

# Language Development for **maths**

Circle time sessions to  
improve language skills

Language  
Development  
**maths**



Marion Nash and Jackie Lowe

A David Fulton Book

# **Language Development for Maths**

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# Language Development for Maths

Circle Time Sessions  
to Improve Communication Skills  
in Maths

Marion Nash and Jackie Lowe

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*To my partner David, with love*

Thank you for your wonderful enthusiasm and technical support.

(Marion Nash)

# Acknowledgements

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Ford Primary School in Plymouth is at the heart of the development of the Spirals programme, and this book. Many thanks to the Head, staff (in particular Val Galer who continues the important work of running the groups); also governors and parents. Thanks particularly to the children who were the initial inspiration for the work. Highfield Primary School in Plymouth has played an increasingly important role in supporting the development of Spirals. Many thanks to Paddy Marsh, the Head; Linda Mercer, the SENCO; and the staff, parents and children. I have also found a great deal of interest in and inspiration from the ideas of Jenny Mosley, Ann Locke and Ruth Durch (Brightstart).

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Many thanks to my partner David, whose creative formatting skills and warm support have been invaluable, also to my family and especially my grandson Tom who provided the original inspiration for this series of books.

This book contains many traditional tried and tested materials and if I have omitted to attribute material to anybody it is not intentional and I hereby take this opportunity to thank them.

The Mr Badger Map (p. 156) has been reprinted by kind permission of Black Sheep Press.

*Marion Nash, Educational Psychologist*

## Video CD and training

There is a 30-minute video recorded on to a CD contained in this pack. This features Educational Psychologist Marion Nash and Speech and Language Therapist Jackie Lowe, describing the Spirals programme. There are also extracts from a Spirals session run by Marion, SENCO Linda Mercer and teacher Carole Penton at Highfield Primary School in Plymouth, demonstrating the small group Circle Time approach. This will be a useful resource for schools preparing to use the Spirals materials and is easily accessed via the CD drive in your computer.

Marion Nash has teamed up with Granada Learning Professional Development to offer a training package to LEAs and clusters of schools considering adopting the Spirals programme. You can obtain more information about this by telephoning Alastair Durno on 020 8996 6032.

The video CD has been made by Jeff Booth of Highfield Productions (Tel. 01548 830274).

The CD materials can be found at [www.routledge.com/9781138139978](http://www.routledge.com/9781138139978)

# Introduction

Spirals Maths came about largely because of the success of our initial language development programme (*Language Development: Circle Time Sessions to Improve Communication Skills*: see page 140 for details). The programme is based on the Circle Time ethos, which has been widely promoted by Leslie Button, Jenny Mosley and others in recent years. In 2000/2001, I worked alongside Jackie Lowe, a senior Speech and Language Therapist, and teacher Tracey Palmer, to plan a series of carefully crafted sessions to develop language skills and thinking skills in linguistically vulnerable children. Before long, schools trialing the sessions were reporting pleasing gains made by the children involved. Teachers were observing gains made on several fronts:

- listening and concentration skills;
- expressive and receptive language;
- confidence and self-esteem.

These gains were also seen to transfer to the large group/classroom situation and evidence is now emerging of a positive effect on progress in reading as well.

This success is undoubtedly due, at least in part, to the supportive Circle Time ethos as applied to the small group sessions. These are all planned to incorporate:

- movement for a purpose;
- talking and questioning;
- music, rhythm and rhyme;
- critical reasoning and thinking;
- social skills;
- emotional awareness.

Teachers and Speech and Language Therapists were pleased with the successes they were experiencing in supporting children through Spirals groups and began asking us to develop a similar scheme with Maths vocabulary in mind.

We took on the task enthusiastically and looked at establishing a course which would develop familiarity with Maths-related words, and correct and confident use of this vocabulary. Activities were built in to create an understanding that words can have dual meanings and that the context must be looked at to provide clues about what is meant; for example, 'more' – we can give a child a large glass of milk. When they ask for **more** we put more

milk into the glass but it may be a smaller amount than the original. It is less but it's still more! There are many anomalies to be found in mathematical language and this may be one of the underlying reasons why children struggle.

One answer is to plan ways of presenting mathematical concepts at the right level and in different ways, which will engage all learning styles and help learners to bring all their strengths to bear on the task. Use of Spirals groups built around this system will enable a wide range of children to experience success in early Maths.

Parents and carers are key partners in the learning process for the child, and have responded enthusiastically to our Home Activities work books which accompany and support the Spirals language sessions, so naturally we have devised a second Home book to accompany the Spirals Maths sessions. This outlines simple activities for supporting the work going on in school in a fun and stress-free way (details are on page 140).

## **Language and Maths**

The language of Maths can be confusing to the child. Furthermore, extended verbal explanations can actually create barriers to understanding which are difficult for the child to overcome.

A fast pace in the learning environment can exacerbate this effect and leave children convinced that they do not have the skills to achieve in Maths. Children may then become stressed by their own lack of understanding and experience a range of negative emotions: embarrassment, fear, anger and further confusion, and an overwhelming urge to escape from the learning situation which they see as the cause of their unease.

The children may or may not have needs which require special educational support, but they do need special help to overcome the confidence barrier and negative emotions before they can engage productively with the learning process and experience success.

This is where the Circle Time ethos can help by providing a secure and highly motivating teaching and learning environment which addresses personal confidence needs and lowers tension. Spirals group work adds to this a slower pace and conscious strategies to engage effective thinking. Spirals work encourages children to develop and use a range of skills to bring to a wide range of tasks.

In Spirals groups we are not seeking to teach skills and concepts directly. We provide a learning atmosphere in which children are enabled to discover that such things exist. They are then motivated through the fun activities in the group to engage in learning and mastering these skills and concepts in order to be able to enter into playing the games successfully. This new-found confidence in learning will normally transfer into the classroom.

Through these Spirals Maths sessions we raise awareness of concepts such as time, shape, length, measurement, weight, pattern formation and other key

concepts, and begin to familiarise children with Maths-linked vocabulary. The sessions also help the children to begin to develop problem-solving and thinking strategies. As children progress, the adult can pop in questions to orient the children to think about the skills they are using to solve problems, thus creating a powerful tool for learning.

### **What happens in the group**

In a small group, we are able to be sensitive to the different learning and teaching styles of the children and the staff involved. Each session is crafted to provide a range of learning inputs.

- Each session is based on activities to promote reflection and critical thinking.
- The supportive principles of Circle Time are drawn upon to provide a group ethos in which we can foster the children's confidence in putting ideas forward. The sessions highlight the importance of 'brainstorming'; that is, allowing everyone to bring their ideas to a task before we select (but not judge) the most appropriate answer.
- The levels of activity and focus are carefully balanced to achieve motivation and optimum attention. The pace and language is deliberately slowed down. This has a tremendously positive impact on behaviour as children realise they can access the activities fully.
- The content of the sessions includes number work and mathematical concepts, but also thinking skills, prediction, reasoning, hypothesis development and checking, and effective questioning.
- The sessions give opportunities for dynamic assessment of children's needs and progress which can be supplemented in class lessons.
- Listening and turn-taking are an integral part of the course.
- Visualisation and harnessing imagination are introduced as powerful learning tools.
- Speaking with confidence and clarity to an audience and communicating their thinking is an outcome which is carefully planned for.

The course as a whole prepares children for the transition from learning from experience to learning from direct teaching by encouraging their ability to listen, to visualise an action, number or quantity, and to recall and describe events.

### **What are the effects of the group on the children?**

The children become much more skilled and effective thinkers and communicators. The group allows them to overcome the barriers to learning and to bring their 'heart, mind and hand' to the task. Learning is fun and relaxed, and therefore memorable and likely to endure and develop over time.

Children are highly motivated through the fun feeling to the group. They find they are concentrating almost without realising it, and contributing answers and ideas – perhaps for the first time since starting school.

In the small group we are able to keep the instructional language straightforward and not too demanding. The children blossom as they find that they can more easily understand the language, and slowly gain confidence in learning and talking in more formal situations.

Teachers often report that after only four sessions they see positive changes in children's attitudes and behaviour.

## **How to use this book**

### **Who are the intended group?**

- The course contained in this book has been developed to aid linguistically challenged children; children who find it difficult to understand verbal instructions and who do not have the skills or confidence to frame questions to clarify their understanding, or to speak out in a large group.
- The content relates to the language skills required to develop understanding of basic mathematical concepts.
- The activities are designed to achieve a balance of movement and focus, to maintain concentration and to help achieve mastery – a range of concepts, skills and processes are developed through the games.
- Over and above this, the children develop confidence in themselves as learners – this confidence carries over to other situations including the classroom.

### **Before running the groups**

- 1 Involve staff in discussion about the aims of the group and children who would benefit from inclusion in the group.
- 2 Involve parents and carers. Seek parental permission if an outside agency is involved in running the group with the school.
- 3 Assess: (a) take a snapshot of the children's strengths and difficulties with the individual assessment form provided on page 8, using one copy for each pupil; (b) plan targets for the group. Individual IEPs may be used where appropriate.
- 4 Identify two people who will be running the group. This is a necessity, not a luxury.
- 5 Create a box of resources to keep on hand for the group. Some materials are provided in the Appendices.

### **When running the group**

- 6 Record attendance at sessions, see page 7.
- 7 When the first session starts tell the children how special their group is.

- This is an opportunity to give lots of positive messages.
- 8 Follow the golden keys: Pause, Ponder, Use Praise Phrases, slow the Pace.
  - 9 At the end of each half-term reassess the children on the scales you have chosen and review the group and individual targets.
  - 10 For the last group session include a farewell followed up with drawings of things the children have especially enjoyed so that they have a concrete reminder for as long as they need it.

### Using the materials: flexibility

When using the materials go by the level that you feel your group of children have reached. There will be some groups of children who need repetition of sessions and some groups who need to start sessions at a higher level.

All groups of children can vary in their needs and you may find that in one nursery the children work happily at the earlier sessions whereas in another they have mastered the basic concepts therein and need to work on the concepts contained in the later sessions.

In our experience some sessions will sometimes need to be repeated three or more times, whereas another session at the same level is assimilated at the first presentation.

### Further reading

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- Kemple, K. M. (1992) *Understanding and Facilitating Pre-school Children's Peer Acceptance*. Eric Digests ED345866 (Internet).
- Mosley, J. (1993) *Turn Your School Round*. Cambridge: LDA.
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- Sizer, T. (1984) *Horace's Compromise*. Boston: Houghton Mifflin.
- Stevens, P. W. Richards (2002) Eric Digests ED345929 (Internet).

## **Resources**

Talkabout series; Talkabout the Playground; Pragmatics; Feelings

The Mr Badger Map is available from Black Sheep Press, 67 Middleton, Cowling, Keighley, West Yorks BD22 0DQ

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[www.blacksheep-epress.com](http://www.blacksheep-epress.com)

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