Welcome to the MIDDLE PRIMARY (Primary 3 & 4) MATHS Workshop for Parents

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Note to parents: Softcopy of slides will be made available online on the school website after the workshop.
“Coming together is a beginning; keeping together is progress; working together is success.” Henry Ford

“Before anything else, preparation is the key to success.” Alexander Graham Bell

“Perseverance, secret of all triumphs.” Victor Hugo
1. Syllabus review & its implications

2. Primary 3 Topics

3. Primary 4 Topics

4. Supporting you child

5. Assessment matters

6. Hands on activities
Syllabus review

The new Primary Mathematics Syllabus is implemented level by level starting from Primary One in 2013.

The implementation schedule is as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level</td>
<td>Primary 1</td>
<td>Primary 2</td>
<td>Primary 3</td>
<td>Primary 4</td>
<td>Primary 5 Standard Maths &amp; Foundation Maths</td>
<td>Primary 6 Standard Maths &amp; Foundation Maths</td>
</tr>
</tbody>
</table>

Notes: The online syllabus document will be updated yearly according to the implementation schedule.
First edition: April 2012

Source: MOE Website
Implications

• 2015 Primary 3 students follow the new syllabus

• Implementation of new syllabus for Primary 4 will be next year (i.e. 2016).

• 2015 Primary 4 students follow 2007 Syllabus and hence are not affected by the change even when they are in Primary 6 (PSLE).
<table>
<thead>
<tr>
<th>Topics (Total marks: 80)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Whole Numbers</strong></td>
</tr>
<tr>
<td>Numbers up to 10 000</td>
</tr>
<tr>
<td>Addition and Subtraction</td>
</tr>
<tr>
<td>Multiplication and division</td>
</tr>
<tr>
<td><strong>Fractions</strong></td>
</tr>
<tr>
<td>Equivalent fractions (includes simplest forms)</td>
</tr>
<tr>
<td>Addition and subtraction</td>
</tr>
<tr>
<td><strong>Measurement (Length, Mass and Volume)</strong></td>
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<tr>
<td><strong>Measurement (Area and Perimeter)</strong></td>
</tr>
<tr>
<td><strong>Time</strong></td>
</tr>
<tr>
<td><strong>Money</strong></td>
</tr>
<tr>
<td><strong>Geometry</strong></td>
</tr>
<tr>
<td>Angles</td>
</tr>
<tr>
<td>Perpendicular and Parallel Lines</td>
</tr>
<tr>
<td><strong>Data Analysis (Bar Graphs)</strong></td>
</tr>
<tr>
<td>Topics (Total marks: 100)</td>
</tr>
<tr>
<td>--------------------------</td>
</tr>
<tr>
<td>Whole Numbers</td>
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<tr>
<td>Numbers up to 100 000</td>
</tr>
<tr>
<td>Multiplication and division</td>
</tr>
<tr>
<td>Factors and multiples</td>
</tr>
<tr>
<td>Fractions</td>
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<tr>
<td>Mixed numbers and improper fractions</td>
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<tr>
<td>Addition and subtraction</td>
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<tr>
<td>Fraction of a set of objects</td>
</tr>
<tr>
<td>Multiplication</td>
</tr>
<tr>
<td>Decimals</td>
</tr>
<tr>
<td>Decimals up to 3 decimal places</td>
</tr>
<tr>
<td>Addition and subtraction</td>
</tr>
<tr>
<td>Measurement (Time, Money, Area and Perimeter)</td>
</tr>
<tr>
<td>Geometry</td>
</tr>
<tr>
<td>Symmetry</td>
</tr>
<tr>
<td>Tessellation*</td>
</tr>
<tr>
<td>Data Analysis (Tables and Graphs)</td>
</tr>
</tbody>
</table>
How parents can help?

Let’s acknowledge the following: -

✓ Every child is unique!

✓ Some children may need more practice than others.

✓ Know your child’s strengths and weaknesses in Mathematics (e.g. feedback from teachers and online material)

✓ Give a reasonable amount of practice accordingly.
Help your child to:

• See the importance and relevance of Mathematics in everyday life. E.g. shopping and infographic(s)

• **Master the multiplication tables** *(songs, rhymes & tricks)*

  This will help makes the mastery of the multiplication and division algorithms seem less daunting.

  Multiplication 7 Rock song: https://youtu.be/uvqTizEfrhU
  Multiplication Made Easy: https://youtu.be/R2IQB9I7zX0
  8 Times Table Trick: https://youtu.be/-C-e33iVBTM
  9 Times table hand trick: https://youtu.be/Wu3JSnRaaV0
  9 Times Table hand trick: https://youtu.be/jJC5ny6YT4M

• Have sufficient **daily** practice in Mathematics
  o Koobits (Self-Practice, Homework, Challenges)

• Set a reasonable **time limit** for your child to complete work at home.
• Be involved in your child’s learning in school and at home.
  
  **Ask →** What have you learnt today? Anything new? Show me what you mean.

  **Praise →** Efforts, improvements, new learning

  **Encourage →** If they get stuck, guide/remind them of sources that they can refer to e.g. LMS, Koobits, class blog, books etc.

• Ensure that your child attends school regularly and punctually.

• Ensure your child revises and completes his/her work (written and online e.g. Koobits – Parent Register)
<table>
<thead>
<tr>
<th>Levels</th>
<th>Cognitive Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td><strong>Knowledge</strong> items require students to <strong>recall</strong> specific mathematical facts, concepts, rules and formulae, and <strong>perform straightforward computations</strong>.</td>
</tr>
<tr>
<td>Comprehension</td>
<td><strong>Comprehension</strong> items require students to <strong>interpret data</strong> and use mathematical concepts, rules and formulae to solve <strong>routine or familiar</strong> mathematical problems.</td>
</tr>
<tr>
<td>Application and Analysis</td>
<td><strong>Application and Analysis</strong> items require students to <strong>analyse data</strong> and/or <strong>apply</strong> mathematical concepts, rules and formulae in a <strong>complex situation</strong>, and solve <strong>unfamiliar or non-routine</strong> problems.</td>
</tr>
</tbody>
</table>

* In the school context, students may be exposed to questions that are not part of the routine questions of the regular practices. If the question involve a complex situation, even though students may be familiar with similar questions, these questions should remain as application and analysis questions.
1. **Multiple-choice Question (MCQ) – Section A (2 marks each)**
   For each question, four options are provided of which only one is the correct answer.
   A candidate has to **choose** one of the options as his correct answer.

2. **Short-answer Question (SAQ) – Section B (2 marks each)**
   For each question, a candidate has to write his answer in the space provided.
   Any unit required in an answer is provided and a candidate has to give his **answer** in that unit.

3. **Structured / Long-answer Question (LAQ)**
   – **Section C (abt 3 to 4 marks each)**
   For each question, a candidate has to **show** his **method** of solution (working steps) clearly and write his answer(s) in the space(s) provided.
Primary 3

• Whole Numbers:
  • Solve up to 2-step **word problems** involving the 4 operations

• Money:
  • Solve **word problems** involving + /− of money in decimal notation.

• Fraction:
  • Add and subtract two related fractions within one whole.
Primary 4

• Whole Numbers:
  • Solve up to 3-step *word problems* involving the 4 operations

• Decimals:
  • Solve up to 2-step *word problems* involving the 4 operations

• Money:
  • Solve *word problems* involving the 4 operations of money in decimal notation.

• Fraction:
  • Solve up to 2-step *word problems* involving +, −, x.
SSM concrete manipulatives
Fraction discs for students
National Library of Virtual Manipulatives
http://nlvm.usu.edu/en/nav/vlibrary.h
VM App in iPad

iPad Screenshots

- Tap the tab to open and close the drawer.
- Drag pieces from the drawer to arrange them in the workspace.
- Instructions: Tap here to dismiss and get started!
- Start new project
- Import photo
- Save to photo album
- Settings
- Undo drawing
- Pencil tool. Use it to draw
- Press and hold a piece to see an equivalent
- Triple tap a tile to delete it
- The workspace is the white area of the screen
Fractions (Primary 4)

Number of girls: 5
Number of boys: 7

a) Express the number of boys as a fraction of the number of children. \( \frac{7}{12} \)

b) Express the number of girls as a fraction of the number of boys. \( \frac{5}{7} \)

Note: Total number of children \( \rightarrow 5 + 7 = 12 \)
Time (Start, Duration, End)

**Primary 3**
A movie started at 11.45 a.m.
The movie was 2 hours and 25 minutes long?
What time did the movie end?

The movie ended at **2.10 p.m.**

**Primary 4**
A movie started at 1145.
The movie was 2 hours and 25 minutes long?
What time did the movie end?  Answer: **1410**
Q & A
Let’s try this

Mary earns $2400 every month.
She spends $1250 on food and $208 on utilities monthly.
She saves the rest of the money.

How much can she save in 3 years?

Correct method
Amount spent in total → 1250 + 208 = 1458
Amount saved → 2400 – 1458 = 942 (Method mark: 1)
1 year = 12 months
3 years = 12 x 3 = 36 (Method mark: 1)
942 x 36 = 33 912 (Method mark: 1 and Answer mark: 1)

Answer: $33 912

Conceptual Difficulty
Students did not realise that there are 36 months in 3 years.
Common error: $942 x 3 = $2826
Let’s try this

A baker is paid $18 for 3 hours of work.
How much is he paid if he works 6 hours a day for 5 days?

**Correct method 1**
- \(6 \div 3 = 2\) groups of \(3\)h
- \(18 \times 2 = \$36\) per day
- \(36 \times 5 = \$180\) for 5 days

**Correct method 2**
- \(18 \div 3 = 6\)
- \(6 \times 6 = 36\)
- \(36 \times 5 = \$180\) for 5 days

Answer: \$180

**Conceptual difficulty**
Students generally had difficulty grasping the different ideas/concepts such as the amount of money paid for work done, over a period of time i.e., number of hours over a few days.
Let's try this

Kate, Royce and Jimmy have a total of 1872 stamps. Kate has three times as many stamps as Royce. Jimmy has 88 fewer stamps than Kate. How many stamps does Jimmy have?

Which model is correct?

Difficulty
Students are not able to draw the correct model to demonstrate understanding of question.
Let’s try this

Kate, Royce and Jimmy have a total of 1872 stamps.
Kate has three times as many stamps as Royce.
Jimmy has 88 fewer stamps than Kate.
How many stamps does Jimmy have?

7 units → 1872 + 88 = 1960 (Method mark: 1)
1 unit → 1960 ÷ 7 = 280 (Method mark: 1)
3 units → 280 x 3 = 840
Jimmy → 840 – 88 = 752 (Method mark: 1 and Answer mark: 1)  Answer: 752
Let’s try this

At a carnival, each child pays $7 for the ticket.
For every 4 children that pay, another child enters for free.
How many children are there in a group that pays $210?

**Conceptual difficulties**
Students generally found it difficult to:
understand the context of paying and non-paying (free) children
Common error:
\[ 210 \div 7 = 30 \quad \text{or} \quad 210 \div 5 = 42 \]
\[ 4 + 1 = 5 \]
\[ 30 \div 5 = 6 \]
\[ 30 + 2 + 6 = 38 \quad \text{or} \quad 30 + 6 = 36 \]
grasping the different ideas and concepts i.e., money, tickets and number of children are all used interchangeably.
Let’s try this

At a carnival, each child pays $7 for the ticket. For every 4 children that pay, another child enters for free. How many children are there in a group that pays $210?

**Correct method**
Step 1 → $210 ÷ 7 = 30 paying children
Step 2 → $30 ÷ 4 = 7 R 2$
(means 7 groups of paying children in groups of 4 and 2 paying children)
Step 3 → 30 paying children + 7 children entering for free = 37 (Total)

Answer: **37 children**
Thank You!