

MATHEMATICS ACTIVE SCHOOL

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Templestowe Park Primary school teachers and students being awarded their MAV Mathematics Active School accreditation by Peter Saffin, MAV CEO (back left)

At Templestowe Park Primary School we are committed to supporting the professional learning of our staff. Numeracy is a key focus of our School Strategic Plan/Annual Implementation Plan, with a focus on the development of mental strategies for students.

Recently, we had three staff members (Assistant Principal, Leading Teacher - Mathematics and Classroom Teacher) complete the Bastow: Leading Numeracy course. This course guided us as a whole staff to place a strong focus on the importance of the four proficiencies in our classroom programs. It also challenged us to pinpoint an area of need for our school, which we realised was the development of mental strategies within our students. After attending the Bastow course, our starting point was for the whole staff to work together to create a set of guiding principles that outline our beliefs and actions for all mathematics teaching and learning. They are as follows:

Because we believe:

- Students learn by exploring ... we provide concrete materials throughout our school.
- Assessment is ongoing ... we use student's knowledge to plan where

we take them next and to give them feedback on the growth that has occurred.

- Every student has varied understandings in mathematics ...we differentiate activities to challenge and support each student.
- Our students should be curious, persistent and resilient ... we provide meaningful, real-world mathematical problems to solve which require them to think in different ways.
- In using correct and consistent mathematical language ... we explicitly teach it across year levels.
- Mental strategies underpin mathematical learning and everyday tasks ... we ensure students are taught and are given time to practise these skills as part of every maths session.
- Careful recording is essential ... we ensure all students are taught to set their work out accurately.
- It is important for students to explain how they reached their answer ... we provide multiple opportunities for discussion and reflection.
- Students are engaged when they can relate their learning to real-life

experiences ...we ensure maths lessons make connections with their world.

- Students learn best when they know what they are aiming to achieve and the steps to get there ... we provide students with a clear learning intention and set of success criteria for every lesson.
- Maths is more than just 'sums' ... we expect students to explain their thinking to demonstrate their level of understanding.

Our next task was to carefully look at the strengths and weaknesses of our students' mental capacity and to critically look at our teaching in this area. Students who presented as 'good at maths' automatically manipulated numbers in their head. Our goal was to make it very clear, through explicit teaching to all, strategies of how to do this. Our Maths PALT team worked tirelessly to produce our TPPS Maths Mental Scope and Sequence document in line with the Victorian Curriculum. A 'parent friendly version' of this document is also available to parents.

The TPPS Maths Mental Scope and Sequence outlines the mental mathematics learning for each grade level. The skills listed are those we identify as being

important to be able to manipulate numbers mentally or 'in our head' quickly and efficiently. We know that these skills take time and practise to master. When students use mental computation efficiently, they have a true understanding of how numbers and mathematics work. Students will master these skills at different rates.

As we know, some students will grasp these concepts quickly whilst others will need more time and practise. Therefore, although we have outlined these skills in year levels, students will work at their point of need. Games are a great way of practising them in a fun context.

The 'Major Areas of Focus' is a summary of each skill, followed by a brief description of what each means. Concepts are built upon at each grade level. For instance, in Prep we work hard at learning 'Complements to 5'. This means knowing all the combinations of numbers that add together to equal 5 (eg. $5 + 0$, $4 + 1$, $2 + 3$). In Year 1 we build on this to know all the combinations of

numbers that add together to equal 10 (eg. $8 + 2$, $5 + 5$, $1 + 9$). In other year levels, knowing doubles, then relating this to 'near doubles' is explicitly taught.

Strategies such as using the 'split strategy' for multiplying larger numbers, or the 'compensation strategy' when adding two numbers together, are also taught.

To support this document, we also created the 'TPPS Mental Maths Activities Resource'. This is a working document stored on Google Drive which we all add to. It includes the headings:

- Teaching focus
- Activity
- Equipment
- Level
- Grouping.

We have compiled a collection of quick, efficient practical activities that give students practice at mental computation in the first 5-10 minutes of each maths lesson.

Each activity requires simple equipment such as dice, cards or even fingers.

Peer observations have allowed me to visit our maths classrooms in action and to witness students using the language of the strategies. They are growing in their ability to explain their thinking and as a staff, we are more focused on developing mental capabilities.

MAV's Mathematics Active Schools accreditation is open to any MAV member school who has a strong emphasis on developing maths learning and teaching.

To see the full criteria for a Mathematics Active School, visit www.mavvic.edu.au/what-does-a-maths-active-school-look-like.html.

Maths Active accreditation is a terrific way to demonstrate excellence in maths teaching to your school community.