



# Mathematics and Numeracy Agreement [MLA]

## PURPOSE

At Flinders View Primary School, we recognise that a whole school approach to Mathematics learning is necessary to support and challenge **all** students. We aim to teach Mathematics explicitly and in a variety of contexts to allow for a deep, rich and meaningful understanding of language, concepts and development of skills.

This agreement provides the expectations for teaching and learning, to ensure all teachers are confident and competent in teaching Mathematics across the site with consistency in language and R-7 pedagogies. Flinders View is committed to building the capacity of teachers through high quality learning and the development of quality teaching and learning programmes.

## RATIONALE

To be Numerate is to have the capacity, confidence and disposition to use mathematics in daily life. Being numerate means being able to problem solve and reason with mathematical concepts and to fluently apply these in a range of contexts. We believe that all students can be powerful, successful lifelong learners of Mathematics. Every student has the right to at least one year of growth in Mathematics, for every year of learning. Students should be supported to develop a broad range of Mathematics skills that will enable them to be numerate, productive and active citizens. Our school is committed to building the capacity of all staff as a result of high quality learning, collaborations and the development of quality teaching and learning programs.

## PEDAGOGICAL APPROACHES

Teachers at Flinders View Primary School are committed to using **High-Impact Teaching Strategies (HITS)** (\*see Figure 1) throughout all facets of Curriculum learning.

### High-Impact Teaching Strategies

The HITS are 10 instructional pedagogies that reliably increase student learning wherever they are applied. They emerge from the findings of tens of thousands of studies of what has worked in classrooms across Australia and the world. International experts such as John Hattie and Robert Marzano have synthesised these studies and ranked hundreds of teaching strategies by the contribution they make to student learning. The HITS sit at the top of these rankings (State of Victoria: Department of Education and Training, 2017).

The Mathematics Curriculum, is to be taught using the **Explicit Instruction Model** (\*see Figure 2) with a focus on Gradual Release through scaffolded learning experiences that allow students to explore how students think and work mathematically.



Figure 1: High-Impact Teaching Strategies

## Explicit Instruction Model

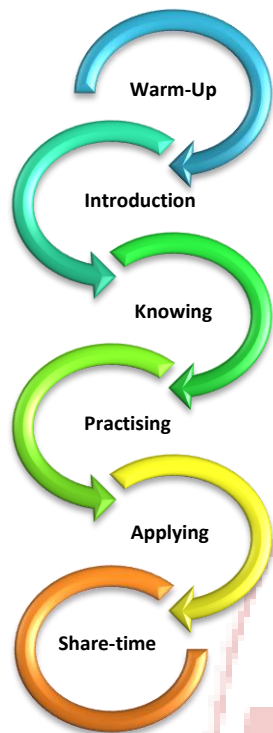


Figure 2: Explicit

Teaching Model

**WARM-UPS:** For more information regarding what should be in a mathematics warm-up\*\**Refer to Teaching and Learning Handbook - 'Warm-Up Guidelines'*

**LEARNING INTENTIONS & SUCCESS CRITERIA:** Each lesson has a learning goal that is shared with students, ensuring they know the criteria to be successful in their learning (i.e. success criteria).

**(KNOWING – PRACTISING-APPLYING: I DO, WE DO, YOU DO \*collaboratively, YOU DO \*Independently)**

In teaching new concepts, teachers may explicitly guide students when learning new skills and strategies that focuses on letting student into the literate discourse of the learning. The focus of this component is to develop students' knowledge of topics/ content covered; allowing them time to practise and consolidate these understandings with required support, and finally to be able to independently transfer and apply these understandings to new contexts.

**REFLECTION:** Refers to the 'ploughing back' aspect of the lesson. It is a time for students to discuss, reason and share their learning, reflect on learning and think about the application of skills learnt in real-life contexts.

All pedagogical practices encourage *intellectual stretch* and *development of the Executive Functions and a Growth Mindset*.

*\*These are explored further in the Flinders View Primary School, 'Teaching and Learning Handbook'. Available on the [Google Shared Drive>Teaching and Learning>Teaching and Learning Handbook](#)*

## PROGRAMMING AND PLANNING

At Flinders View Primary School staff are mandated to teach and report using the Australian Curriculum. The Australian Curriculum will guide programming and planning with the content descriptors (what), the Mathematical Proficiencies (how) and teachers reporting using the Year level Achievement Standard. The planning and programming of Mathematics is designed to give students opportunities to:

- Choose and use mathematics
- Allow for the development of the proficiencies: understanding, fluency, problem solving, reasoning
- Develop positive dispositions and transversal skills for powerful learning
- Use mathematics in real life situations
- Engage community members/trades/professionals with real life mathematical skills

Aspects that make the teaching and learning program effective across the school include:

- A common language and agreed practice across the site
- Use of Australian Curriculum glossary for terms and definitions
- Opportunities for a mixture of mental tasks, problem solving or investigations, and explicit teaching of strategies
- Time for reflection
- Teaching of the literacies of Mathematics and the comprehension strategies required for Mathematics learning
- Opportunities that demonstrate mathematics in real life situations



## Planning Tools

Key tools to be used for programming and planning should include:

- Australian Curriculum: Mathematics, including all proficiencies (fluency, problem solving, understanding, reasoning)
- General Capabilities, Cross Curriculum Priorities, across all Learning Areas
- Numeracy Learning Progressions
- DfE Mathematics Scope and Sequence
- Learning Design (*Teaching for Effective Learning Framework*)

## Planning Documentation

Programming and planning should show evidence of the following key design elements:

- Links to the Australian Curriculum i.e. content descriptions, achievement standards, cross curriculum priorities
- Explicit Learning Intentions and Success Criteria
- Evidence of intellectual stretch/ high challenge/ productive struggle
- Differentiation of tasks to suit learning needs
- Core components of a balanced Numeracy Block (INCLUDING Explicit Teaching and Problem solving).
- Assessment strategies (formative and summative)
- Aboriginal and Torres Strait Islander Perspectives
- Opportunities for powerful learning, including positive dispositions and transversal skills (i.e. development of Executive Functions/Growth Mindset to build resilience and persistence).

## Time Allocations

DfE requirements for time allocation include a minimum of 300 minutes or 5 hours for the teaching of Mathematics each week. Teachers may choose to teach more minutes to make sure learning of specific concepts has been achieved.

Numeracy, as part of the General Capabilities, will be taught through all curriculum learning areas.

## Australian Curriculum Mathematics

PROFICIENCIES: Understanding, Fluency, Problem-Solving-Reasoning		
NUMBER AND ALGEBRA	MEASUREMENT AND GEOMETRY	STATISTICS AND PROBABILITY
<ul style="list-style-type: none"> <li>• Number and Place Value</li> <li>• Fractions and Decimals</li> <li>• Real Numbers</li> <li>• Money and Financial Mathematics</li> <li>• Patterns and Algebra</li> <li>• Linear and non-linear relationships</li> </ul>	<ul style="list-style-type: none"> <li>• Using units of measurement</li> <li>• Shape</li> <li>• Geometric Reasoning</li> <li>• Location and Transformation</li> <li>• Pythagoras and Trigonometry</li> </ul>	<ul style="list-style-type: none"> <li>• Chance</li> <li>• Data Representation and Interpretation</li> </ul>



## Big Ideas in Number

There should also be a focus on developing the Big Ideas in Number.

Level	"BIG IDEA"
<b>1</b> End of Reception	<b>Trusting the Count</b> Developing flexible mental objects for the numbers 0-10.
<b>2</b> End of Year 2	<b>Place Value</b> The importance of moving beyond counting by ones, the structure of Base 10 numeration system.
<b>3</b> End of Year 4	<b>Multiplicative Thinking</b> The Key to understanding rational number and developing efficient written and mental computation strategies in later years.
<b>4</b> End of Year 6	<b>Partitioning</b> The missing link in building common fractional and decimal knowledge and confidence.
<b>5</b> End of Year 8	<b>Proportional Reasoning</b> Extending what is known about multiplication and division beyond rule based procedures to solve problems involving fractions, decimals, percent, ratio, rate and proportion, =.
<b>6</b> End of Year 10	<b>Generalising</b> Skills and strategies to support equivalence recognition of number properties and patterns and the use of algebraic text, without which it is impossible to engage with broader curricula expectations at this level.

## Planning for Numeracy across the Curriculum

Flinders View Primary School staff will use the General Capabilities Numeracy Learning Continuum to support the promotion and development of numeracy across all curriculum areas. The Australian Curriculum General Capabilities Numeracy states: *"Using mathematical skills across the curriculum enriches the study of other learning areas and contributes to the development of a broader and deeper understanding of numeracy"*. Therefore, a commitment to numeracy development is an essential component of learning areas across the curriculum and a responsibility for all teachers. It is essential that the mathematical ideas with which students interact are relevant and meaningful in the context of their lives. This means that all teachers:

- Identify the specific numeracy demands of their learning area/s
- Provide learning experiences and opportunities that support the application of students' general mathematical knowledge and skills
- Should be aware of the correct use of mathematical terminology in their learning area/s and use this language in their teaching as appropriate.

## Embedding Aboriginal Perspectives

Aboriginal Perspectives and pedagogies can be embedded throughout Mathematics programming and Numeracy planning. Ways in which this can be done include:

- Incorporating Aboriginal Pedagogies (such as those described by the 8 ways website)
- Incorporating Aboriginal resources
- Planning for Cultural Responsiveness
- Including Aboriginal Authors/ Writers/ persons/ examples in your selection of learning materials.
- Considering Aboriginal Perspectives and ways of showing knowing in assessment tasks.

\*For a more comprehensive response to embedding Aboriginal Perspectives, please consult with the school's Aboriginal Education Team.



## CLASSROOM ENVIRONMENTS

Classroom Mathematics Environments should be neat, organised, make available appropriate scaffolds and manipulatives and be conducive to Explicit Teaching. They will be stimulating and engaging environments that scaffold students' numeracy learning and support the development of students' skills, knowledge and understandings in Mathematics. They will also be reflective of students' best work.

**\*\*See Classroom Environment Checklists- Teaching and Learning Handbook**

## CLASSROOM MATHEMATIC RESOURCE KITS:

Each classroom is equipped with specific, year-level appropriate mathematic resources. These resources are those that are used through most mathematics lessons (or frequently). Each classroom has an appropriately numbered kit. Each kit has a checklist of the materials that are found in each specific kit. It is the responsibility of teachers to ensure these kits stay maintained throughout the year.

At the end of the year, the Curriculum Lead will ask which items need replacing/ replenishing as appropriate. These kits must remain in the classroom at all times (they are not to be returned to the library). Storage of these kits, should be easily accessible to students (for use during mathematics lessons).

Other mathematics resources, which may be more 'topic specific' (i.e. Class sets of clocks; 3D shapes etc...) can be borrowed from the school library. If you require resources which are not available in the school library, or your classroom mathematics resource kit, please contact the Curriculum Lead.

## ASSESSMENT AND REPORTING

Teachers will use diagnostic, formative, and summative assessments throughout the year to inform teaching and learning programs and to make informed judgments about student progress. Summative assessment through standardised testing across the school are in line with DfE requirements and whole-school approaches.

Written reports are sent home twice a year, at the end of term 2 and term 4. Students are reported against the Australian Curriculum achievement standards using A-E grades or word equivalents. Other reporting may take the form of feedback to students, parent meetings or 3 way interviews.

### Assessment Tools

Assessment Tool	Overview
<b>School-Based Mathematics Assessment</b>	Aligned to the PAT-M, our School-Based Mathematics Assessment (SMA) targets students in Years 1-6 and assesses a broad range of mathematical skills. Teachers assess the tests and a scale score determined. This enables teachers to use the online PAT Resource centre throughout the year.
<b>PAT-M</b>	Mandated by DfE, PAT-M Testing occurs in Term 3 and targets students in Years 1-6.
<b>NAPLaN</b>	Nationally Mandated, the NAPLaN Mathematics assessment Targets all student across Australia in Years 3 and 5.
<b>BIG IDEAS IN NUMBER</b>	The schools Big Ideas in Number Assessments target students from R-6 and help to determine students' levels of mastery of the BIIN. * See flow chart for testing/assessments.
<b>MATHEMATICS PORTFOLIOS</b>	See below.



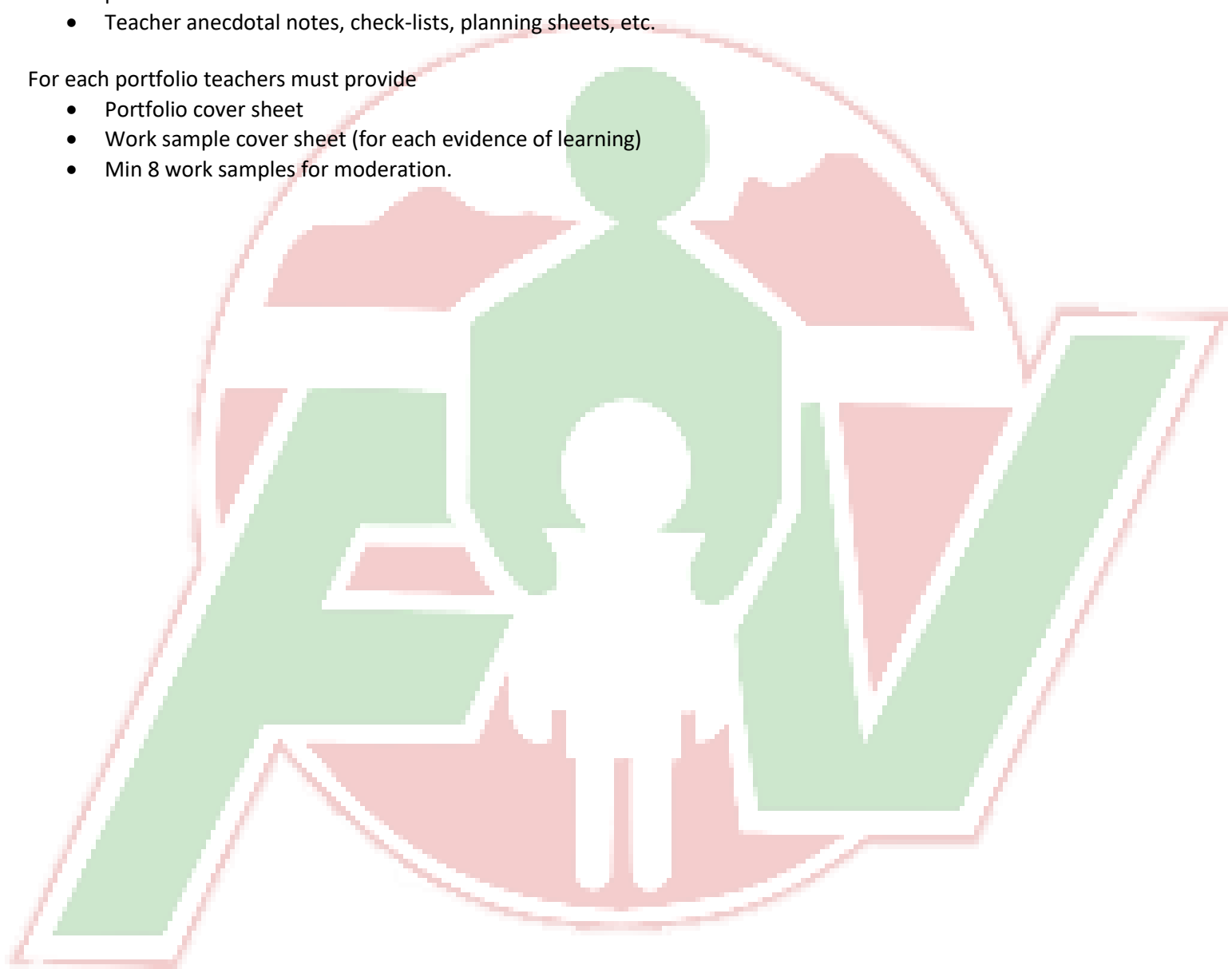
## Mathematics Portfolios and Moderation

At Flinders View Primary School Teachers are required to collect Mathematical Portfolios for three students in their classroom. Teachers will moderate each other's work using a collection of student work samples. These work samples may include

- high quality assessment tasks which address a range of new contexts
- work samples that represent a variety of ways of demonstrating learning e.g. oral presentations, team work and individual artefacts, photos, videos, etc.
- peer and self-assessments
- Teacher anecdotal notes, check-lists, planning sheets, etc.

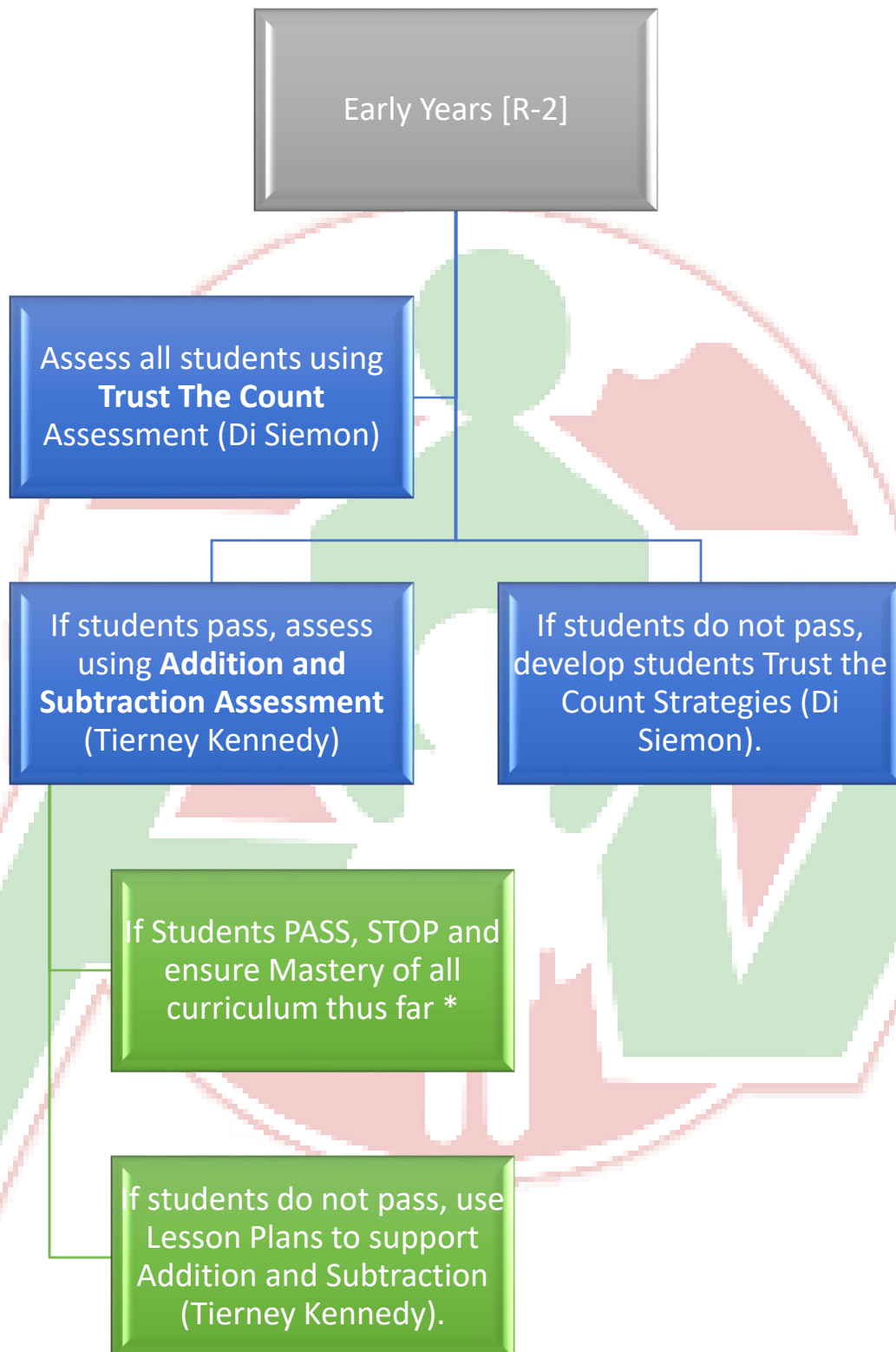
For each portfolio teachers must provide

- Portfolio cover sheet
- Work sample cover sheet (for each evidence of learning)
- Min 8 work samples for moderation.





## Big Ideas in Number Assessment Process



**\*Tierney Kennedy Website has great activities to develop students' breadth of knowledge and mastery.**



Primary Years [3-6]

Assess all students assess using **Place Value Assessment** (Tierney Kennedy)

If the students **PASS** (80% or higher), assess using **Multiplication and Division Assessment** (Tierney Kennedy).

If students do not pass, use **Lesson Plans** to support **Place Value** (Tierney Kennedy). \*

If the students **PASS** (80% or higher), assess using **Partitioning Assessment** (Di Siemon).

If students do not pass, use **Lesson Plans** to support **Multiplication and Division** (Tierney Kennedy). \*\*

If the students **PASS** (80% or higher), **STOP** and ensure **Mastery of all skills\*\*\***.

If the students **DO NOT PASS**, diagnostic test using **Partitioning Diagnostic Assessment** (Di Siemon) to determine misconceptions.

\*If after 10 weeks of Intervention using Tierney Kennedy lesson plans for Place Value, students are still not showing growth or passing PV Assessment- Use Di Siemon's BIIN Place Value Diagnostic Assessment to determine further misconceptions.

\*\*If after 10 weeks of Intervention using Tierney Kennedy lesson plans for Multiplication and Division, students are still not showing growth or passing MD Assessment- Use Di Siemon's BIIN Multiplicative Thinking Diagnostic Assessment to determine further misconceptions.

\*\*\* Decimal and Percentages and Fractions Teacher Resource books, Assessments and Lessons available for Teacher use (Wave 1 instruction).





## AGREED STANDARDS

# Standard of Educational Achievement- MATHEMATICS

### NAPLaN

Assessment Tool: National Assessment Program Literacy and Numeracy (Numeracy)

Level	Band
Year 3	Band 3 or above
Year 5	Band 5 or above

### Mathematics Assessment

Assessment Tool: School-Based Mathematics Assessment (SMA)

Level	Scale Score
Year 1	95
Year 2	98
Year 3	101
Year 4	110
Year 5	112
Year 6	120

### PAT-M

Assessment Tool: Progressive Achievement Test- Reading (ACER) online.

Level	Scale Score
Year 3	101
Year 4	110
Year 5	112
Year 6	120



Trust the Count/ Place Value

Assessment Tool: Big Ideas in Number (Diagnostic Assessment)

Big Idea	Rec	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<i>Trusting the Count</i>	✓	✓					
<i>Place Value</i>		✓	✓	✓	✓	✓	
<i>Additive to Multiplicative Thinking</i>					✓	✓	✓
<i>Partitioning</i>						✓	✓
<i>Proportional Reasoning</i>							✓
<i>Generalisations</i>							

Big Idea	SEA
<i>Trusting the Count</i>	Complete END of Year 2
<i>Place Value</i>	Complete END of Year 4
<i>Additive to Multiplicative Thinking</i>	Complete END of Year 5
<i>Partitioning</i>	Complete END of Year 6
<i>Proportional Reasoning</i>	Year 7+
<i>Generalisations</i>	Year 7+



DATA COLLECTION AND ANALYSIS

# Assessment Collection Timelines

## Assessment Collection Timelines [Reception-Year 2]

	Area of Assessment	Assessment Tool	Term 1		Term 2		Term 3		Term 4
			Week 5	Week 10	Week 5	Week 10	Week 5	Week 10	Week 5
<b>ENGLISH</b>	READING	Oral Language	✓			✓			✓
		Phonological Awareness	✓	✓	✓	✓	✓	✓	✓
		Concepts of Print	✓	✓	✓	✓	✓	✓	✓
		Phonics (Phonemes)	✓	✓	✓	✓	✓	✓	✓
		Phonics (Graphemes)		✓		✓		✓	✓
	DfE Phonics Screening *Year 1's Only	✓					✓*wk. 5-8		
	Fluency Reading Assessment		✓		✓		✓	✓	
	Comprehensions						✓*weeks 7-9		
	Reading Levels		✓	✓	✓	✓		✓	
				✓		✓		✓	
WRITING	Cold Write	Australian Criterion Scale	✓					✓	
	Text-Type Writing	Success Criteria *Nelson Cengage/ Aus. Curriculum(pre and post samples Submitted-whole-school level)		✓*narrative		✓*Persuasive		✓*Informative	
	Spelling Mastery Placement	Spelling Mastery Placement Test		✓*week 1				✓	
	EALD	Learning English Achievement Progression		✓					
	English Portfolios [Moderation]	See School English Portfolio Guidelines						*Moderation week 4	
Maths	AU	Numeracy					✓*weeks 7-9		
		Numeracy	✓						
		Trust the Count/ Place Value			✓			✓	
	Mathematic Portfolios [Moderation]	See School English Portfolio Guidelines			*Moderation week 4				
Other	One Plan		✓*Written				✓*Review		
	3-Way Interviews	Parent + Student + Teacher		✓*week 8					
	Reports				✓*open week 5			✓	
	Open Night		✓*Week 3						
	Family Night						✓*week 8		
NIT	Specialist Portfolios	Student Learning Portfolios for specialists Subjects.			*Moderation week 4			*Moderation week 4	

## Assessment Collection Timelines [Year 3-7]

	Area of Assessment	Assessment Tool	Term 1		Term 2		Term 3		Term 4
			Week 5	Week 10	Week 5	Week 10	Week 5	Week 10	Week 5
<b>ENGLISH</b>	READING	Oral Language	✓	✓	✓	✓	✓	✓	✓
		Phonological Awareness	✓	✓	✓	✓	✓	✓	✓
		Concepts of Print	✓	✓	✓	✓	✓	✓	✓
		Phonics (Phonemes)	✓	✓	✓	✓	✓	✓	✓
		Phonics (Graphemes)		✓		✓		✓	✓
	Fluency Reading Assessment		✓		✓		✓	✓	
	Comprehensions						✓*weeks 7-9		
	Reading		✓		✓		✓	✓	
	Cold Write	Australian Criterion Scale	✓					✓	
	Text-Type Writing	Success Criteria *Nelson Cengage/ Aus. Curriculum(pre and post samples Submitted-whole-school level)		✓*narrative		✓*Persuasive		✓*Informative	
Spelling Mastery Placement	Spelling Mastery Placement Test		✓*week 1				✓		
	EALD	Learning English Achievement Progressions		✓					
	English Portfolios [Moderation]	See School English Portfolio Guidelines						*Moderation week 4	
Maths	AU	Numeracy					✓*weeks 7-9		
		Numeracy	✓						
		Trust the Count/ Place Value			✓			✓	
	Mathematic Portfolios [Moderation]	See School English Portfolio Guidelines			*Moderation week 4				
Other	One Plan		✓*Written				✓*Review		
	Literacy and Numeracy	NAPLAN Online			✓				
	3-Way Interviews	Parent + Student + Teacher		✓*week 8					
	Reports				✓*open week 5			✓	
	Open Night		✓*Week 3						
Family Night						✓*week 8			
NIT	Specialist Portfolios	Student Learning Portfolios for specialists Subjects.			*Moderation week 4			*Moderation week 4	

\*Assessments highlighted only need to be collected if student has not met the STANDARDS and are still working on these.



## MATHEMATICS ASSESSMENT PORTFOLIOS

A Mathematics Assessment Portfolio must be collected for each child of every class in the area of Mathematics. Portfolios are a collection of evidence of student learning against the Australian Curriculum Achievement Standard. Portfolios should include evidence of student learning for every 'verb statement' of the students year level Achievement Standard. Each evidence piece in the portfolio (or task) requires a cover sheet \* these can be found on the shared Google Drive.

Artefacts that can be included in the portfolios include:

- Formative, Summative and diagnostic assessment
- Student work samples
- Pre and post testing
- Anecdotal notes incl. observations (dated/ aligned to Achievement Standard)
- Student comments/ responses
- Photos and videos
- QR codes to SeeSaw links
- Testing Results (ie. PAT-M)
- Assessment tasks aligned with the Australian Curriculum Achievement Standard

### Please Note:

- *All artefacts, including photos, video and testing) would require coversheets, which outline links to Australian Curriculum Achievement Standard using agreed template.*
- *All annotations and notes/feedback etc... would need to be professional aligned to the Australian Curriculum Achievement Standard and shareable with students and parents.*

## REPORTING

Formal A-E Grading and Reporting happens twice yearly (Term 2 and 4). Students are allocated grades based on Mathematics Portfolios and Teacher Judgements (based on observation, conversation etc) to form a sound basis of evidence.

Consistency of A-E grading is imperative across the school. As such, the school has an agreed rubric for determining judgements and consistency of understandings of A-E Grading in Mathematics.

Developing Consistent Understandings of A-E Grading [Mathematics]

The following A-E Grading Guide was developed by staff of Flinders View Primary School, in 2020 as part of their professional learning through the Department for Education (DfE) Strategy Learning Design, Assessment and Moderation

Year Level	A	B	C	D	E
Department for Education	Demonstrating excellent achievement of what is expected at this year level	Demonstrating good achievement of what is expected at this year level	Demonstrating satisfactory achievement of what is expected at this year level	Demonstrating partial achievement of what is expected at this year level	Demonstrating minimal achievement of what is expected at this year level
Concepts	<ul style="list-style-type: none"> <li>Extensive knowledge and understanding of the content, key ideas and concepts</li> <li>Very high level of competence in the skills and processes</li> <li>Uses these skills and processes in new contexts</li> </ul>	<ul style="list-style-type: none"> <li>Extensive knowledge and understanding of the content, key ideas and concepts</li> <li>High level of competence in the skills and processes</li> <li>Uses these skills and processes in some new contexts</li> </ul>	<ul style="list-style-type: none"> <li>Satisfactory knowledge and understanding of the content, key ideas and concepts</li> <li>Expected level of competence in the skills and processes</li> <li>Clear skills and processes in familiar contexts</li> </ul>	<ul style="list-style-type: none"> <li>Basic knowledge and understanding of the content, key ideas and concepts</li> <li>Limited level of competence in the skills and processes</li> <li>Some ability to use skills and processes in familiar contexts</li> </ul>	<ul style="list-style-type: none"> <li>Very basic knowledge and understanding in a few areas of the content, key ideas and concepts</li> <li>Very limited competence in some of the skills and processes</li> <li>Beginning ability to use skills and processes in familiar contexts</li> </ul>
Consistency	<ul style="list-style-type: none"> <li>Can apply learning accurately in unfamiliar/distant new contexts, including transferring of skills to other learning areas</li> <li>Always Consistent</li> <li>Demonstrates very high level accuracy</li> <li>Strong fluency/automaticity</li> <li>Very high level and volume of evidence provided by student</li> </ul>	<ul style="list-style-type: none"> <li>Can apply learning accurately in familiar and some unfamiliar/new contexts</li> <li>Identify Consistent</li> <li>Demonstrates high level accuracy</li> <li>Strong fluency/automaticity</li> <li>High level and volume of evidence provided by student</li> </ul>	<ul style="list-style-type: none"> <li>Some Consistency</li> <li>Demonstrates competent level of accuracy</li> <li>Mostly fluency/automaticity</li> <li>Expected level and volume of evidence provided by student</li> </ul>	<ul style="list-style-type: none"> <li>Little Consistency</li> <li>Demonstrates some/little accuracy</li> <li>Some fluency/automaticity</li> <li>Some evidence provided by student</li> </ul>	<ul style="list-style-type: none"> <li>No Consistency</li> <li>Demonstrates minimal/no accuracy</li> <li>Little fluency/automaticity</li> <li>Minimal/no evidence provided by student</li> </ul>
Connections	<ul style="list-style-type: none"> <li>Able to make connections and transfer learning across learning areas and make generalisations</li> </ul>	<ul style="list-style-type: none"> <li>Able to make connections and transfer learning within mathematical learning (beginning to make generalisations)</li> </ul>	<ul style="list-style-type: none"> <li>Able to make connections between mathematical concepts/topics</li> </ul>	<ul style="list-style-type: none"> <li>Able to make some connections between mathematical concepts/topics (may need support)</li> </ul>	<ul style="list-style-type: none"> <li>Unable to make connections between mathematical concepts</li> </ul>
Self-reliance	<ul style="list-style-type: none"> <li>Works independently and is able to accurately teach peers</li> </ul>	<ul style="list-style-type: none"> <li>Works independently</li> </ul>	<ul style="list-style-type: none"> <li>Mostly works independently (may require clarification from one's team)</li> </ul>	<ul style="list-style-type: none"> <li>Requires additional support/ scaffolding to successfully complete some tasks</li> </ul>	<ul style="list-style-type: none"> <li>Requires additional support/ scaffolding/modification to successfully complete most/all tasks</li> </ul>
Vocabulary	<ul style="list-style-type: none"> <li>Very high level use of and accuracy with mathematical language</li> </ul>	<ul style="list-style-type: none"> <li>High level of mathematical language with accuracy</li> </ul>	<ul style="list-style-type: none"> <li>Uses familiar mathematical language with accuracy</li> </ul>	<ul style="list-style-type: none"> <li>Uses some familiar mathematical language with inconsistent accuracy</li> </ul>	<ul style="list-style-type: none"> <li>Very limited mathematical language</li> </ul>

2020 Danielle Barnes, Lead Teacher, Flinders View Primary School

The document can be found on the Google Shared Drive:

**Shared drive: Teaching and Learning at Flinders View (E-Handbook)/ Assessment/ Moderation/MATHEMATICS**



## INTERVENTION

Students can be identified by site based diagnostic, formative or summative assessment processes or NAPLAN and PAT-M analysis. Schools are required to implement the 3 waves of Intervention:

- Wave 1: Whole-class instruction
- Wave 2: In class differentiation, small-group work
- Wave 3: OCOPS and other specialized Individual Learning Plans; 1:1 withdrawal

Literacy Interventions facilitated by the school include:

Program	Year Level	Core Focus	Delivery
<b>Targeted Mathematics</b> (*linked to QuickSmart)	3-7	Developing students' fluency and automaticity of fundamental number facts.	1:1 led by AET and facilitated by ACEOs (Wave 2)
<b>Mathematics Intervention</b>	Years ½ *other remedial students	Developing foundational number skills (TTC, PV)	Small group led by AET and facilitated by AET and classroom SSOs

## PROFESSIONAL DEVELOPMENT

Flinders View Primary School will provide appropriate opportunities for Professional Development around Mathematics/Numeracy for teachers, leaders and SSOs

Flinders View Primary School is committed to building the capacity of teachers through high-quality professional learning and the development of quality teaching and learning programmes in line with the School Improvement Plan and Partnership Strategic Plan.

Recommended Professional Development:

- Explicit Instruction Model
- Big Ideas in Number
- Transforming the Task



## RESOURCES

Below is a list of resources to assist in the Planning and teaching of Mathematics at Flinders View Primary School:

### On the Shared Drive:

1. Teaching and Learning at Flinders View (E-Handbook) > 4. Assessment > Moderation > MATHEMATICS ▾

- A-E Grading Consistency
- Characteristics of Below, at and above portfolios.

1. Teaching and Learning at Flinders View (E-Handbook) > 4. Assessment > Assessment\_Tools > 2. Mathematics ▾

- Big Ideas in Number
- School-Based Mathematics Assessment
- School-Based Mathematics Tasks (for Assessment Portfolios)

1. Teaching and Learning at Flinders View (E-Handbook) > 3. Curriculum > 2. Numeracy ▾

- Mathematics Agreement
- Big Ideas in Number

3. Teaching and Learning (Curriculum Resources) > Mathematics ▾

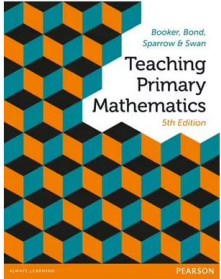
- Learning Progressions
- DfE Numeracy Guidebooks
- Top 10 Resources

### Online:

- Australian Curriculum - <https://www.australiancurriculum.edu.au/f-10-curriculum/mathematics/>
- Australian Curriculum SA Teachers and Leaders Resource - <https://acleadersresource.sa.edu.au/>
- Bringing it to Life Tool - <https://acleadersresource.sa.edu.au/resources/working-with-curriculum/bringing-it-to-life/>
- Mathematical Proficiencies - <https://www.australiancurriculum.edu.au/resources/mathematics-proficiencies/>
- Executive Functions/Empowering Local Learners - <https://empoweringlocallearners.weebly.com/>
- DfE Mathematic Resources- <https://edi.sa.edu.au/educating/curriculum/units-of-work/r-to-6-units/mathematics>
- Victorian Mathematics Website- <http://fuse.education.vic.gov.au/VC/Teacher?mathematics>
- Virtual Manipulatives Library- <http://nlvm.usu.edu/en/nav/vlibrary.html>
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**In the Library:**



TEACHING PRIMARY MATHEMATICS  
**5th Edition**  
 By: [George Booker](#), [Denise Bond](#), [Len Sparrow](#), [Paul Swan](#)

*Teaching Primary Mathematics* provides teachers and students with a sound framework for the successful teaching of mathematics to primary students. It is suitable both as a core text for primary student teachers and as an indispensable reference for practicing primary teachers seeking to update their knowledge.

The text is structured into five sections:

- SECTION 1 Mathematics Teaching and Learning
- SECTION 2 Number and Algebra
- SECTION 3 Measurement and Geometry
- SECTION 4 Statistics and Probability
- SECTION 5 Implementing Effective Mathematics Learning

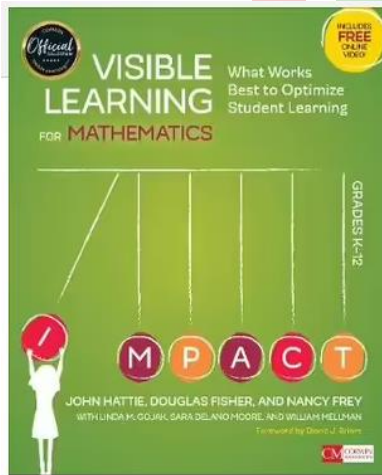
*Open-Ended Maths Activities* discusses the features of 'good' mathematical questions.



OPEN ENDED MATHS ACTIVITIES  
 REVISED EDITION  
**Using good questions to enhance learning mathematics**  
 By: [Peter Sullivan](#), [Pat Lilburn](#)

It provides practical advice on how teachers can create their own open-ended and problem-solving questions, and use them effectively in the classroom.

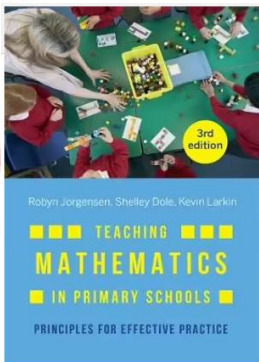
*Open-Ended Maths Activities* includes over 80 pages of 'good' questions for teachers to use in the classroom organises questions into content areas (Number and Algebra, Measurement and Geometry, Statistics and Probability) indicates the suggested age level of students for each question is written by a well-established expert in the field of teaching and learning mathematics, and an experienced author with a primary teaching background.



VISIBLE LEARNING FOR MATHEMATICS,  
 GRADES K-12  
**What Works Best to Optimize Student Learning**  
 By: [John Hattie](#), [Douglas Fisher](#), [Nancy Frey](#), [Linda M. Gojak](#), [Sara Delano Moore](#)

Rich tasks, collaborative work, number talks, problem-based learning, direct instruction...with so many possible approaches, how do we know which ones work the best? *In Visible Learning for Math*, six acclaimed educators assert it's not about which one it's about when and show you how to design high-impact instruction so all students demonstrate more than a year's worth of mathematics learning for a year spent in school.

That's a high bar, but with the amazing K-12 framework here, you choose the right approach at the right time, depending upon where learners are within three phases of learning: surface, deep, and transfer. This results in "visible" learning because the effect is tangible. The framework is forged out of current research in mathematics combined with John Hattie's synthesis of more than 15 years of education research involving 300 million students.



TEACHING MATHEMATICS IN PRIMARY SCHOOLS 3ED  
**Principles for Effective Practice**  
 By: [Robyn Jorgensen](#), [Shelley Dole](#), [Kevin Larkin](#)

A concise and accessible guide to pedagogy and practice for pre-service teachers

Since its first publication, this book has established a strong reputation for its valuable insights into the evidence-based approaches to effectively teach primary mathematics and the practical theory behind those teaching strategies. Based on the latest international research, the expert authors focus on learning outcomes and the general principles that underlie educational practices rather than any specific curriculum. Current approaches to mathematics education are explained and critiqued, and insights into why some students have difficulties with mathematics are provided. Teachers are shown how to encourage their students to develop deep learning in mathematics, and to relate mathematics to the rest of the curriculum.

Featuring practical activities that can be implemented in the classroom, together with diagram, graphs and other visual aids, this book is an invaluable resource for university lecturers as well as pre-service and in-service teachers.



**Subscriptions:**

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Back to Front Mathematics- Tierney Kennedy- <i>Resources, Lesson Plans, Assessment</i>	<a href="https://www.backtofrontmaths.com.au/">https://www.backtofrontmaths.com.au/</a>	Flinders.View	FVPS2020!
PAT-M Resource Centre	<a href="https://oars.acer.edu.au/flinders-view-primary-school">https://oars.acer.edu.au/flinders-view-primary-school</a>	STAFF	Flindersview_1396

**For the Students:**

- Mathematics Playground- <https://www.mathplayground.com/>
- Math Games- <https://www.education.com/games/math/>
- Cool Math Games- <https://www.coolmathgames.com/>
- Math Games- <https://au.mathgames.com/>
- Hit the Button- <https://www.topmarks.co.uk/maths-games/hit-the-button>
- SPLAT!- <https://stevevyborne.com/2017/02/splat/>