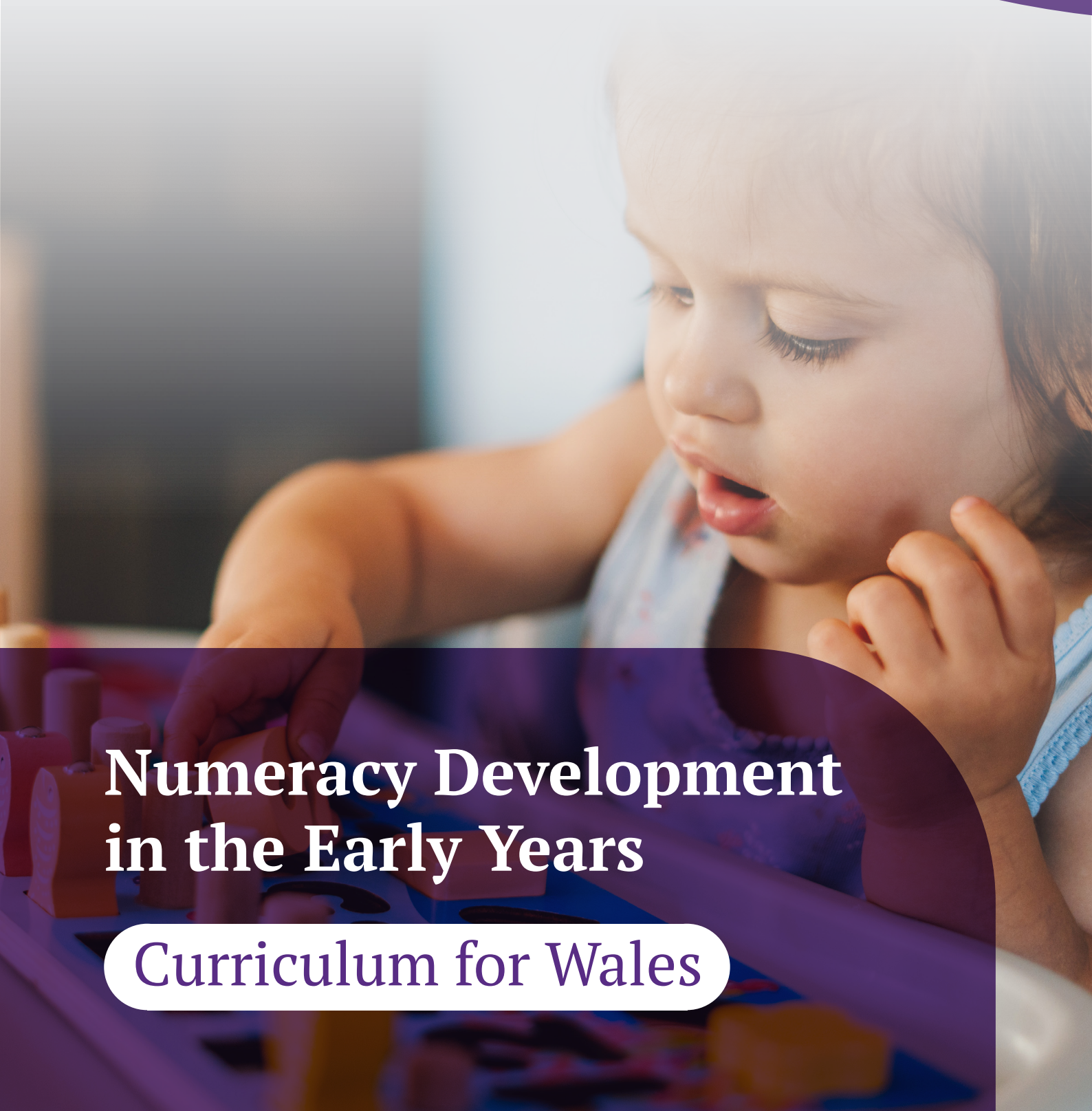
Cymru
National Day Nurseries Association

Factsheet



Numeracy Development in the Early Years

Curriculum for Wales

Numeracy Development in the Early Years

Numeracy is the ability to see and use mathematics and number across a wide range of contexts in everyday life.

Numeracy, along with digital competence and literacy, are mandatory cross-curricular skills across the whole curriculum, and it is our responsibility to ensure children develop and progress in these skills. When planning learning experiences, we should ensure that children have opportunities to apply, develop and extend these skills in meaningful contexts, using the five developmental pathways.

This factsheet aims to give you a better understanding of numeracy development within the early years.

What is numeracy?

How children learn about numbers and develop mathematical understanding during the pre-school years is vitally important and sets them on a path towards numeracy skills and confidence in later life.

Numeracy development and Curriculum for Wales

Numeracy development is an integral part of Curriculum for Wales. Competence in numeracy is essential for independent living and work. Children need regular opportunities to deepen their understanding of number and, as with literacy, to reinforce and use their numeracy skills in different contexts.

Embedding numeracy development across the Curriculum for funded non-maintained nursery settings

The Literacy and Numeracy Framework (LNF) introduces the skills that children need to learn and develop. The numeracy aspect of the framework includes; numerical reasoning, using number, measuring, using data, exploring the environment, using simple strategy and problem-solving. Early numeracy development focuses on how children need numeracy skills to do everyday things such as problem solving, making sense of information, understanding patterns and making choices. Children's everyday play experiences are full of learning opportunities that lay the foundations for numeracy skill development.

Numeracy development is embedded across the five developmental pathways within the Curriculum for funded non-maintained nursery settings. This means, that if you focus on developing your learners through the ways described in the pathways in a holistic manner, then you will cover the skills required in the LNF for children ages 3 to 4 years and will not need to access the numeracy framework as an individual document.

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Numeracy development resources

We should recognise that numeracy is everywhere and is much more than just number. We should take a holistic approach to numeracy development and recognise that there are elements of mathematics and numeracy within all five developmental pathways.

Children are naturally inquisitive and develop an understanding of mathematical language, concepts and skills through multi-sensory play and authentic experiences. Children should be given time and space to engage in exploration and experiential learning with everyday objects to develop numeracy skills such as matching, sorting, comparing and ordering.

Children should experience daily outdoor play opportunities to encourage their further exploration of mathematical concepts in everyday life. Within the natural world, there are a wealth of opportunities for numeracy skill development. Open-ended, natural resources offer endless possibilities for numeracy skill exploration.

With the support of enabling adults, and by providing effective environments, children can discover and understand that maths is everywhere. Enabling adults must look for meaningful opportunities to support learning and numeracy development. By providing frequent and varied opportunities to build and apply numeracy skills and mathematical understanding, children will develop a secure base of knowledge and vocabulary to further develop and extend their numeracy skills.

Numeracy development in practice

Engaging children in practical, purposeful experiences is the most effective way to support mathematical learning and numeracy skill development. When developing mathematical understanding, it is imperative that enabling adults give children the time to observe, explore, investigate and experiment to work through the process of problem-solving. This problem-solving process should be valued in itself and may not result in an outcome or answer.

Modelling appropriate mathematical language and skills throughout the day will help children develop their strategic competence. Enabling adults should use observations to inform teachable moments, which may include modelling appropriate mathematical language and skills throughout the day, in real-life contexts, to help children develop their conceptual understanding and strategic competence.

Effective environments should ensure that children have access to a broad range of authentic resources to help build vocabulary and facilitate concept development. A well-planned and organised environment will scaffold the development of children's understanding of mathematical concepts, for example through visual and practical opportunities to experience number, shape and pattern in authentic contexts, both indoors and outdoors.

Children need practical experiences that encourage them to use simple mathematical vocabulary when exploring quantity, number, shape and pattern. Language needs to be real and meaningful to young children, so it's important to show them new vocabulary in context. Engaging experiences will support children's cognitive development by providing opportunities for comparing, sorting and classifying living and non-living things.

There are many aspects of practice that are useful in developing children's numeracy skills, it is important that enabling adults recognise those opportunities and take advantage of them. Some examples of these may be:

- Asking questions that stimulate and extend a child's thinking and understanding of numbers, shapes and measures
- Asking children to solve real mathematical problems - how many plates do we need at lunch time? Is this box big enough to carry the diggers outside?
- Encourage children to use numeracy skills in social and playful contexts - scales and fruit/veg in the role play, measuring devices in the construction, measuring jugs with the water, bus/train timetables etc.
- Share numeracy resources with parents: lend picture books, games and other resources to parents in order to support children's learning and development at home
- Talk aloud when using numeracy - 'I am checking the time on the clock, so I know how long is left until the cakes are ready.'

Professional development

It is important to consider the knowledge of the adults in the setting. If the role of the adult is to facilitate, enable and discover with the children- are they confident in their own numeracy skills? When expecting practitioners to engage confidently in developing children's numeracy skills, it's important to consider learning and experience in order to offer support and training if necessary. This doesn't have to be costly, sometimes it can be achieved through supervision and peer observation. What is important is that all practitioners know where to get further support and understand the importance of developing children's numeracy skills to support their overall growth and ensure they reach their full potential.

Reflective questions:

- How do you allow children time and space to play and explore with loose parts?
- How do you facilitate numeracy focused experiences through planning and responding to children's interests?
- How do you engage children in numeracy skill development through your effective environments?
- How do you introduce children to new mathematical concepts and vocabulary?

Further support and information:

- Curriculum for Wales – NDNA http://www.ndna.org.uk/CFWAdditionalElements
- Curriculum for Wales – Hwb https://hwb.gov.wales/curriculum-for-wales/
- NDNA online course: Maths in early years- https://ndna.org.uk/MathsinEY
- myNDNA resources - https://ndna.org.uk/my-resources/

National Day Nurseries Association

Brighter thinking for early years

Factsheet

Our factsheets are written by early years experts for the early years workforce. Most NDNA factsheets are free to our members.

NDNA is the national charity and membership association representing children's nurseries across the UK. We are a charity that believes in quality and sustainability, so we put our members' businesses at the very heart of ours.

We are the voice of the 21,000-strong nursery sector, an integral part of the lives of more than a million young children and their families. We provide information, training and advice to support nurseries and the 250,000 people who work in them to deliver world-class early learning and childcare.

See the full range of NDNA factsheets at www.ndna.org.uk/factsheets

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