NCCA An Chomhairle Náisiúnta Curaclam agus Measúnachta National Council for Curriculum and Assessment

Primary Mathematics Toolkit – Support material

An inclusive approach to Learning, Teaching and Assessing in Primary Mathematics

This support material provides an inclusive lens on the primary mathematics curriculum in practice. Linking to Chapter 6 of the curriculum specification, it explores learning, teaching and assessing, providing considerations and practical suggestions to promote inclusion in each area.

Every child is mathematical and progress their learning in diverse and non-linear ways. Such variability means that each child will enter the mathematical learning experience at different stages, take different approaches to their mathematical interactions and expressions, have diverse ways of making sense of mathematics and achieve their learning goals in different ways. Taking account of this variability, learning, teaching and assessing needs to promote a more inclusive experience for all children. An inclusive learning community facilitates this variability by identifying barriers to learning and creating flexible learning environments that work to remove such barriers, leading to meaningful engagement with mathematics that is relevant, responsive, supportive and challenging for each child. Creating an inclusive learning space can support every child to reach their mathematical potential.

Learning mathematics

Intentional choice and flexibility are integral in offering equity of access, opportunity and participation in children's mathematical learning. In considering the appropriately playful and engaging learning experiences, teachers should consider how children will engage with their mathematical learning, access the knowledge and tasks associated with their learning experiences and communicate their mathematical understanding and skills. When children are provided with flexible learning experiences that are designed to support each child's individual needs, strengths and interests, this celebrates the individuality and the uniqueness of every child.

Teaching mathematics

The pedagogical approaches, as described in Chapter 6 of the new curriculum are flexible and diverse by nature, allowing the teacher to both support and challenge children's mathematical learning.

Using choice in pedagogical decision making involves designing relevant and meaningful learning and teaching activities that are both motivating and engaging. How children engage with and participate in mathematical learning experiences will be influenced by their sense of ownership of the process. Thus, before we begin a mathematical topic we need to meet our children where they are at so that choice can be embedded into the learning experience.

Assessing mathematics

In facilitating children to show and represent their mathematical learning, there is often no one means that is optimal for every child in every context. In providing children with flexibility and options, they can choose the option that will best support them to communicate and represent their knowledge, understanding and skills in relation to a specific mathematical learning exercise or goal.

Children vary in the ways they can communicate what they know. Some children will be able to express themselves clearly, while some may not know how to plan for, or start, the task of communicating their learning. Some children may be able to express themselves well in written text but not speech, or vice versa, and some may express themselves best through visual mediums.

Learning mathematics	Teaching mathematics	Assessing mathematics

Key considerations to support and promote inclusive learning, teaching and assessing

Learning mathematics	Teaching mathematics	Assessing mathematics
• What are the children's individual strengths, needs, interests and learning styles? • How do children feel about this area of mathematics? • What are the different ways that children might engage with their learning in this area? [See Additional Support Pathways] • What do I know about the children's prior knowledge and how they learn best? • How can children's learning be related to their real life experiences? • What might be the range of responses that children will provide to this lesson?	• What are the main concepts, skills and/or ideas that will allow children to build on their prior learning? • How can I pitch the lesson so that all children can access the learning and also experience success? • Where are their opportunities to provide choice and flexibility for children? • What are the opportunities to provide a space for engaging and playful learning that is meaningful for every child? • How can I organise the learning environment so that learning and teaching is optimal? • What resources, supports, tasks and technologies can I use to enhance children's individual learning experience?	• What options can I provide to allow children to express and represent their understanding in ways that are meaningful to them? • What will I communicate to children about how learning will be assessed? • What are the different ways that children might demonstrate their learning in this area? [See Additional Support Pathways] • What is the best method and time to assess the children's learning, given the learning intentions and focus for the lesson? • What kind of feedback will be most effective to support the child's learning? • Are their opportunities that I can provide for self-reflection and peer-assessment?

Practical suggestions and examples to support and promote inclusive learning, teaching and assessing

Learning mathematics	Teaching mathematics	Assessing mathematics
• Check that children understand the goals for the learning • Spark children's interests and motivations from the outset • Build on children's prior knowledge and skills • Make connections between their learning and application to real-life • Offer choice and flexibility in terms of the resources, examples, tasks etc. that children can access to support their learning • Use real and natural materials/resources where possible.	• Provide opportunities for children to communicate their preferences for learning, such as choice boards; individual, pair or group activities; using visual cueing and modelling; communication aids, assistive technology, etc. • Provide access to resources that allow for multiple representations of situations (e.g., manipulatives, drawings, verbalisations, symbols) • Provide playful learning opportunities to uncover children's unique abilities, preferences and interests • Promote the use of model-eliciting activities and open-ended problems that offer multiple solution pathways and responses • Provide opportunities to communicate about and listen to different mathematics ideas and strategies • Attune to the children's learning and respond with appropriate feedback, support and suggestions for increasing the level of fluency and challenge.	• Provide time and space for children to reflect on their learning and understand themselves as learners • Provide opportunities for peer-collaboration and assessment • Provide choice in the ways that children can demonstrate their understanding, such as acting out problem/tasks, or using exit tickets • Offer text, physical and digital tools to communicate ideas, strategies and solutions • Rewards diversity in terms of the ways that children engage with and demonstrate their learning • Record the varying, effective assessment methods that children are responsive to

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