p> <ul style="list-style-type: none"> • Average of a set of data 	<p>Week 9: Tuesday Duration: 45 min</p> <p><u>Topical Review 1 (30 marks)</u></p> <ul style="list-style-type: none"> • Whole Numbers 	<p>Week 9: Tuesday Duration: 1 h</p> <p><u>Topical Review 2 (45 marks)</u></p> <ul style="list-style-type: none"> • Whole Numbers • Fractions • Ratio • Measurement (Area & Perimeter) 	<p>Week 9: Tuesday Duration: 1 h</p> <p><u>Topical Review 3 (45 marks)</u></p> <ul style="list-style-type: none"> • Decimals • Rate • Measurement (Length, Mass and Volume, Volume of Cube and Cuboid) 	<p><u>Semestral Assessment 2 (100 marks)</u></p> <ul style="list-style-type: none"> • Whole Numbers • Fractions • Ratio • Decimals • Rate • Measurement • Percentage • Geometry • Data Analysis <p><u>Paper 1: MCQ & Short Answer Questions, no calculators allowed (45 marks)</u></p> <p><u>Paper 2: Short Answer Questions and Word Problems, calculators allowed (55 marks)</u></p>



Foundation Mathematics (Primary 5)

Topics	Term 1	Term 2 (15%)	Term 3 (15%)	Term 4 (70%)
<p>WHOLE NUMBERS</p> <ul style="list-style-type: none"> Numbers up to 10 million Four Operations Factors & Multiples <p>FRACTIONS</p> <ul style="list-style-type: none"> Concepts of Fraction Equivalent Fractions Mixed Numbers and Improper Fractions Four Operations <p>DECIMALS</p> <ul style="list-style-type: none"> Mixed Number and Improper Fractions Four Operations <p>RATE</p> <p>MEASUREMENT</p> <ul style="list-style-type: none"> Time Area & Perimeter Volume of Cube and Cuboid <p>GEOMETRY</p> <ul style="list-style-type: none"> Perpendicular & Parallel Lines Angles Rectangle and Square <p>DATA ANALYSIS</p> <ul style="list-style-type: none"> Tables, Bar Graphs and Line Graphs 	<p>Week 9: Tuesday</p> <p><u>Topical Review 1 (30 marks)</u></p> <ul style="list-style-type: none"> Whole Numbers 	<p>Week 9: Tuesday Duration: 1 h</p> <p><u>Topical Review 2 (50 marks)</u></p> <ul style="list-style-type: none"> Whole Numbers Fractions (Mixed Numbers and Improper Fractions) Geometry 	<p>Week 9: Tuesday Duration: 1 h</p> <p><u>Topical Review 3 (50 marks)</u></p> <ul style="list-style-type: none"> Fractions (Four Operations) Decimals Measurement (Time) Data Analysis 	<p><u>Semestral Assessment 2</u></p> <ul style="list-style-type: none"> Whole Numbers Fractions Decimals Rate Measurement Geometry Data Analysis <p><u>Paper 1: MCQ & Short Answer Questions, no calculators allowed (50 marks)</u></p> <p><u>Paper 2: Short Answer Questions and Word Problems, calculators allowed (40 marks)</u></p>



Standard Mathematics (Primary 6)

Topics	Term 1	Term 2	Term 3 (100%)	Term 4 (100%)
<p>Whole Numbers</p> <ul style="list-style-type: none"> • Numbers up to 10 million • Four Operations • Order of Operations <p>Fractions</p> <ul style="list-style-type: none"> • Concepts of Fraction • Four Operations <p>Ratio</p> <p>Decimals</p> <ul style="list-style-type: none"> • Four Operations <p>Algebra</p> <p>Measurement</p> <ul style="list-style-type: none"> • Length, Mass and Time • Area & Perimeter • Area & Circumference of Circles • Volume of Cube and Cuboid <p>Percentage</p> <p>Geometry</p> <ul style="list-style-type: none"> • Special Quadrilaterals • Nets <p>Rate and Speed</p> <ul style="list-style-type: none"> • Distance, Time and Speed <p>Data Analysis</p> <ul style="list-style-type: none"> • Pie Charts • Graphs • Average of a set of data 	<p>Week 8: Friday 24/02/2023 Duration: 1 h</p> <p><u>Term Review (45 marks)</u></p> <ul style="list-style-type: none"> • Whole Numbers • Fractions • Angles in Geometrical Figures • Ratio (P5 Concepts) <p><u>MCQ & Short Answer Questions, no calculators allowed.</u></p>	<p>Week 7: Friday 05/05/2023 Duration: 1h 30 min</p> <p><u>Timed Practice (55 marks)</u></p> <ul style="list-style-type: none"> • Whole Numbers • Fractions • Decimals • Ratio • Percentage • Measurement • Geometry • Data Analysis <p><u>Short Answer Questions and Word Problems, calculators allowed.</u></p>	<p><u>Preliminary Examination (100 marks)</u></p> <ul style="list-style-type: none"> • Whole Numbers • Fractions • Decimals • Ratio • Percentage • Measurement • Geometry • Data Analysis • Algebra • Speed <p><u>Paper 1: MCQ & Short Answer Questions, no calculators allowed (45 marks)</u></p> <p><u>Paper 2: Short Answer Questions and Word Problems, calculators allowed (55 marks)</u></p>	<p><u>PSLE (100 marks)</u></p> <ul style="list-style-type: none"> • Whole Numbers • Fractions • Decimals • Ratio • Percentage • Measurement • Geometry • Data Analysis • Algebra • Speed <p><u>Paper 1: MCQ & Short Answer Questions, no calculators allowed (45 marks)</u></p> <p><u>Paper 2: Short Answer Questions and Word Problems, calculators allowed (55 marks)</u></p>



Foundation Mathematics (Primary 6)

Topics	Term 1	Term 2	Term 3 (100%)	Term 4 (100%)
<p>Whole Numbers</p> <ul style="list-style-type: none"> • Numbers up to 10 million • Four Operations • Factors & Multiples <p>Fractions</p> <ul style="list-style-type: none"> • Concepts of Fraction • Four Operations <p>Decimals</p> <ul style="list-style-type: none"> • Four Operations <p>Percentage</p> <p>Rate</p> <p>Measurement</p> <ul style="list-style-type: none"> • Time • Area & Perimeter • Area of Triangle • Volume of Cube and Cuboid <p>Geometry</p> <ul style="list-style-type: none"> • Perpendicular & Parallel Lines • Angles • Rectangle, Square & Triangle <p>Data Representation and Analysis</p> <ul style="list-style-type: none"> • Pie Charts • Average of a Set of Data 	<p>Week 8: Friday 24/02/2023 Duration: 1 h</p> <p><u>Term Review (50 marks)</u></p> <ul style="list-style-type: none"> • Whole Numbers • Fractions • Decimals <p><u>MCQ & Short Answer Questions, no calculators allowed (50 marks)</u></p>	<p>Week 7: Friday 05/05/2023 Duration: 1h</p> <p><u>Timed Practice (40 marks)</u></p> <ul style="list-style-type: none"> • Whole Numbers • Fractions • Decimals • Percentage • Data Representation and Analysis <p><u>Short Answer Questions and Word Problems, calculators allowed (40 marks)</u></p>	<p><u>Preliminary Examination (90 marks)</u></p> <ul style="list-style-type: none"> • Whole Numbers • Fractions • Decimals • Percentage • Measurement • Geometry • Data Representation and Analysis <p>Paper 1: <u>MCQ & Short Answer Questions, no calculators allowed (50 marks)</u></p> <p>Paper 2: <u>Short Answer Questions and Word Problems, calculators allowed (40 marks)</u></p>	<p><u>PSLE (90 marks)</u></p> <ul style="list-style-type: none"> • Whole Numbers • Fractions • Decimals • Percentage • Measurement • Geometry • Data Representation and Analysis <p>Paper 1: <u>MCQ & Short Answer Questions, no calculators allowed (50 marks)</u></p> <p>Paper 2: <u>Short Answer Questions and Word Problems, calculators allowed (40 marks)</u></p>

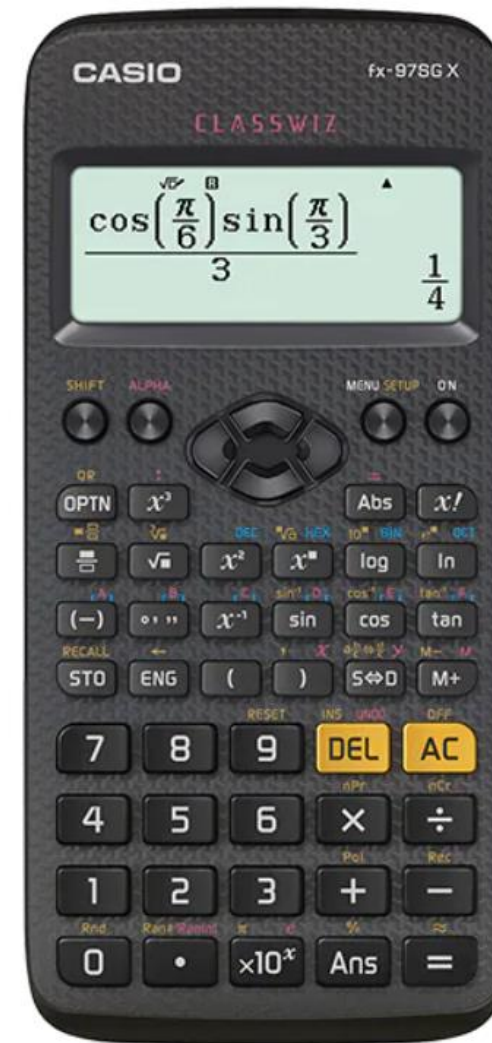


OFFICIAL (OPEN)
LIST OF APPROVED SCIENTIFIC CALCULATORS

The following scientific calculator models are suitable for

- PSLE Mathematics and Foundation Mathematics Examinations
- GCE N(T), N(A), O and A-Level Examinations

S/N	Calculator Brand	Calculator Model	Approved Period ¹
1	CASIO	FX 82MS	2003 – 2026
2		FX 85MS	2003 – 2026
3		FX 95MS	2003 – 2026
4		FX 96SG Plus	2013 – 2025
5		FX 97SG X	2018 – 2026
6		FX 350MS	2003 – 2026
7	CANON	F-960SG	2017 – 2026
8	SHARP	EL W531S	2010 – 2023
9		EL W531S II	2018 – 2026
10		EL W531S II Silver Edition	2021 – 2025
11		EL W531XM	2014 – 2023
12		EL 533X	2013 – 2024



Booklist 2023



How to help your child in Math

- ✓ Monitor and ensure that your child does his/her homework/ online assessments.
- ✓ Ensure he/she has sufficient practice.
- ✓ Do not allow your child to use calculators excessively at home.
- ✓ Get your child accustomed to sitting down and concentrating for a period of at least 1 to 1 ½ hours in a non-aircon setting.
- ✓ Get in touch with your child's teacher to find what your child should be learning.



KEY CHALLENGES (P5)

AREAS

- Introduction to the use of calculator
- New Topic : Ratio/Percentage
- **Spatial and Reasoning skills**
- More emphasis on word problems
- Change of assessment format at SA2 (PSLE Format)

