

Nurturing a Holistic Thinker and Skilled Communicator in Mathematics



Every Saint an Analytical, Self-directed problem-solver by acquiring thinking, reasoning, communication, application and metacognitive skills.



Our Math Department Vision
Every Saint is an analytical, self-directed problem-solver

Authentic

Customised

Boy-Friendly
Strategies /
MTV

Contextualised
Learning / Real-Life
Experience

Math
Pedagogies



Learning
Dispositions

Embedded

Values St Andrew's Junior School

SAJS

Signature Pedagogy



Teaching understanding of concepts through 3 representations

E

Enactive

- Provide learning experiences through the use of concrete materials, manipulatives or hands-on activities.

P

Pictorial

- Provide learning experiences with the use of visual medium : pictures, diagram, images, videos, etc to allow pupils to generate mathematical rules and regulations through questioning.

A

Abstract

- Provide learning experiences for identification and application of problem-solving skills and strategies, as well as the explanation of concepts, giving examples and non-examples and justification for specific rules and solutions.



SAJS Problem-Solving Approach

- To promote cognitive and metacognitive process skills (HT skills) when applying problem-solving skills / heuristics



SAJS Problem Solving Approach

1

- **Read and Understand**

- Have I used **Structured Questioning** ?
- Have I used **chunking** to identify key information?
- Can I restate the problem by drawing a picture or diagram to help me understand the problem?

2

- **PLAN**

- What **strategy or heuristics** can I use to solve the problem? **What makes you say that?**

3

- **Carry out the Plan**

- Did I label my steps?
- Did I use the right mathematical symbols?
- If I am stuck, do I have an **alternative method**? **What makes you say that?**

4

- **Check**

- Does the answer make sense?
- Have I **check** for reasonableness and accuracy? (**Confirm**)
- Have I checked for calculation errors?
- Have I checked for transfer errors?
- Have I transferred information correctly?
- Have I included the correct measurement units?



Learning Dispositions

The disposition to :

- Persevere (Resilience)
- Be adventurous (Wonder)
- Make connections (Wonder)
- Be accurate (Excellence)
- Seek and evaluate reasons (Wonder)
- Have metacognition (Self-Discipline & Excellence)



Using Formative Assessment for Math Termly 1 & 3 Reviews



St. Andrew's Junior School
Primary Three Mathematics
(2019 Math Review)

| | Description | Approaching Expectation | Meeting Expectation | Exceeding Expectation |
|-----|--|-------------------------|---------------------|-----------------------|
| | I am able to: | | | |
| Q1. | subtract up to 4-digit numbers with regrouping in ones, tens and hundreds. | | | |
| Q2. | subtract up to 4-digit numbers with regrouping in ones, tens and hundreds. | | | |
| Q3. | solve one-step addition and subtraction word problems. | | | |
| Q4. | solve one-step addition and subtraction word problems. | | | |
| Q5. | subtract up to 4-digit numbers with regrouping in ones, tens and hundreds. | | | |
| Q6. | subtract up to 4-digit numbers with regrouping in ones, tens and hundreds. | | | |



Use of ICT (Online Math Journal)

The screenshot shows a web browser window with the following elements:

- Browser Tabs:** Index, (no subject) - k, 2019 P3 MTP M, Inbox (312) - in, saintandrewsjur, 2019 P3 Resilie, P3 Mathematic, 2019 P4 Resilie.
- Address Bar:** <https://sites.google.com/a/saintandrewsjunior.moe.edu.sg/p3-mathematics/>
- Page Title:** P3 Mathematics
- Navigation Menu:**
 - Home
 - 00. SA Item Analysis
 - 01. 2016
 - 02. 2017 SA1
 - 03. 2017 SA2
 - 04. 2018 SA1
 - 01. Numbers to 10000
 - 01. Virtual base-ten blocks
 - 02. How many elephants are there?
 - 03. At what height do aeroplanes fly
 - 04. 4-digit numbers in newspapers
 - 04. Even Steven and Odd Todd
 - 05. Maths Journal
 - 02. Addition of Numbers Within 10000
 - 01. Add and subtract within 1000
 - 02. Simple addition within 10000 (Flubaroo)
 - 03. Addition with regrouping in Ones and Tens (Flubaroo)
 - 04. Addition with regrouping
- Main Content Area:**
 - Home
 - Large image of a Rubik's cube.
- Search Bar:** Search this site
- Footer:** Chapter 5 - Mutipl....pdf

Use of ICT (Online Math Journal)

The screenshot shows a web browser window with multiple tabs. The active tab is titled "03. Maths Jour" and the address bar shows the URL: <https://sites.google.com/a/saintandrewsjunior.moe.edu.sg/p3-mathematics/04-solving-word-problems-1/03-maths-journal>. The user is logged in as irene.lim@saintandrewsjunior.moe.edu.sg.

The page content includes a navigation menu on the left with the following items:

- Home
- 00. SA Item Analysis
 - 01. 2016
 - 02. 2017 SA1
 - 03. 2017 SA2
 - 04. 2018 SA1
- 01. Numbers to 10000
 - 01. Virtual base-ten blocks
 - 02. How many elephants are there?
 - 03. At what height do aeroplanes fly
 - 04. 4-digit numbers in newspapers
 - 04. Even Steven and Odd Todd
 - 05. Maths Journal
- 02. Addition of Numbers Within 10000
 - 01. Add and subtract within 1000
 - 02. Simple addition within 10000 (Flubaroo)
 - 03. Addition with regrouping in Ones and Tens (Flubaroo)
 - 04. Addition with regrouping

The main content area is titled "03. Maths Journal" and contains a section for "P3 Chp 4 Maths Journal". It features two radio buttons for selection: "3I" and "3Sd". Below this is a "Word problem *" section with the instruction "Refer to the question above" and a large text input area. The "Solution *" section follows with the instruction "Number sentences and final sentences" and another large text input area.

At the bottom of the browser window, a taskbar shows various application icons and the system tray displays the date and time: 08:10 AM, 07/02/2019.



Format of SA1 Paper

| Booklet | Item Type | No. of Questions | Weightage | Duration |
|-----------|------------------------|--|---------------------|------------------|
| Section A | MCQ | 17 (4 1-mark and 13 2-mark questions) | 37.5% (30 marks) | 1 hour 45 min |
| Section B | Short Answer Questions | 17 (4 1-mark and 13 2-mark questions) | 37.5% (30 marks) | |
| Section C | Word Problems | 6 (4 3-mark and 2 4-mark questions) | 25% (20 marks) | |

Note: Total Marks is 80 marks



Format of SA2 Paper

| Booklet | Item Type | No. of Questions | Weightage | Duration |
|-----------|------------------------|--|---------------------|------------------|
| Section A | MCQ | 17 (4 1-mark and 13 2-mark questions) | 37.5% (30 marks) | 1 hour 45 min |
| Section B | Short Answer Questions | 17 (4 1-mark and 13 2-mark questions) | 37.5% (30 marks) | |
| Section C | Word Problems | 6 (4 3-mark and 2 4-mark questions) | 25% (20 marks) | |

Note: Total Marks is 80 marks



Materials Used in Class

- My Pals are Here TB 3A and 3B
- My Pals are Here Workbook 3A and 3B
- Heuristics Booklets
- Practice Papers (prior to SA1 and SA2)
- **Blue file** – Semester 1 Workbook and Heuristics Booklets
- **Purple file** – Semester 2 Workbook and Heuristics Booklets



Key Areas of Focus

- Involvement / Participation in Learning –
 - Cooperative Learning
 - Use of MTV Thinking Routines in classroom
 - Asking questions to seek clarity
- Problem-Solving using Heuristics
 - Checking for reasonableness and accuracy
 - Use of Alternative Solutions
 - Creating Questions
 - Identifying Misconception
- Math Journaling
(Think and Take notes)

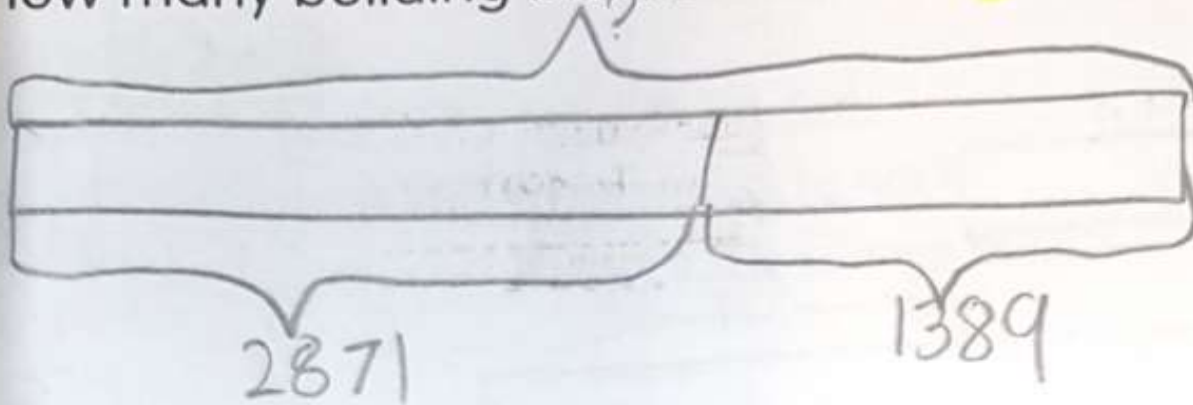


Use of manipulatives & collaborative learning



Expectation of Work

There are 2871 building blocks in a container.
Joel adds 1389 more blocks into the container.
How many building blocks are there altogether?



- Read
- chunk
- model
- Equation
- Stateme
- check

$$\underline{2871 + 1389 = 4260}$$

There are 4260 building blocks.

$$\begin{array}{r} 2871 \\ + 1389 \\ \hline 4260 \end{array}$$

Expectation of Work

Word Problems: Addition and Subtraction



Exercise 1 Word Problems (1)

Nicholas walked 1350 steps to reach Point A, and another 2396 steps to reach Point B. How many steps did he take altogether?

| | |
|------|------|
| 1350 | 2396 |
| A | B |

?

$$1350 + 2396 = 3746$$

Nicholas took 3746 steps altogether.

Step 1 What have I gathered from the problem?

Step 2 How do I solve it?

Step 3 What do I need to find?

Step 4 How can I check the answer?

checking
27 Draw and label
28 Number equation
29 Working
30 Final statement
31 Checking

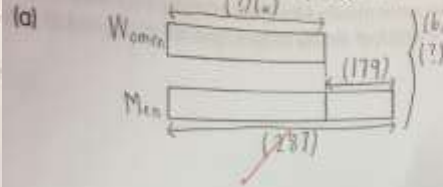
$$\begin{array}{r} \text{working} \\ 1350 \\ + 2396 \\ \hline 3746 \end{array}$$

$$\begin{array}{r} \text{checking} \\ 3746 \\ - 2396 \\ \hline 1350 \end{array}$$



There were 287 men at a badminton match. There were 179 fewer women than men at the match.

- (a) How many women were there?
(b) How many people were there altogether?



$$287 - 179 = 108$$

There were 108 women.

(b)

$$108 + 287 = 395$$

There were 395 people altogether.

$$\begin{array}{r} \text{Working (a)} \\ 287 \\ - 179 \\ \hline 108 \end{array}$$

$$\begin{array}{r} \text{Checking (a)} \\ 108 \\ + 179 \\ \hline 287 \end{array}$$

$$\begin{array}{r} \text{Working (b)} \\ 108 \\ + 287 \\ \hline 395 \end{array}$$

$$\begin{array}{r} \text{Checking (b)} \\ 395 \\ - 287 \\ \hline 108 \end{array}$$

- (2) Ramesh earned \$357 in March. He earned \$96 less in April than in March.
(a) How much did he earn in April?
(b) How much did he earn altogether in the two months?



$$\text{(a) } \$357 - \$96 = \$261$$

Ramesh earned \$261 in April.

$$\text{(b) } \$357 + \$261 = \$618$$

Ramesh earned \$618 altogether in the two months.

$$\begin{array}{r} \text{Working} \\ 357 \\ - 96 \\ \hline 261 \end{array}$$

$$\begin{array}{r} \text{checking} \\ 261 \\ + 96 \\ \hline 357 \end{array}$$

$$\begin{array}{r} \text{Working} \\ 357 \\ + 261 \\ \hline 618 \end{array}$$

$$\begin{array}{r} \text{checking} \\ 618 \\ - 261 \\ \hline 357 \end{array}$$



Resources (Educational Math Website)

<https://www.schoolbag.sg/story/mathematics-online-resources-for-parents>

<https://mathstory.com/mathstory.com/mathstories.aspx>

<https://www.funbrain.com/math-zone>

<http://www.coolmath.com/>

<http://www.eduplace.com/kids/mw/>

<https://www.internet4classrooms.com/>



Ways we hope to partner you

Rigor

- Ensure daily practice
- Check their PO and class website
- Get child to explain concepts to you



Ways we hope to partner you

Presentation of Work (Neat and Organised)

- Ensure that there are proper steps and equations
- Ensure **proper filing** of Worksheets
- Ensure **corrections are complete (with thorough checking)**



Ways we hope to partner you

- Develop and prepare them the following skills
 - Time Management
 - Exam-taking skills
 - Accuracy
 - Mental Calculation
- Control amount of time spent on computer or video games





THANK YOU

