



Using Numicon to support maths learning for children with Severe Learning Difficulties

Introduction

There are several advantages to using Numicon to support maths learning for children with Severe Learning Difficulties. These include:

- Numicon is a visual and tactile resource which can be explored and manipulated by the learner. It is also attractive and brightly coloured.
- Numicon resources and activities are already available in many schools.
- It is an age-appropriate maths resource throughout primary school, and this can be supportive for children who are beginning to register the difference between their learning and that of their peers.
- The Numicon shapes represent whole numbers and can support the skill of subitising (recognising a quantity without counting) and remove the labour of counting in some contexts.
- For children whose language is not at an appropriate stage to express their thinking about counting and maths verbally, using the Numicon shapes allows adults to “see” what they may be thinking.

It is important to recognise that the Numicon Foundation Activities do not include all the skills needed by children developing early number. It is important to use them in the context of regular practice in:

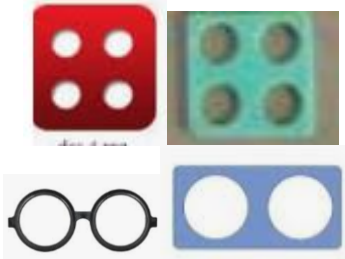
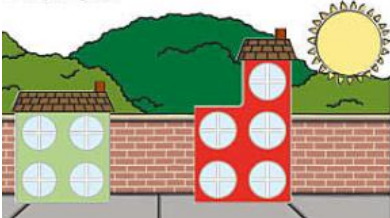
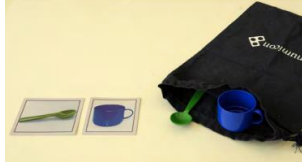
- Rote counting aloud forwards, backwards and from different numbers.
- Joining in with number songs and rhymes, including using props.
- Counting a wide variety of objects including in real-life and playful situations.
- Arranging sets of objects in different ways.
- Recognizing, matching and ordering numerals in a range of contexts.

In research by Joanna Nye, Sue Buckley and Gillian Bird into the use of Numicon with children with Downs Syndrome, differentiation and adaptation of the Foundation Activities for Numicon, which would apply to most learners with Severe Learning Difficulties, included:


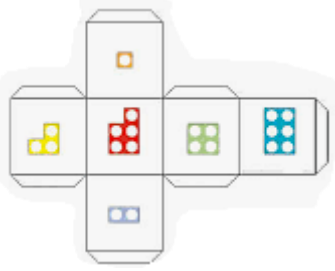
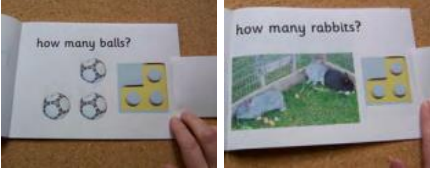
- Allow plenty of time to play with and explore the Numicon materials.
- Encourage exploration of the materials within activities, for example following the lead of the child who names the tiles when matching them, saying “Choo choo” for the three tile (which looks a bit like a steam engine!)
- Need for more repetition of activities.
- Activities to be broken down into smaller steps.
- Limit the range of numbers used initially (e.g. 1-4)
- More opportunities to generalise the skills learned using Numicon e.g. arranging sets of objects in the same way as the Numicon shapes.
- Model each activity first.

Activities to generalise the skills in using the Numicon shapes







While child is exploring the shapes in the early stages:

 <p>Compare patterns in the real world that are similar to the Numicon tiles</p>	 <p>Match Numicon shapes to create pictures of real objects</p>	 <p>Identify a real object in a feely bag from a choice of two pictures of objects.</p>
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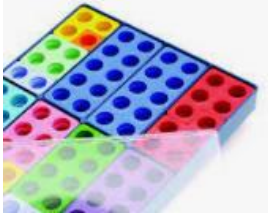






Once number names of shapes are established:

 <p>Make Numicon biscuits.</p>	 <p>Make or adapt a dice to use the Numicon shapes to play simple track games</p>	 <p>Make number books using the Numicon shapes</p>
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Playful activities with Numicon to support independent exploration

 <p>Roll out playdough and use Numicon shapes to make imprints. Extend to cut out with a wheel cutter and extend again to match to Numicon shapes.</p>	 <p>Explore Numicon tiles on the light box (make your own easy light box here) Extend to add glass marbles or beads, or to match shapes to outlines on acetate.</p>	 <p>Explore weaving pipe cleaners through the Numicon shapes. Extend to matching colours.</p>
 <p>Thread a Numicon necklace. Extend to match shapes or continue simple pattern started by adult, initially all the 1s, all the 2s etc.</p>	 <p>Use Numicon shapes and paint to create pictures and patterns.</p>	 <p>Explore Numicon shapes in a tray of water with water beads</p>

Continued

 <p>Explore Numicon tiles with pom poms, beads, counters, marbles, conkers, small shells etc.</p>	 <p>Use pom poms/counters/ coins to copy Numicon shapes.</p>	 <p>Put away the Numicon at the end of an activity.</p>
 <p>Finger painting through the Numicon shapes. Extend to remove shapes and match again when dry.</p>	 <p>Use Numicon shapes to fill a large Numicon city chalked outline in a Tuff Tray or on black sugar paper.</p>	 <p>Timed Fill the Baseboard challenges- restrict to all the 10 shapes; all the 5s; all the even numbers.</p>
 <p>Blu tac Numicon shapes under sheets paper taped to the table. Encourage child to rub using a wax crayon to reveal the shape beneath.</p>	 <p>Cut egg boxes into the Numicon shapes (option to paint them to match the Numicon colours). Explore putting larger items into the shapes, such as balls, egg shakers and pebbles.</p>	 <p>Make Numicon monsters on paper with a marker pen and googly eyes.</p>

Many of the ideas in this handout were adapted from:

Teaching number skills to children with Down syndrome using the Numicon Foundation Kit by Joanna Nye (The Down Syndrome Educational Trust, 2006)

You can download this document [here](#).

Other sources of information

Nye, J., Buckley, S. and Bird, G. (2005). Evaluating the Numicon system as a tool for teaching number skills to children with Down syndrome. *Down Syndrome News and Update*, 5(1), 2-13.

You can download this document [here](#)

<https://global.oup.com/education/content/primary/series/numicon/?region=uk>

You can download images of the Numicon shapes with numerals to make cards or a number line to 10 [here](#).