

# 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.



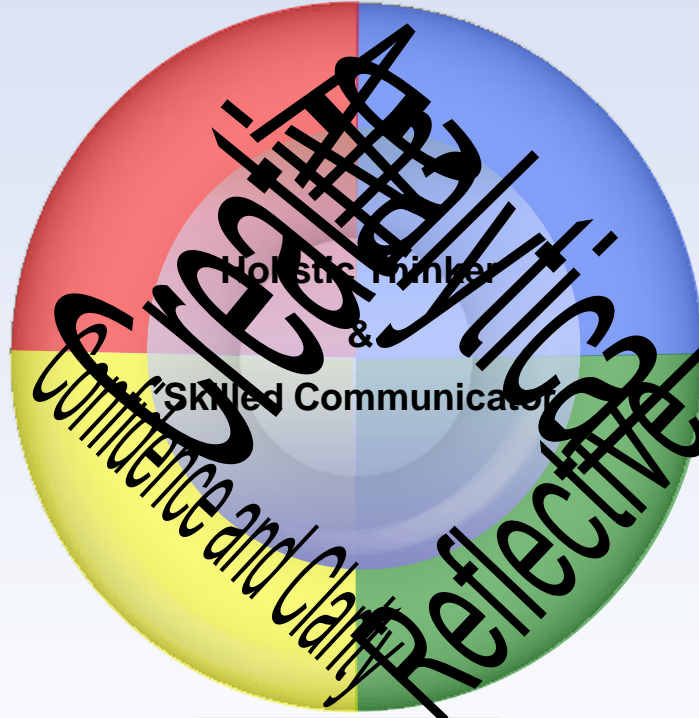
**Our Math Department Vision**  
Every Saint, is an analytical, self-directed problem-solver

**Authentic**

Boy-Friendly  
Strategies /  
MTV

**Customised**

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

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

**P**

## Pictorial

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- 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

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- 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?



# Using Formative Assessment for Math Termly 1 & 3 Reviews



## St. Andrew's Junior School Primary Four Mathematics (Review 1)

Qn	Description	Approaching Expectation	Meeting Expectation	Exceeding Expectation
	I am able to:			
Q1	Translate numbers (10 000 to 99 999) from words to numerals.			
Q2	Look for a pattern to complete a number sequence.			
Q3	Look for a pattern to complete a number sequence.			
Q4	Write a number as the sum of the values of each digit in the number.			
Q5	Compare and order numbers up to 100000.			
Q6	Compare and order numbers up to 100000.			
Q7	State the place and value of each digit in a number (10 000 to 99 999)			
Q8	Use the number line to round numbers to the nearest ten, hundred and thousand.			
Q9	Compare and order numbers up to 100000			





# Format of SA1 Paper

Booklet	Item Type	No. of Questions	Weightage	Duration
Section A	MCQ	15	30%	1 hour 45 min
Section B	Short Answer Questions	20	40%	
Section C	Word Problems	8 (2 3-mark and 6 4-mark questions)	30%	

**Note: Total Marks is 100 marks**



# Format of SA2 Paper

Booklet	Item Type	No. of Questions	Weightage	Duration
Section A	MCQ	15	30%	1 hour 45 min
Section B	Short Answer Questions	20	40%	
Section C	Word Problems	8 (2 3-mark and 6 4-mark questions)	30%	

**Note: Total Marks is 100 marks**



# Materials Used in Class

- My Pals are Here TB 4A and 4B
- My Pals are Here Workbook 4A and 4B
- 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



# Use of ICT & collaborative learning



# ICT (Online Math Journal)

## P4 Mathematics

04. 2018 SA1

### 01. Numbers to 100 000

- 01. ICT (base block applets)
- 02. Newspapers cut out
- 03. Number patterns (Flubaroo)
- 04. Rounding Number Game
- 05. Maths Journal

### 02. Factors and Multiples

- 01. Multiplication tables
- 02. Factor Game
- 03. Online multiplication quiz
- 04. Multiples in a real-world situation
- 05. Maths Journal

### 03. Multiplication and Division of whole numbers

- 01. Multiply by a 1-digit number (Flubaroo)
- 02. Create 1-Step Word Problems (Multiply by 1-digit)
- 03. Multiply by a 2-digit number (Flubaroo)
- 04. Create 1-Step Word Problems (Multiply by 2-digit)
- 05. Divide 4-digit by a 1-digit number (Flubaroo)
- 06. Create 1-Step Word Problems (Divide by 1-digit)

1. Get students to pose a 1-step word problem in the attached Google Form with solution, such as,

"If each bottle contains 540 ml of milk, how much milk is in 14 bottles?"

2. Select some student-created word problems for the class to solve.

### P4 Chp 3 Create 1-Step Word Problems (Multiply by 2-digit)

Your answer

Register number \*

Your answer

Word Problem \*

Your answer

Solution \*

Number sentences and final sentence

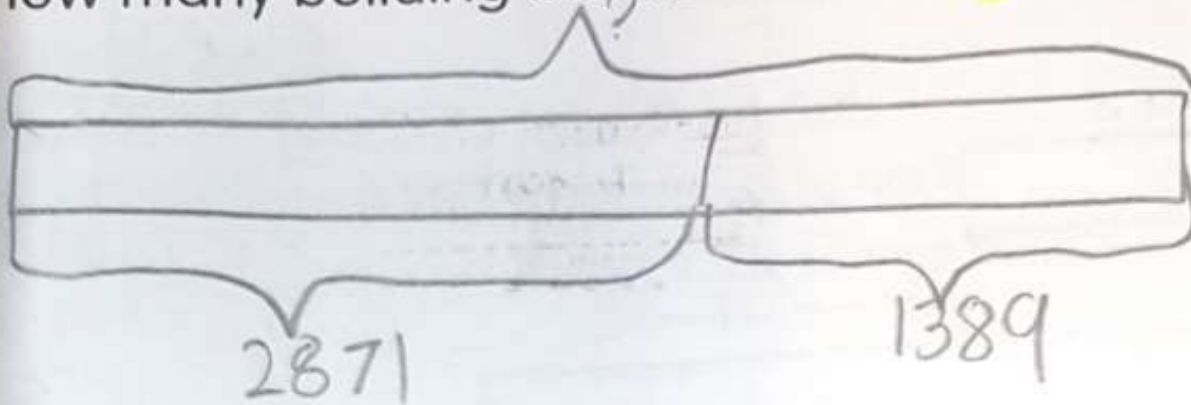
http://www.standrewsjunior.school.nz/

Search this site



# 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
- Statement
- check

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

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

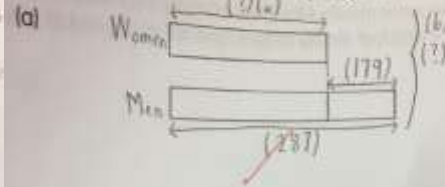
$$\begin{array}{r} \text{working} \\ 1350 \\ + 2396 \\ \hline 3746 \end{array}$$

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



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**

