

## Mathematics Operational Plan - 2019

Our academic and non-academic student outcomes, and work towards achieving Success for All Students (DoE Priority #1). This is driven by a deeply held belief that every student is capable of successful learning.

Mathematics committee members report to all staff each term in relation to the implementation of the Mathematics Operational Plan.

### Importance of Mathematics:

- Students need to know basic skills.
- Make connections between Maths and the outside world.
- Applied to real life situations.
- Assessment needs to be meaningful and ongoing diagnostic, formative and summative.
- Can include hands on activities and is engaging.
- Needs to be explicitly taught by the teacher.
- Needs to be differentiated and taught in sequence.
- It is part of everyday learning.
- Integrated with other curriculum areas, where possible.
- Consistency of language occurs.

### What a good Mathematics looks like at Willetton PS:

- Strict lesson structure with a clear introduction, body and conclusion.
- Clear conclusion time to summarize.
- Warmup games: basic number /operations.
- Immediate feedback.
- Gradual release model.
- Integration of ICT.
- Multiple methods of working something out.
- Group and individual work.
- Talking and discussions and plenty of Maths vocabulary.
- Combination of worksheets, hands on activities and games.
- Student created work.
- Authentic / real life applications
- Investigations.

Staff are encouraged to use:

- The Western Australian Curriculum and SCSA, for planning, assessing and reporting.
- EYLF embedded across the Early Years K-2.
- Kindy Guidelines and NQS documents are used to support planning, assessing and reporting.
- For students with Special needs, SEN will be used for planning, assessment and reporting.
- All staff are to explicitly teach numeracy strategy and processes using aligned resources e.g. Mathletics, iMaths, text books.

### **Common Lesson Structure in Mathematics**

Mathematics lessons conform to a set structure at WPS and are comprised into distinctive sections. These sections are listed below along with an example of features and activities that may occur in a standard Mathematics lesson across the two areas of Willetton Primary School: Kindergarten to Year 2 and Years 3-6.

#### **Kindergarten- Year 2:**

##### **1. Mental/Warm-up**

This may include activities such as:

- Sing songs:
  - Adding
  - Counting
  - Subtracting
- Flash Cards
  - Numbers
  - Next Number +1
  - Number before -1
- Number Facts
  - Numbers
  - Next Number +1
  - Number before -1
- Whiteboards/Paddles
  - Show the number +1/-1

2. Introduction

This involves “*Letting kids in on the secret*”

Features include:

- Objectives
- Lesson intentions
- WALT
- WILF
- Success criteria

3. Main Lesson Body

This involves “*Where the big learning takes place and the choice of proficiency strand is important*”

Features include:

- Understanding – teacher talks more; checks often
- Fluency – students undertake practice
- Problem Solving – group discussion; challenges; investigations
- Reasoning – oral or written literacy – ‘Justify, Pose, Pause, Pounce, Bounce’
- Includes small groups activities

4. Plenary/reflection activities

This is “*Crucial for consolidation, and allows for the development of reasoning*”

Features include:

- Small group activities and a summary of the lesson including mathematical language.

**Years 3-6:**

1. Mental/ Warm-up :

Features include:

- 10 minutes max
- Hook students in
- Hands on activity (Maths tubs can be used)
- Must become routine (should not be teaching new games every session)
- Include extension activities for advanced students

- Doesn't have to be marked
- Paul Swan games made up for each year level and linked to curriculum
- Numero
- Add a list from a warm up scope and sequence for teachers to highlight – linked to curriculum area

## 2. Main Lesson Body:

Features include:

- Include explicit Maths literacy
- Let the students in on the secret – ask what do they already know and how can they demonstrate this
- Include more than 1 activity in this section to challenge students (e.g. include an extension activity)
- ISTAR

## 3. Plenary Activity

Features include:

- 10 minutes at the end of lesson
- Form groups – have students explain what they learnt
- Feedback from students – accountability (show and tell)
- Socrative app
- Post-It notes
- PMI
- Thumbs up/down
- Five fingers
- Film skill tutorials
- Add extra box for follow up teaching points/student understanding/where to next.

Willetton PS Business Plan 2017-2019 Targets

**Target 1:** develop and deliver whole school, high quality and effective learning programs that integrate the Western Australian Curriculum through a collaborative team approach.

(To develop and consolidate evidence based whole school approaches to the teaching of Numeracy through a team-based approach.)

Strategies	Resources	Who	When	Assessment and Evaluation
<ul style="list-style-type: none"> <li>Implement a whole school Mathematics vocabulary scope and sequence.</li> </ul>	<ul style="list-style-type: none"> <li>POL meetings</li> </ul>	All staff	T2 onwards	<ul style="list-style-type: none"> <li>Scope &amp; Sequence developed and implemented across the school.</li> </ul>
<ul style="list-style-type: none"> <li>Implement a whole school scope and sequence for Mathematics.</li> </ul>	<ul style="list-style-type: none"> <li>POL meetings</li> </ul>	All staff	<ul style="list-style-type: none"> <li>T2 onwards</li> </ul>	<ul style="list-style-type: none"> <li>Scope &amp; Sequence developed and implemented across the school.</li> </ul>
<ul style="list-style-type: none"> <li>Years 3 – 6 classes learning the game Numero. (A mathematical game designed to develop and reinforce the mental calculation work required by the maths curriculum. The game will also develop speed of recall, problem solving and strategy skills).</li> <li>Investigate the use of Paul Swan Fluency Games</li> <li>'Give Me 10' strategy</li> </ul>	<ul style="list-style-type: none"> <li>Numero cards</li> <li>Fluency Games</li> </ul>	Sue Christiner (Numero)  All Staff	<ul style="list-style-type: none"> <li>T2 onwards</li> </ul>	<ul style="list-style-type: none"> <li>Interschool competitions being attended</li> <li>All 3 – 6 classes taught how to play</li> <li>Teachers using Numero in their c/rooms</li> </ul>
<ul style="list-style-type: none"> <li>Phase of Learning meetings</li> </ul>	<ul style="list-style-type: none"> <li>POL Meetings and relief staff</li> </ul>	All staff	Ongoing	<ul style="list-style-type: none"> <li>Scope &amp; Sequences developed and implemented.</li> <li>Feedback from staff</li> </ul>
<ul style="list-style-type: none"> <li>Celebrate Numeracy week.</li> </ul>	<ul style="list-style-type: none"> <li>Mathematical activities</li> </ul>	Maths committee	T3	<ul style="list-style-type: none"> <li>Newsletter report</li> <li>Staff/student feedback</li> </ul>
<ul style="list-style-type: none"> <li>Provide common DOTT to all year levels to facilitate planning, moderation and common assessment tasks.</li> </ul>		DP arranging DOTT timetable		<ul style="list-style-type: none"> <li>CATs placed on the shared drive</li> </ul>
<ul style="list-style-type: none"> <li>Develop a whole school numeracy block structure.               <ul style="list-style-type: none"> <li>- Making connections to daily life</li> <li>- practical and relevant learning experiences</li> <li>- utilising a wide range of resources to support learning, ELPS – Experience, Language, Pictures, Symbols</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>POL Meetings</li> <li>Cluster meetings</li> </ul>	All staff		<ul style="list-style-type: none"> <li>Evidence in timetables</li> <li>Numeracy Block structure</li> <li>Evidence based teaching practices are embedded across the whole school and</li> </ul>

<ul style="list-style-type: none"> <li>- authentic integration of ICT</li> <li>- explicit introduction to new topics and concepts, daily focus/ practise of explicit mental maths strategies, key or focus concepts (topic teaching and learning), guided maths teaching that includes open ended questioning, students being provided with the opportunity to develop deep understanding of concepts through a range of experiences and approaches ie - cooperative, group, partner and individual, opportunities to student reflections/ reviews – Responding to questions to explore and illustrate learning, both oral and written such as in student learning journals.</li> </ul>				<p>ensure consistent teaching and learning expectations.</p> <ul style="list-style-type: none"> <li>• Induction of new staff in school numeracy resources, programs and planning.</li> </ul>
<ul style="list-style-type: none"> <li>• Develop a repertoire of Problem Solving Skills (Guess and Check, Make A Table, Draw A Diagram, Act Out, Find A Pattern, Find Smaller Parts of a Larger Problem, Make a List, Work Backwards),</li> </ul>	<ul style="list-style-type: none"> <li>• POL Meetings</li> <li>• Cluster meetings</li> </ul>	All staff		
<ul style="list-style-type: none"> <li>• Resources All classes are provided with a Maths Box of 'essential' items for classroom teaching. Eg. Counters, dice, MAB, clocks, money</li> <li>• Maintain resources in resource room for all staff to use.</li> </ul>		Numeracy Coordinator	Ongoing	

**Target 2:** To improve the school's performance against that of 'like schools' in the 2017-2019 NAPLAN testing period for Mathematics.

(To improve the school's performance to be within the top 30% of statistically similar 'like schools' as per My School website data comparisons in all areas and year levels in the 2017 – 2019 testing period.)

Strategies	Resources	Who	When	Assessment and Evaluation
<ul style="list-style-type: none"> <li>• Effectively translate assessment information into focused, differentiated instruction.</li> </ul>	<ul style="list-style-type: none"> <li>• Assessment timeline</li> <li>• Data Analysis spreadsheet</li> <li>• Best Performance Prof learning</li> </ul>	All staff led by DP	T1, T2, T3, T4	<ul style="list-style-type: none"> <li>• Whole school assessment timeline implemented.</li> <li>• Assessments are guiding teaching and learning.</li> <li>• NAPLAN</li> <li>• On Entry</li> <li>• PAT</li> <li>• Best Performance Data</li> <li>• All students on documented</li> </ul>

				<p>plans are monitored and progress measured through the collection and analysis of ongoing individual assessments and whole school SAER tracking profile.</p> <ul style="list-style-type: none"> <li>• Data is used to identify starting points for improvement and to monitor progress over time.</li> <li>• Students demonstrate progress in pre- and post- PAT Numeracy tests from 2018 -2020.</li> </ul>
<ul style="list-style-type: none"> <li>• Utilise the NAPLAN planners and resources from the portal to inform teaching and learning programs for Years 3 &amp; 5.</li> <li>• Moderating at Cluster and year levels.</li> </ul>	<ul style="list-style-type: none"> <li>• The Will Plan (Yr 3)</li> <li>• NAPLAN planners</li> <li>• NAPLAN past papers</li> </ul>	<ul style="list-style-type: none"> <li>• Yr 3 &amp; 5 teachers</li> <li>• Curriculum DP</li> </ul>	<ul style="list-style-type: none"> <li>• Term 1 and beginning of Term 2</li> </ul>	<ul style="list-style-type: none"> <li>• NAPLAN</li> </ul>
<ul style="list-style-type: none"> <li>• Prepare teachers and students for NAPLAN online testing formats processes, skills and environments.</li> </ul>	<ul style="list-style-type: none"> <li>• Prof learning</li> <li>• NAPLAN collegial sessions</li> <li>• Connectivity testing and Cabling across classes</li> <li>• Devices and room allocations</li> <li>• Wireless Infill Program – ensuring ratio of WAPS's appropriate</li> </ul>	<ul style="list-style-type: none"> <li>• Yr 3 &amp; 5 teachers</li> <li>• DP</li> </ul>	<ul style="list-style-type: none"> <li>• Term 3 onwards?</li> </ul>	<p>Evidence of a scheduled timeline and support for the transition to NAPLAN online.</p>
<ul style="list-style-type: none"> <li>• Westwood One Minute Tests on number facts focusing on Australian Curriculum Mathematics: Proficiency strand <i>Fluency</i></li> </ul>	<ul style="list-style-type: none"> <li>• Westwood One Minute Tests</li> </ul>	<ul style="list-style-type: none"> <li>• Yrs 1 - 6</li> </ul>	<ul style="list-style-type: none"> <li>• T1 and T4</li> </ul>	<p>Formative assessment to identify students critically low and also at high levels of fluency to inform teaching.</p>

<ul style="list-style-type: none"> <li>All students to be exposed to NAPLAN-style questions throughout the year to compliment current teaching focus.</li> </ul>	<ul style="list-style-type: none"> <li>On-line NAPLAN resources</li> <li>DoE NAPLAN Planners</li> <li>Best performance NAPLAN analysis</li> </ul>	<ul style="list-style-type: none"> <li>K - 6</li> </ul>	<ul style="list-style-type: none"> <li>All year</li> </ul>	
--	---	---	--	--

<b>Target 3:</b> Equip staff to effectively interpret and respond to a wide range of student data to inform teaching practice. (To further develop the capacity of teachers in data analysis to inform teaching and learning programs and improve student outcomes.)				
Strategies	Resources	Who	When	Assessment and Evaluation
<ul style="list-style-type: none"> <li>Provide common DOTT to all year levels to facilitate planning, moderation and common assessment tasks.</li> <li>Collaborate in developing programs and rotate shared resources</li> </ul>	<ul style="list-style-type: none"> <li>Judgement Achievement Standards SCASA</li> </ul>	DP arranging DOTT timetable	Ongoing	<ul style="list-style-type: none"> <li>Teacher Judgement against Achievement Standards SCASA A-E levels (student exemplars)</li> <li>Regular collaborative planning (DOTT) and review meetings with classroom teachers to ensure a common approach to teaching and learning throughout the school.</li> </ul>
<ul style="list-style-type: none"> <li>Data recoded on shared drive after administering whole school assessment schedule.</li> </ul>	<ul style="list-style-type: none"> <li>Prof Learning</li> <li>Data Analysis spreadsheet</li> </ul>	All staff DP	T1 and T4	<ul style="list-style-type: none"> <li>All class data stored on shared drive.</li> <li>Staff utilising data in handover.</li> <li>Tracking students making low progress from On Entry to Yr 3 NAPLAN</li> </ul>
<ul style="list-style-type: none"> <li>Regular POL and cluster meetings for planning and moderation.</li> </ul>		All staff	Ongoing	
<ul style="list-style-type: none"> <li>Diagnostic Analysis of data to identify gaps, inform teaching and value add.</li> </ul>	<ul style="list-style-type: none"> <li>Data from Whole</li> </ul>	All staff	T1 and T4	Assessment tasks and data



	school assessment schedule <ul style="list-style-type: none"> <li>• Common DOTT</li> <li>• Resources as need arises.</li> </ul>			collection will be used regularly to monitor student progress and to make valid judgments against individuals' progress, cohorts, like schools and year levels both state-wide and nationally. Analysis of this data at various levels will be reported to students, staff, parents and the community on a regular basis to profile student progress.
<ul style="list-style-type: none"> <li>• Complete PAT tests and analyse the results to inform teaching and learning programs.</li> </ul>	<ul style="list-style-type: none"> <li>• PAT tests</li> <li>• Data analysis spreadsheet</li> </ul>	All staff  DP	T1 and T4	<ul style="list-style-type: none"> <li>• Sem 1 - use as a diagnostic tool to inform teaching, whole class and year level trends.</li> <li>• Sem 2 Summative Assessment. Evidence of student learning in relation to the Achievement Standard.</li> </ul>

**Target 4:** Community Partnerships; To develop and maintain a distinctive school identity that engages stakeholders through effective communication.

(To further develop the capacity of teachers in data analysis to inform teaching and learning programs and improve student outcomes.)

Strategies	Resources	Who	When	Assessment and Evaluation
<ul style="list-style-type: none"> <li>• Fortnightly newsletter updates from classrooms</li> </ul>		All Staff	T3 & T4	
<ul style="list-style-type: none"> <li>• Develop year level bookmarks to support parents in developing their child's mathematical understanding.</li> </ul>		Numeracy Focus Group  All staff		