



Numeracy Intervention Overview

Big Ideas In Number



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Di Siemon's *Big Ideas in Number* framework outlines six key concepts that build strong number sense. These are: *trusting the count*, *place value*, *multiplicative thinking*, *partitioning*, *proportional reasoning*, and *generalising*.

Each of these acts as a developmental checkpoint that students need to master before moving on to more complex mathematical ideas.

The flow chart below illustrates which areas of the BIIN students are expected to be confident in at each year level.

Big Ideas in Number	R	1	2	3	4	5	6
Trusting the Count	Dark Green	Dark Green	Light Green	Light Green	Light Green	White	White
Place Value	Light Green	Dark Green	Dark Green	Light Green	Light Green	Light Green	Light Green
Additive to Multiplicative thinking	Light Green	Light Green	Light Green	Dark Green	Dark Green	Light Green	Light Green
Partitioning	White	Light Green	Light Green	Light Green	Light Green	Dark Green	Dark Green
Proportional Reasoning	White	White	Light Green	Light Green	Light Green	Light Green	Dark Green
Generalisation	White	White	White	Light Green	Light Green	Light Green	Light Green

[Teaching with big ideas in number](#)

Purpose and Journey:

The purpose of numeracy intervention is to focus on enabling students to develop numeracy skills which can be applied to all areas of numeracy to deepen mathematical understanding both within the classroom and in day to day life. Numeracy intervention not only aids students develop their numeracy skills but gives them a space to build confidence in mathematics and overcome Mathematical anxiety.

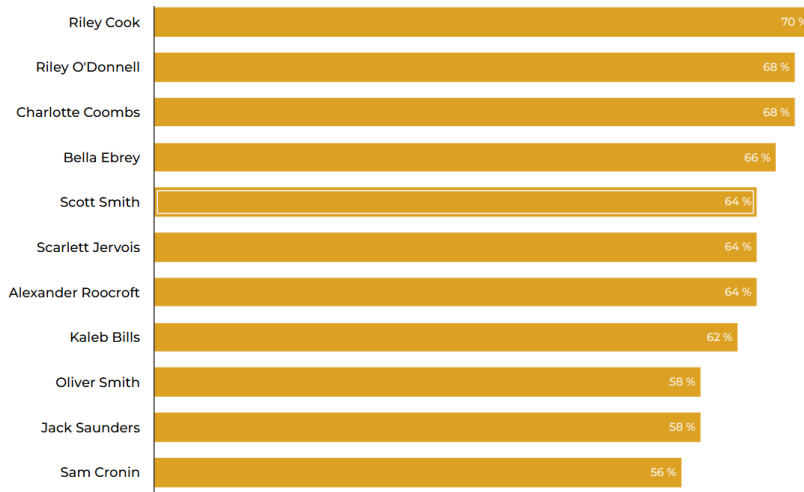
In 2024 Numeracy intervention started with a Big Ideas in Number (BIIN) intensive for all of our intervention groups (year 7-year 10). This was a result of recognising that many students lacked basic number and place value understanding, which meant accessing work in the classroom was very challenging. After this one year intensive focus on BIIN, consequent testing demonstrated noticeable improvement with students shifting through the program - equivalent to 2-3 years growth in fundamental and foundational numeracy skills.

As many of the gaps that the BIIN program was addressing were being filled, the numeracy intervention had to evolve to progress with the students. In 2025 we began to focus on middle school only (7-9). For students in years 8-9 intervention advanced to be more closely aligned to the numeracy skills which directly linked to what students were doing in class. The Year 7 focus is still on BIIN to ensure we are closing the gaps and ensuring our students moving from year 7 to 8 have a strong foundation in Numeracy.

For students in years 8-9 the focus is on skill development, this is not tutoring or re-teaching the classroom work, it is using the numeracy progression to determine which foundation skills the students haven't mastered yet and developing those. This gives students the specific skills required to access the content that they are learning in

their maths class and skills that can be applied in multiple contexts. In doing so our hope is it will allow students' maths confidence to grow.

A key focus is to run numeracy intervention to support the learning done in the maths classroom, not try and replace it.



What does a numeracy intervention involve

Step 1: Testing

Testing part 1-

Math teachers will complete a whole year diagnostic test using smartlab.

This data is used alongside data from PAT M, Naplan, in class formative work and teacher anecdotal data to give a general indication of students' mathematical ability.

Testing part 2-

The intervention teacher will then use the above data and select students for [BIIN testing](#). This testing will allow intervention teachers to identify what parts of the BIIN program students have gaps in and if they require to participate in BIIN intensive intervention or the numeracy skills improvement intervention. Numeracy intervention teachers will then group students accordingly

Students Left:			2. Place Value								3.
11	BIIN Benchmark		2.1	2.1	2.1	2.1	2.2	2.3	2.4		
Grade 7	Semester 1 Selection Testing		Number Naming Tool 1 - Count Counters	Number Naming Tool 2 - Write 34	Number Naming Tool 1 - Recount 26	Number Naming Tool 3 - 0-99	Efficient Counting Tool	Sequencing Tool	Renaming and Counting Tool	Cour	
Date	Class	Student									
17/02/2025	7A	Amelia White	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
			Counted by 2s		Identified that there were 10s and ones		Not sure why numbers are written the way they are.				

so they participate in intervention with students that have similar misconceptions and gaps in their understanding.

Step 2: The session

Intervention sessions occur twice a week for 40 minutes run by maths teachers. Numeracy intervention involves a lot of gamified learning as well as the use of

manipulatives. The intervention teacher will move through content at the students speed to ensure they are developing core skills and making meaningful connections. Students are swapped in and out of intervention as required, this can be due to a range of reasons; if the students' have developed the required skills, If students have low attendance or low engagement to intervention or if students have already developed the numeracy skills related to the current mathematics topic. This constant changing of intervention groups to accommodate these changing needs ensure numeracy intervention has the most impact to the greatest number of students.

Step 3: Communication

Intervention teachers will communicate with families for a variety of reasons. Numeracy intervention teachers initially make contact home to inform parents that their students are involved in the program and what numeracy intervention involves. Intervention teachers will also communicate home with successes students have had during the sessions. There is a large push on positive communication at home, as students involved are often students that have not previously had a lot of success in maths, positive feedback aids in creating positivity around mathematics as well as building students' confidence.

Tracking and monitoring:

A [tracking document](#) is used to keep track of students progress during intervention. The document includes details on what is occurring during the intervention session (including learning intentions and success criteria) and how students engaged with this; if they achieved the success criteria, need more time on it or if any other new misconceptions have become apparent.

Intervention sessions are often split between two teachers so a detailed tracking document is crucial for fluidity across sessions. This document is also used to track attendance so we can switch any low attending students to ensure we can meet the needs of the greatest number of students.

Week/Day					Week 4 Term 3		
BIIN Area		Multiplicative Th...	Multiplicative T...		Multiplicative Thin...	Multiplicative Thi...	
Learning Intention		Multiplication and estimation			Multiplication thinking	Using patterns to more effectively multiply	
Success Criteria		Have a strategy for multiplying	Multiplication strategies				
Learning Activities (Summary of Resources)	1. Warmup - abc 2. Activity 3. Activity	How much did you earn - white board activity - different amounts per hour by different hours. Four in a row game using factors and multiplication. Also might look at double or stick again to emphasise the idea of doubling.	Money activity first up - using double double methods. Then half double or stick and finally factors 4 in a row (building up number relationship knowledge)		Using blocks to show multiplication of large numbers. Double, half or stick game. Same thing both sessions.	Using blocks to show multiplication of double digit numbers by single digit numbers - area version. Followed by game of double, half or stick.	
Directions for next lesson					Repeat		
Amelia White		Worked on doubling doubling for the money question - hit at the same level next time Improvement continues - now uses various strategies to solve the multiplication problems.			Working on having multiplication strategies making progress		

Incorporating a site wide lense

To deepen these key numeracy skills it became a site-wide priority to incorporate numeracy across all subjects. This allowed for students to be exposed to these skills multiple times a week and in a range of contexts which helped deepen the understanding and help students build a stronger connection and see the relevance of numeracy across a range of scenarios.