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**It all adds up: the Numeracy Strategy approach in Reception classes**

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Following on the heels of the National Literacy Strategy has come the National Numeracy strategy. It began in schools at the start of this academic year and, like its literacy equivalent, aims to raise educational standards. The Government plans to invest £65m over the next three years in the Numeracy Strategy, and its target next year is for 75% of all 11-year-olds to reach Level 4 in the Key Stage 2 National Test.

The national director of the strategy, Anita Straker, heads a team of 11 regional directors and 300 numeracy consultants. Every state school in the country has received copies of The Framework for Mathematics, a clear guide for teachers on how to plan their teaching of mathematics through stated objectives. The model is whole-class interactive teaching with graded groupwork.

A cascade system is in operation. The headteacher and two other teachers from each school have had three days' training, which they then deliver to their respective schools throughout the three years of the strategy, with some schools receiving intensive support.

At the heart of the strategy is a three-part daily mathematics lesson of 45 minutes at Key Stage 1 and a one-hour lesson at Key Stage 2. It comprises a ten-minute mental oracy session, a main teaching session and a plenary session.

So what does this mean for reception classes? The strategy is flexible in reception classes and has taken into consideration the specific needs of the youngest children as they enter school. It is also recognized that children have acquired a knowledge base for numbers before they come to school.

There are several models of the lesson that can be introduced, still supporting a play-based curriculum. It is recommended that reception class teachers integrate parts of the lesson throughout the day in the first two terms. The key learning objectives for reception are the new early learning goals for mathematics which most children should reach by the end of their reception year. A possible structure for the daily maths lesson in reception could be: first, the introductory mental/oral session, which almost always includes some counting. Second, the main session, with some teaching of the whole class on the main maths topic of the day, and group activities, either for everyone in small groups simultaneously, or in small groups throughout the day, with one or more play activities linked to the theme of the lesson supported by an adult observing and supporting. Finally, the plenary session with the whole class after the group activities have ended. This could be at the end of the day, perhaps linking in with a story.

Many reception teachers find there are familiar features to the daily mathematics lesson, for example singing number rhymes, reading stories with a mathematical theme and setting up play areas.

A key message for working with the numeracy strategy is that recognized good early years practice should be retained. The numeracy strategy will add to and support the excellent practice already in place. For many early years teachers, the strategy could provide a powerful vehicle for discussion and give guidance in an area in which many teachers feel unsure. Like any new structure there are areas that may cause dispute and misinterpretation.

The strategy also places a strong emphasis on the observation and discussion of lessons. Each school has been given money for supply cover to enable teachers to watch others teach and open up a dialogue for critical, positive reflection.

The numeracy strategy has already received a good response despite a great deal of apprehension from some early years teachers. When I heard a group of reception teachers speak of the numeracy strategy recently, they said, "We can do this". They did not just mean they were capable of carrying out the mechanics of the strategy, but they also felt their belief system of what is right for young children would not

be compromised.

### **The numeracy strategy approach**

- Based on substantial research, the numeracy strategy departs from Piaget-influenced pre-number activities such as sorting sets and matching. The only way to learn about numbers is by engagement with numbers, in a variety of ways.
- There is also a shift away from the stage theory of Piaget and the concept of number readiness - children are always ready for numbers.
- The children are challenged with concepts that might seem slightly beyond them. The teacher supports their ideas and thinking and revisits more difficult concepts in a variety of ways.
- Counting skills are a complex activity and there is a heavy focus on counting skills to achieve number fluency. Teacher-led sessions involve counting numbers beyond 20 and tasks such as counting backwards and understanding the position of numbers. Teachers might ask, "What is the number between 4 and 6? Can you think of any number larger than 7 but smaller than 13?"
- Children's own recordings are encouraged through drawings, tallies and symbols.
- Through everyday classroom experiences, children are supported in their ability to visualise numbers in their mind. Teachers, therefore, might ask children to shut their eyes and imagine a helicopter with two people in it. The helicopter lands in a field and picks up three other people. The teacher then asks, "How many people are in the helicopter now?"
- Young children's number writing skills often lag behind their mental calculation skills. It is important that their competence is not measured by their ability to write numbers. Too much stress on writing numbers may be to the detriment of much higher cognitive mathematical skills.
- The focus is on teaching maths and teachers are asked to consider carefully the materials they use. Is it maths or is it just colouring-in worksheets?
- Children are exposed to numbers beyond five and ten through counting mental/oral sessions. Their own social knowledge of numbers beyond ten is also recognised, for example, their home door numbers, bus numbers and family ages.
- Number lines are an important resource. A number line that changes length, with moveable numbers, which the children can easily touch, is used in teacher-led sessions and child-initiated play.
- There is certain mathematical vocabulary in reception which children are expected to achieve. Some teachers may be concerned about the amount of words to learn. Young children's intake of language is high at this age. They are still learning many new words every day.
- A good knowledge of children's play is essential for enhancing mathematical development. Play, however, is complex and needs to be planned. Children must investigate and experiment with material and mathematical ideas. They need to explore their own mathematical agendas as well as those of adults. Perhaps, for example, before and after an adult-directed stimulus on shape, the children should be given opportunities to play with both small and large blocks and other construction material.
- Parental communication is essential to open up a mathematical dialogue. There is recognition, within the numeracy strategy, of the important influence of the home in a child's education. Most people would agree that mathematics is a subject that needs a more positive image. The idea of homework at this early stage is much more of a suggestion of things to do at home, encouraging mathematical discourse between child and parent. It may be something as simple as asking the children to bring in an interesting shape from home to make mathematical games.

The most significant point here is not to discourage parents into thinking that mathematics is a frightening experience. It is all about boosting confidence, not only for children but for adults too. In many ways the numeracy strategy is trying to counter the negative mathematical culture that is still prevalent in this country.