Pilot Program Term 3, 2022



Welcome

| ACT | Canberra Girls' Grammar Junior School | SA |
|-----|--|-----|
| ACT | St Monica's Primary School - Evatt | SA |
| NSW | Christ the King Primary School - Yagoona | TAS |
| NSW | Hay Public School | TAS |
| NSW | Kinross Wolaroi Junior School | VIC |
| NSW | Normanhurst Public School | VIC |
| NSW | Parkes Public School | VIC |
| NSW | Waitara Public School | VIC |
| NT | The Essington School | VIC |
| QLD | All Saints Anglican School - Junior School | WA |
| QLD | Our Lady Help of Christians School | WA |
| QLD | St Elizabeth's Catholic Primary School | WA |
| | | |

| $\sum_{i=1}^{n}$ |
|------------------------------------|
| |
| Seymour College |
| The Pines School |
| Our Lady of Lourdes Primary School |
| Trevallyn Primary School |
| Albany Rise Primary School |
| Ballarat Grammar |
| Doncaster Gardens Primary School |
| Gisborne Primary School |
| St Mary's School |
| Mel Maria Catholic Primary School |
| West Busselton Primary School |
| Mullaloo Beach Primary School |

APSMO's Aim

To promote and improve maths problem solving skills amongst <u>all</u> students in primary schools across Australia and New Zealand

To support teachers in developing their students to understand a variety of strategies to promote flexibility in their problem solving

To encourage creativity and collaboration in problem solving

To stimulate enthusiasm and enjoyment of mathematics

About APSMO

Not for profit organisation established in Australia in 1987

Over 70,000 students participating from around Australia & NZ

Affiliated with MOEMS in the United States (Mathematical Olympiad for Elementary and Middle Schools)

Conduct Professional Learning

Produce resource books

APSMO's Programs









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EXPLORING MATHS THROUGH PROBLEM SOLVING

Resource Books









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EXPLORING MATHS THROUGH PROBLEM SOLVING

Story of this project



To design and develop innovative opportunities for younger students and their teachers to connect with APSMO and succeed as problem solvers

Story of this project

- A practical, purposeful teaching and learning program (not a competition)
- Explore the potential of multimedia resources for professional learning and classroom practice
- Build community and foster collaboration
- Promote a positive maths mindset

Setting up Positive Norms in Maths Class

We want to do things differently...

One thing we need to change in mathematics classrooms around the world is the idea that in mathematics speed is more important than depth.

Jo Boaler



Two year program

- Students in Year One and Year Two participate
- Year A (2023) focuses on three problem solving strategies
- Year B (2024) focuses on three different problem solving strategies

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A true trial

- Not a test run genuinely investigating the style, variety and complexity of the tasks
- Not everything is perfectly polished we need your feedback to help us find places where we need to fix technology or modify instructions
- We will adapt and adjust the program using the observations and insights we gain from your participation

A true trial

- The final program will have a longer timeframe
- This is a chance to 'taste test' the concept and content
- More resources have been developed than are practical in this time frame, so select and use strategically
- Do what fits within your teaching schedule we do not want you to become overburdened

Three modules in pilot program

- Finding all possibilities
- Exploring patterns
- Developing logical thinking

Each module will have a website linking to all the videos, teaching tools, activity sheets, task cards and lesson guides

Each module contains:



Video for teachers - outlining the problem solving concept Video for teachers - demonstrating the teaching tools and tips



- Two online digital teaching tools
- Outlines for two focus lessons with activity sheets



- Task cards for students with audio support
- Class challenge and feedback

Teacher preparation for each module

- Meet together and watch the concept video and the teaching tools and tips video
- Read and review the focus lesson guides and activity sheets
- ** Test to see if the digital teaching tools load on classroom devices *
- Print the set of task cards. Select which task cards are suitable for your students and decide how to group them











Steps in each module - lessons

- The first lesson each week is the focus lesson, using the digital tools and accompanying activity sheet. A lesson guide is provided
- The second lesson in the week is more flexible. Select the task cards you believe fit well with your students and group your students as you prefer
- You might like to make other task cards available for homework or enrichment, or for early finishes

Task Cards

- Recommend partner work or side by side students
- Shape system indicates complexity
- Your choice how to distribute student select, grouped
- Print as is or print two pages as one for workbook size
- Response cards available but not necessary
- Some have answers provided









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| Sometimes I | aet | consecutive | numbers. | like 3 | and 4. |
|-------------|-----|-------------|----------|--------|--------|

Are there more dominoes with consecutive numbers or double numbers? APSM0

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Class challenge

- The culminating activity for each module is a class challenge
- This will be made available on the module website towards the end of the second week
- The teacher shares the challenge with the whole class, and then students break into small groups to find solutions
- The class comes together to share and consider answers before agreeing as a class on a response to submit

Connecting Classes

- We would like to offer classes a chance to participate in a community learning experience
- If you choose, we will supply some ideas prompts for your class to create some maths problems of their own deciding on six of them to share
- Classes will be partnered together to swop and solve problems
- APSMO will facilitate this and possibly create a 'Hall of Fame' celebrating creative problems and solutions

Observations and feedback

- Each module will have a checklist of learning indicators for you to use to record your students' progress
- We will have a digital catch up during the project for review and discussion
- A set of survey questions for teachers and select students will be shared
- Anecdotal feedback, such as student comments or teacher discussion would be appreciated

Demonstration of Website

https://apsmo.edu.au/pilot-welcome/





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EXPLORING MATHS THROUGH PROBLEM SOLVING

| | Module | Details |
|-----------------------|---|--|
| Preparation - 25 July | Teacher preparation | Project Website |
| Week 1 - 1 August | Finding all Possibilities | Lesson 1: Ice Cream Maker Lesson 2: Task Cards |
| Week 2 - 8 August | Finding all Possibilities | Lesson 1: Robot Workshop Lesson 2: Task Cards |
| Week 3 - 15 August | Finding all Possibilities Exploring Patterns | Lesson 1: Class Challenge 1 Lesson 2: Pattern Maker |
| Week 4 - 22 August | Exploring Patterns | Lesson 1: Task Cards Lesson 2: Class Challenge 2 |

| Midway Point 22 & 23 August | Teacher to attend one feedback webinar with APSMO | Mon, 22 Aug 3.30pm or 4.30pm Tues, 23 Aug 3.30pm or 4.30pm |
|--------------------------------|---|---|
| Week 5 - 29 August | Developing Logical Thinking | Lesson 1: Line Up Logic Lesson 2: Task Cards |
| Week 6 - 5 September | Developing Logical Thinking | Lesson 1:Unlock Logic & Task Cards Lesson 2: Class Challenge 3 |
| Week 7 - 12 September | Class Design Challenges | Lesson 1: Create and Compare Lesson 2: Refine and Share |
| Later September | Class Connections (optional) | Partner with a class to share and solve student designed maths problems |



Questions and discussion



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