

THE Montessori METHOD



How should we introduce basic mathematical concepts in a care setting? Let **Barbara Isaacs** count the ways...

Many children know number names when they first come to nursery; they hear them in everyday conversations, and in nursery rhymes and stories. They also recognise numerals – particularly ones that are relevant to their lives, such as those of their birthday, or on washing machines, televisions and cars. Some can also count in sequence from 1 to 10, and even to 20, especially if they have older friends or siblings. Helping young children make connections between numerical names and symbols is often the task of the early years practitioners, who need to establish the link between quantity and these signifiers.

In Montessori classrooms we have specifically designed materials that introduce children to the concept of one-to-one correspondence between name, quantity and numeral. We scaffold the children's learning by progressing in small steps – starting with counting using wooden rods, spindles, counters and glass beads. The wooden rods are connected and each quantity is represented by a red or blue stripe to make the counting easier. When using spindles or counters we make sure that the child has the correct number, corresponding to the set of numerals, and the spindles, counters or beads used are of the same colour. Both of these pedagogical devices are intentional, so as not to distract

children from the task of counting.

The next step is to explore numerals; initially using the sandpaper numbers, which as the name suggests, use textured symbols to ensure a multi-sensory experience that combines the shape and name (sound) of the number; this approach lies at the heart of all learning in the Montessori classroom. They are eventually replaced with the printed numerals 0–10, then 10–99; later, the green, blue, red and green printed numerals represent the decimal hierarchies from units to thousands. The process is always the same: having been introduced to quantity and symbols, children have an opportunity to combine the two together.

Numbers for life

These relatively formal activities are supplemented and enhanced as well as embedded into nursery life through daily use – such as counting how many boys and girls are attending on any one day, and singing number songs. There are also counting books on the shelf, and these would include not only familiar titles such as *Counting with Spot* but also more unusual offerings, like *I Spy – Numbers in Art* (Harper Collins Children's Books).

Regular cooking activities, and setting the table for snack or lunch time, further enhance the daily use of numbers and promote accuracy in counting and number recognition. These tasks also use mathematical language such as more, less and plenty, as well as words like add and take away, highlighting for children the relevance of numbers in everyday life. Some mathematical concepts, such as pairing, sorting and grading, are introduced to children in the sensorial areas of the

Montessori classroom. They provide

the foundation for mathematical thinking not only in relation to counting but also in preparation for study of shapes, patterns and relationships.

There are counting opportunities in the outdoor classroom, too, where children can number the steps of the slide and identify numerals painted on the ride-ons as they return them to their place in a designated 'parking bay'. They can also practise one to one correspondence when planting out seedlings or counting conkers, acorns, shells or pebbles into baskets or pots organised into a number line. Traditional playground games such as "What's the time Mr Wolf" and "Farmer in the Den" are engaging ways for children to enhance their counting skills and understanding of mathematical concepts. In fact, if you look you will find joyful number opportunities in every corner of the classroom – so have fun!

Taking it further

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