



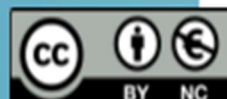
**Oide**

Tacú leis an bhFoghlaim  
Ghairmiúil i measc Ceannairí  
Scoile agus Múinteoirí

Supporting the Professional  
Learning of School Leaders  
and Teachers

# Primary Mathematics Curriculum in Practice

## My Professional Learning Journal



# Key Messages



The PMC is for all children attending primary and special schools.



'How' children learn in mathematics is as important as 'what' they learn in mathematics.



Maths helps us understand the world, and we use the world to understand maths.



"The role of teachers and school leaders is pivotal in initiating and sustaining curriculum implementation, and little can be achieved, and sustained, without their engagement"  
(OECD, 2020, p. 43)



<https://pmc.oide.ie/>



<https://ncse.ie/>



<https://www.curriculumonline.ie/Primary/Curriculum-Areas/Mathematics/>

**Name:**



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## Introduction

*“How’ children learn is as important as ‘what’ children learn.”*

*Primary Mathematics Curriculum page 26*

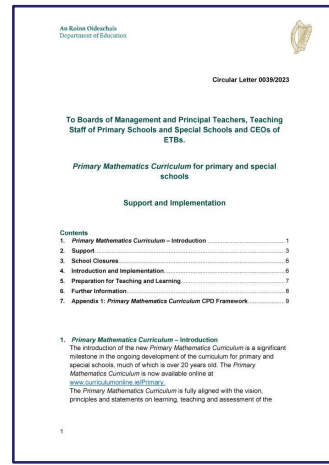
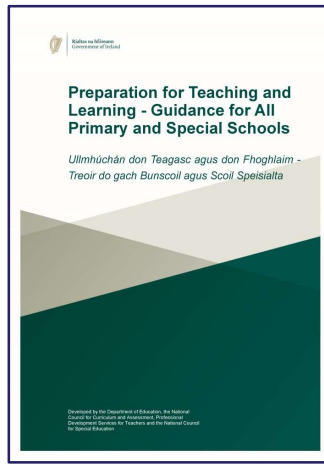
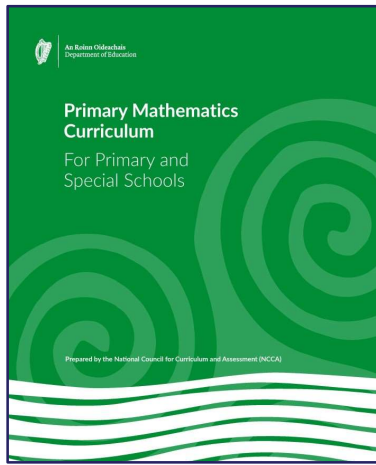
Welcome to your professional learning journey with the Primary Mathematics Curriculum. This Professional Learning Journal may be used to document your learning, as you explore and engage with the PMC in Practice resources on the Primary Mathematics Curriculum Hub (<https://pmc.oide.ie/>). The PMC in Practice resources focus on Chapter 6 of the Primary Mathematics Curriculum. As with most good classroom practices, the pedagogical pedagogies are dynamic and naturally link with each other. The PMC in Practice resources explore the pedagogical practices in isolation, to develop a deeper understanding of each one. It is not necessary to follow the sequence of pedagogical practices as laid out in this booklet. It is recommended, however, that ample time is allowed to explore, experiment, and become familiar with each pedagogical practice in your teaching, before progressing.

The Primary Mathematics Curriculum Hub has a comprehensive suite of resources to support the implementation of the Primary Mathematics Curriculum in your classroom. These resources complement the PMC in Practice resources and may be used to explore, experiment, and become familiar with the pedagogical practices in your teaching. The resources include:

- Micro Maths
  - Micro Maths activities are presented in information sheets with useful links and image galleries, to provide ready-to-use materials for your classroom.
- PMC Videos
  - The PMC videos capture the learning experiences of children in a variety of Irish school contexts and showcase real-life examples of their learning across all stages.
- Exemplars
  - The exemplars contain a wealth of potential learning experiences, which have been carefully chosen, to highlight the possibilities for quality learning experiences for each of the four stages. They contain valuable suggestions on how to interweave the elements and pedagogical practices from chapter 6 into learning and teaching experiences and suggest possible assessment methods.

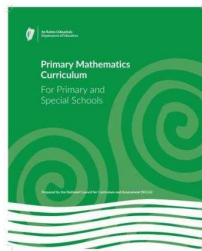


# Key Documents



## Looking at the PMC

Page 10  
Rationale



Page 18  
Learning Outcomes

Page 12  
Aims of the Curriculum

Page 13  
Strands and Strand Units

Page 24  
Chapter 6:  
The Curriculum in Practice

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## Strands and Elements of the PMC

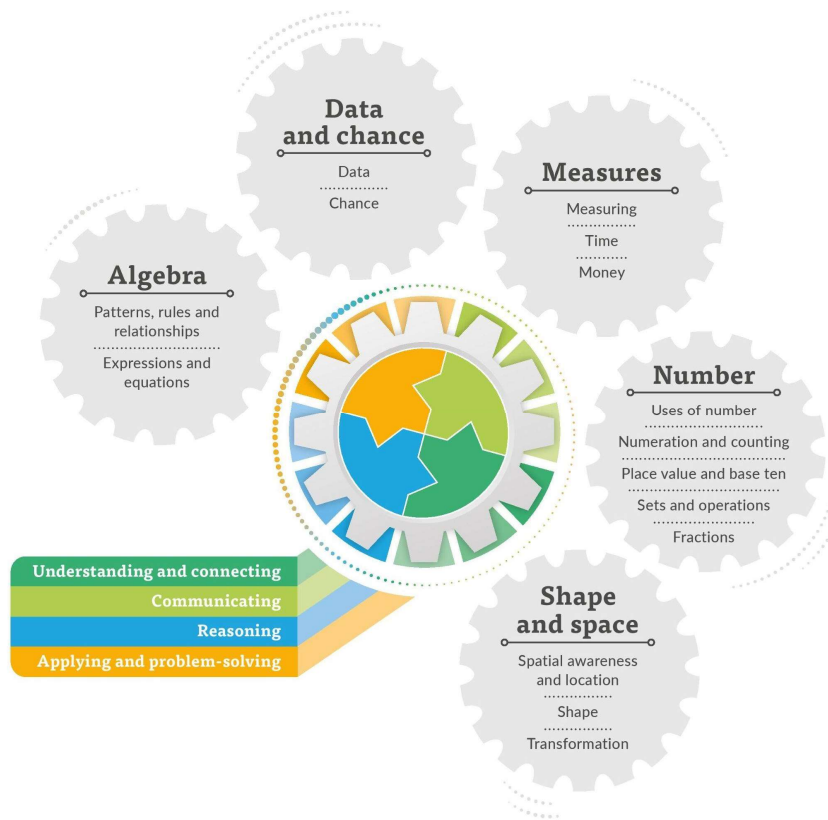


Image from page 14 Primary Mathematics Curriculum

## Chapter 6: The Primary Mathematics Curriculum in Practice



## Pedagogical Practices

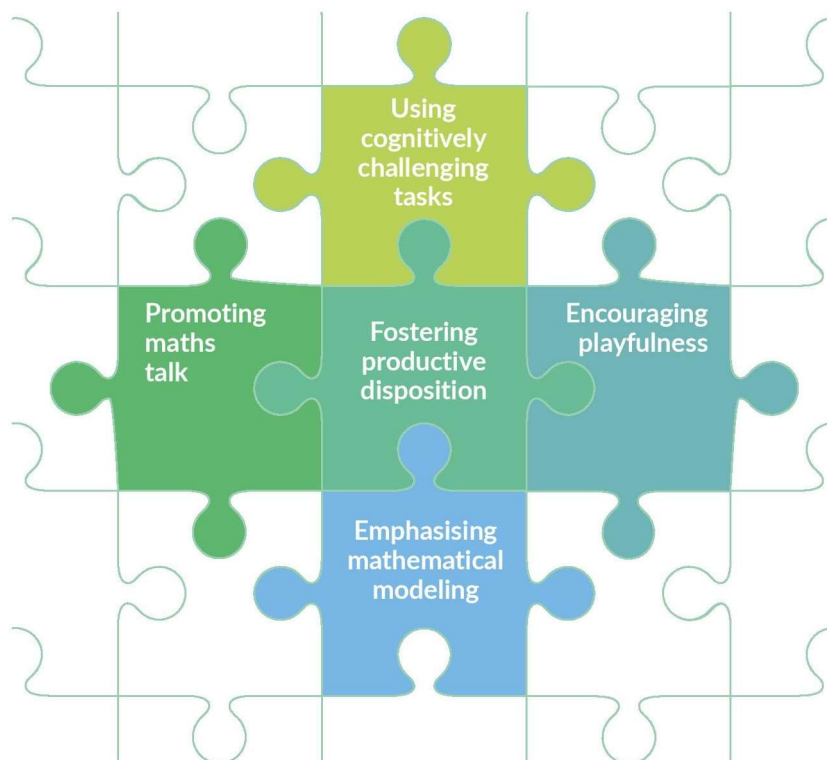
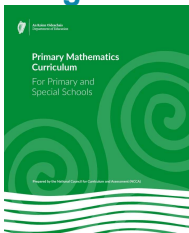




Image from page 26 Primary Mathematics Curriculum

## Learning Outcomes and the Toolkit

<p><b>Learning Outcomes</b></p> 	<p>Learning Outcomes are used to describe the expected mathematical learning and development for all learners at the end of a two-year stage, when due account is taken of individual abilities and varying circumstances. Learning Outcomes articulate big mathematical ideas across different stages and encompass the knowledge, skills and dispositions that the Primary Mathematics Curriculum supports children to develop.</p>
<p><b>Mathematical Concepts</b></p> 	<p>Mathematical concepts are considered key ideas that underpin each Learning Outcome. These key ideas may provide useful entry and reference points in relation to preparation, teaching and assessment and may serve to remind teachers of key mathematical knowledge at each stage.</p>
<p><b>Progression Continua</b></p> 	<p>The progression continua outline a sample learning trajectory of Mathematics at primary level. They suggest a series of learning experiences which children might engage with as they develop and deepen their mathematical knowledge, skills and dispositions.</p>

## Elements: Reflective Checklist

The elements are the processes the child engages in as they move towards being mathematically proficient. Children engage in all of these simultaneously. It is what you observe the children doing. This reflective checklist may be used to reflect on the opportunities you provide for children to engage with the elements. It may also assist with your reflections while engaging with the PMC in Action videos.

<b>Understanding and Connecting</b>	
Take time to think	
Interact and collaborate with peers	
Connect new and previous learning and ideas	
Make links and relationships between ideas, procedures and solutions	
Connect learning across mathematical strands, and beyond mathematics	
Engage in learning that offers an appropriate level of challenge	
<i>Be curious and innovative</i>	
<b>Communicating</b>	
Learn, use and apply mathematical language	
Express their ideas and share their thinking with others	
Model and represent their thinking in different ways	
Compare how they and others represent their thinking	
Argue their logic	
Listen to others	
<i>Be open, confident and sociable</i>	
<b>Reasoning</b>	
Analyse and deduce ideas, strategies and solutions	
Argue and justify their thinking	
Question and evaluate evidence	
Generalise their learning to other areas	
Determine and justify how their ideas and conjectures make sense	
<i>Be logical and analytical</i>	
<b>Applying and Problem Solving</b>	
Engage with a range of appropriate problems rooted in meaningful contexts	
Pose problems	
Investigate and explore ways to solve problems	
Compare ideas strategies and approaches	
Make decisions and apply mathematics to real world problems	
Interpret and evaluate solutions	
<i>Be creative and adventurous</i>	





## Introducing the PMC in Practice Presentation

<p><b>What?</b> What new information have I learned?</p>	
<p><b>So What?</b> What does this mean for the children's learning in my classroom?</p>	
<p><b>Now What?</b> What are my next steps, before engaging with the pedagogical practices' presentations?</p>	



## Fostering Productive Disposition Presentation A

<p><b>What?</b> What new information have I learned?</p>	
<p><b>So What?</b> What does this mean for the children's learning in my classroom?</p>	
<p><b>Now What?</b> What changes will I make to foster an inclusive classroom culture?</p> <p>What counting activity will I try in my classroom before engaging with Presentation B?</p>	



## Fostering Productive Disposition Presentation B

<p><b>What?</b> What new information have I learned?</p>	
<p><b>So What?</b> What does this mean for the children's learning in my classroom?</p>	
<p><b>Now What?</b> What are my next steps to foster a productive disposition in my classroom?</p>	



## Encouraging Playfulness with Mathematics Presentation A

<p><b>What?</b> What new information have I learned?</p>	
<p><b>So What?</b> What does this mean for the children's learning in my classroom?</p>	
<p><b>Now What?</b> What 'Imaginings' or 'open-ended task' from Micro Maths will I trial with my class before engaging with Presentation B?</p>	



## Encouraging Playfulness with Mathematics Presentation B

<p><b>What?</b> What new information have I learned?</p>	
<p><b>So What?</b> What does this mean for the children's learning in my classroom?</p>	
<p><b>Now What?</b> What are my next steps to encourage playfulness with mathematics in my classroom?</p>	



## Emphasising Mathematical Modeling Presentation A

<p><b>What?</b> What new information have I learned?</p>	
<p><b>So What?</b> What does this mean for the children's learning in my classroom?</p>	
<p><b>Now What?</b> How will I emphasise mathematical modeling across the operations in my classroom before engaging with Presentation B?</p>	



## Emphasising Mathematical Modeling Presentation B

<p><b>What?</b> What new information have I learned?</p>	
<p><b>So What?</b> What does this mean for the children's learning in my classroom?</p>	
<p><b>Now What?</b> What are my next steps to emphasise mathematical modeling in my classroom?</p>	



## Using Cognitively Challenging Tasks Presentation A

<p><b>What?</b> What new information have I learned?</p>	
<p><b>So What?</b> What does this mean for the children's learning in my classroom?</p>	
<p><b>Now What?</b> What cognitively challenging task will I trial with my class before engaging with Presentation B?</p>	





## Using Cognitively Challenging Tasks Checklist

Open-ended tasks (where there is a range of 'correct' solutions and/or a range of ways to achieve one or more solutions) are more likely to be cognitively challenging than closed tasks (i.e. where there is only one correct response or where there is a focus on one solution pathway). Choose a task from Micro Maths or the Exemplars and use the checklist below to determine if the task is cognitively challenging, before trialing it with your class.

### *Checklist*

#### **A Cognitively Challenging Task should:**

1. have a clear mathematical learning goal
2. be accessible to all children
3. appropriately stretch a child's conceptual understanding
4. have more than one solution and/or more than one solution pathway

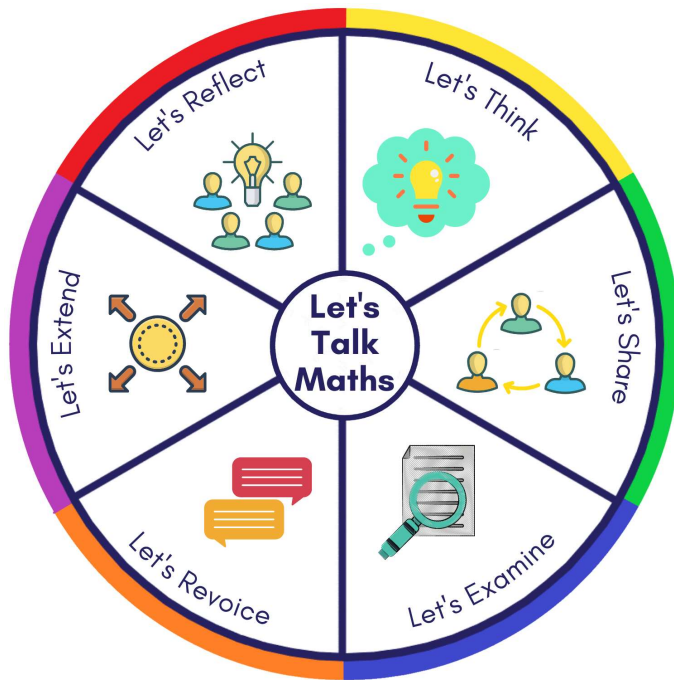


## Using Cognitively Challenging Tasks Presentation B

<p><b>What?</b> What new information have I learned?</p>	
<p><b>So What?</b> What does this mean for the children's learning in my classroom?</p>	
<p><b>Now What?</b> What are my next steps to use cognitively challenging tasks in my classroom?</p>	



# Let's Talk Maths Framework



Let's Talk Maths Framework Video



Let's Talk Maths Framework Posters

### Reflect

- Which way was easiest for you to understand and why?
- Can you try again using another strategy?
- Which is the most efficient strategy?

### Think

- Have we solved a similar question?
- Where could you start?
- Can you use concrete materials or draw a picture etc to represent your thinking?

### Extend

- Can anyone take Róisín's idea and add to it?
- Can you represent it a different way?
- Are there other ways of solving this?

### Share

- Can anyone explain how they approached the question?
- Did anyone do it differently?
- Mary had an interesting idea, would you like to share it with us?

### Revoice

- Who can repeat Sean's thinking?
- Who can put Ali's thinking into their own words?
- Who can explain how Jack came up with that answer?

### Examine

- Did your representation help you to solve the question?
- Will your idea/solution always work?
- Why didn't your strategy work?



## Promoting Maths Talk Presentation A

<p><b>What?</b> What new information have I learned?</p>	
<p><b>So What?</b> What does this mean for the children's learning in my classroom?</p>	
<p><b>Now What?</b> What activity using structured maths talk will I trial with my class before engaging with Presentation B?</p>	



## Promoting Maths Talk Presentation B

<p><b>What?</b> What new information have I learned?</p>	
<p><b>So What?</b> What does this mean for the children's learning in my classroom?</p>	
<p><b>Now What?</b> What are my next steps to promote maths talk in my classroom?</p>	



# Assessing Primary Mathematics

## Assessment Continuum

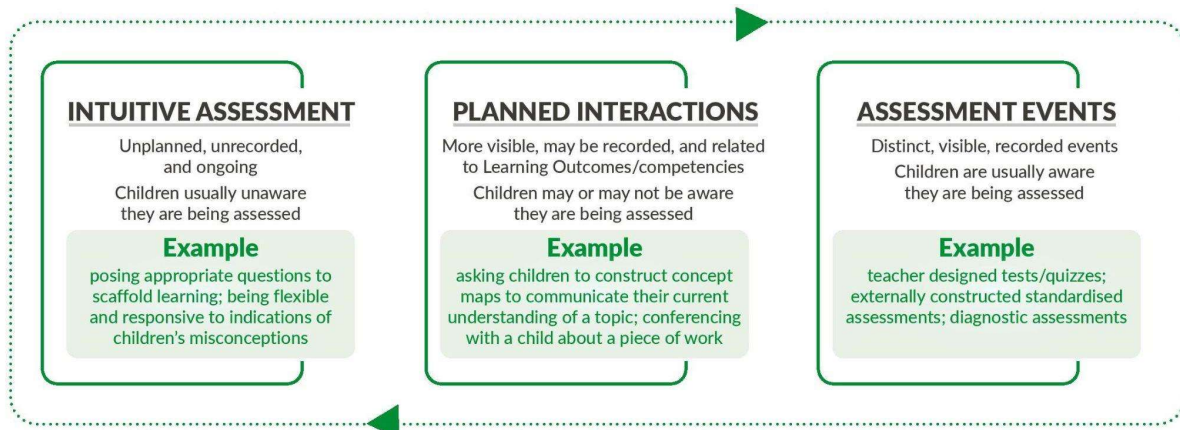


Image from page 35 Primary Mathematics Curriculum

## Methods for Assessing Mathematical Learning



## Assessing Primary Mathematics Reflection



**What methods of assessing do you:**

a) use regularly?

b) use sometimes?

c) rarely use?

What methods of assessing might you use more of going forwards?

## Assessing Primary Mathematics Presentation

<p><b>What?</b> What new information have I learned?</p>	
<p><b>So What?</b> What does this mean for the children's learning in my classroom?</p>	
<p><b>Now What?</b> What methods of assessing might you use more going forwards?</p>	





## Links to Oide Supports

PMC Hub: [www.pmc.oide.ie](http://www.pmc.oide.ie) Infovideo: <https://pmc.oide.ie/pmc-in-practice/>

Primary Mathematics Curriculum in Practice Supports from Oide PMC Hub	
<p><b>An Introduction to the Primary Mathematics Curriculum</b></p>  <p><a href="https://pmc.oide.ie/pmc-in-practice/introducing-the-pmc-in-practice/">https://pmc.oide.ie/pmc-in-practice/introducing-the-pmc-in-practice/</a></p>	<p><b>Fostering a Productive Disposition</b></p>  <p><a href="https://pmc.oide.ie/pmc-in-practice/fostering-productive-disposition/">https://pmc.oide.ie/pmc-in-practice/fostering-productive-disposition/</a></p>
<p><b>Encouraging Playfulness with Mathematics</b></p>  <p><a href="https://pmc.oide.ie/pmc-in-practice/encouraging-playfulness-with-mathematics/">https://pmc.oide.ie/pmc-in-practice/encouraging-playfulness-with-mathematics/</a></p>	<p><b>Emphasising Mathematical Modeling</b></p>  <p><a href="https://pmc.oide.ie/pmc-in-practice/emphasising-maths-modeling/">https://pmc.oide.ie/pmc-in-practice/emphasising-maths-modeling/</a></p>
<p><b>Using Cognitively Challenging Tasks</b></p>  <p><a href="https://pmc.oide.ie/pmc-in-practice/using-cognitively-challenging-tasks/">https://pmc.oide.ie/pmc-in-practice/using-cognitively-challenging-tasks/</a></p>	<p><b>Promoting Maths Talk</b></p>  <p><a href="https://pmc.oide.ie/pmc-in-practice/promoting-maths-talk/">https://pmc.oide.ie/pmc-in-practice/promoting-maths-talk/</a></p>
<p><b>Assessing Primary Mathematics</b></p>  <p><a href="https://pmc.oide.ie/pmc-in-practice/assessing-primary-mathematics/">https://pmc.oide.ie/pmc-in-practice/assessing-primary-mathematics/</a></p>	<p><b>Primary Mathematics Curriculum Resources</b></p>  <p><a href="https://pmc.oide.ie/resources/">https://pmc.oide.ie/resources/</a></p>

### Additional Supports

NCCA Curriculum Online: Mathematics:

<https://www.curriculumonline.ie/Primary/Curriculum-Areas/Mathematics/>

NCCA Primary Mathematics Toolkit:

<https://www.curriculumonline.ie/Primary/Curriculum-Areas/Mathematics/Toolkit/>

NCCA Draft Support Documents:

<https://ncca.ie/en/primary/primary-developments/stem-education/primarymaths/>

NCSE:

<https://ncse.ie/>



