

The National **Numeracy Strategy**

SPRINGBOARD 

Mathematics catch-up
programme for Year 4

ACKNOWLEDGEMENT

This initiative has been developed from a catch-up programme originally devised by the Hamilton Trust for use in schools in the Hamilton Oxford Schools Partnership. The National Numeracy Strategy would like to thank the Hamilton Trust for their cooperation and help in producing these materials.

In 2000 there was an increase of 9% in the proportion of children obtaining Level 2B or better in the Key Stage 1 national tests for mathematics, a significant improvement in standards since the previous year. However, 17% of children were only awarded Level 2C. A high proportion of these children have the potential to improve on this performance, given a well-planned programme and targeted teaching. Springboard 4 addresses the crucial mathematical knowledge and skills required for these children to reach age-related expectations in the subject.

These materials are based on tried and tested units of work that were originally developed by the Hamilton Maths Project and used successfully in schools in the Oxford Education Action Zone. Some changes have been made to make the programme suitable for use nationwide, but the mathematical content and approach to teaching are essentially the same.

Springboard 4 is designed for teaching in the first half of the school year, and aims to bring children's understanding to a level where they can more easily benefit from the Year 4 teaching programme in the *Framework for teaching mathematics from Reception to Year 6*. It does not replace this programme, but complements it. The Springboard 4 sessions should be linked carefully to the appropriate teaching units and be done in the same weeks as the topic in the daily mathematics lesson.

This guide is for teachers and teaching assistants working in Year 4 and for mathematics co-ordinators. It is organised in three sections:

- Section 1 contains introductory notes on the planning and teaching of the programme, including the role of the teaching assistant
- Section 2 sets out the teaching objectives of the weekly teaching units and their link with the Year 4 teaching programme
- Section 3 contains the teaching materials: 10 weekly units of work with teaching notes for the sessions, photocopiable activity sheets and resource sheets, and homework tasks.

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PART 1

AIMS

Springboard 4 is intended for those children in Year 4 who achieved Level 2C in the Key Stage 1 national tests in mathematics and who, with extra help, are likely to catch up and achieve Level 3 by the end of Year 4. It aims:

- to support the identified children and to remedy particular weaknesses in number so that they are in a better position to access and benefit from the teaching programme in Year 4 and beyond;
- to set the expectation that these children catch up with their peers;
- to help teachers to prepare a teaching programme enabling children to fully benefit from the main teaching programme for Year 4 as soon as possible.

THE SPRINGBOARD 4 MATERIALS

The materials focus on key areas of number. They provide additional tuition for small groups of six to eight children outside the daily mathematics lesson (DML) during the weeks when these areas are being taught in the DML.

The ten units of work are designed to be used flexibly over the first term and a half of the school year. A diagram on page 14 shows how schools following the planning grids for Year 4 in the *Framework for teaching mathematics from Reception to Year 6* can fit in the units over this period. Each unit consists of two sessions, of 30 minutes each, that are led by a teaching assistant and consolidates the work introduced by the teacher in the DML. The teaching assistant should have worked with the group in the DML before leading the two sessions. In each session, the teaching assistant introduces and explains an activity sheet to be completed before the next Springboard session. It is intended that teachers will mark these before the next session and deal with any misconceptions individuals may have. There is also a short weekly homework task.

Each unit covers carefully selected teaching objectives mainly from the Year 3 teaching programme, which children must meet if they are to tackle with confidence the key objectives of the Year 4 programme. There is a detailed plan for each session, following the three-part lesson model developed by the National Numeracy Strategy and based on the teaching strategies outlined in the Introduction to the *Framework for teaching mathematics from Reception to Year 6*. The programme includes detailed teaching points and key questions, and teaching objectives, vocabulary and resources are listed for each unit.

Schools receiving funding for catch-up purposes may decide to use it to support the use of these materials with children in Year 4. Year 4 teachers in other schools can decide to deliver the course in full or draw on the materials for use with children who have an insufficiently firm grasp of the groundwork required for the Year 4 teaching programme.

TEACHING TIME

The materials are designed on the assumption that children will be working for several days in the DML on the same topic as in a Springboard unit. The two additional sessions should take place during the same period of time. Schools should decide when the sessions with a teaching assistant will take place. It may be possible to find temporary slots during the school day for the weeks in which the additional help is required. If not, it may be possible to establish a breakfast or after-school club, or to slot in sessions in the lunch break if time allows.

USING THE MATERIALS

The materials provide support for the topics being taught. Teachers will, however, need to take into account the responses of their children and help their teaching assistants to **adjust the session according to the progress the children make**. In particular, assistants will need help with developing appropriate lines of questioning for the group. While the materials provide a firm structure for teaching assistants to follow, individual children will not all be at the same level of attainment in all their mathematical work. Some will need more help and opportunities for consolidation in some areas than in others.

THE VIDEO SEQUENCES

The eight video sequences show ways in which catch-up sessions can be tackled. They show how the material should be broken down into small steps and demonstrate appropriate lines of questioning. Each sequence is based on the same teaching objectives as the corresponding session in these materials. While the content is very similar, the video sessions have been slightly amended, where necessary, to meet the specific needs of the children being filmed.

The National Numeracy Strategy is indebted to colleagues and children who made arrangements for, and took part in, the filming from Church Cowley First School, Oxford, St Luke's Church of England (Aided) Primary School, Cambridge, Abbey Meadows Community Primary School (formerly Priory Junior School), Cambridge, and Rowanfield Junior School, Cheltenham.

The NNS would also like to thank colleagues from the Hamilton Oxford Schools Partnership, Cambridgeshire County Council and Gloucestershire County Council for their help and co-operation.

ROLE OF THE TEACHING ASSISTANT

A high degree of continuity can be achieved if teaching assistants are able to work with children identified for the Springboard programme in the DML. The assistants will know the children and have a good idea of their achievements and any particular difficulties they have encountered. The teacher will, however, still need to brief the assistant and ensure that the materials are adjusted to meet the needs of the children concerned, particularly in the light of the progress they make in the DML. Although the session notes are detailed, they cannot cater exactly for a specific group of children. Funding for the initiative should allow the assistant to spend time discussing the session notes with the teacher and mapping out exactly what needs to be done and the best way to approach it.

The teaching assistant will work with the children in the two sessions in exactly the same way as s/he often does in the DML. The assistant must not lecture the children, but involve them through questioning and practical demonstration. Although s/he introduces and explains the activity sheet, it should be completed at another time, if this is appropriate and fits in with the on-going work. This is because the sessions are essentially oral.

It is important that teachers know about and reinforce the progress children make in the sessions with the teaching assistant. A good way to ensure this is for the assistant to make brief entries on the feedback sheet (see page 12) after each session, ensuring that this vital information is recorded systematically.

INVOLVING CHILDREN IN THEIR LEARNING AND SETTING TARGETS

Children are better motivated when they understand what they are to achieve and recognise the progress they are making. Teachers can help them improve their performance by discussing with them what they can do, and what they need to improve.

Children can also be encouraged to assess their own progress. The recommended individual target sheet (see page 13) brings together the child's assessment and that of the teacher. The teacher's assessment should be based on the child's ability to apply what has been learned and consolidated in the Springboard sessions when answering questions and carrying out written tasks in the DML. Information from the teaching assistant should, of course, also be taken into account. It would help to introduce the children to the targets linked to a particular unit before that unit is taught, and then for the child and teacher to make the necessary judgements immediately after the unit is finished. Where a child is still some way from reaching a target, the teacher will need to decide what action needs to be taken.

INVOLVING PARENTS AND CARERS

The support and interest of parents and carers is also important in motivating children to succeed. Teachers should aim to keep them informed about the catch-up programme from the beginning and to discuss their child's targets and progress with them when there is a suitable opportunity. It is helpful to send home a copy of the child's individual target sheet so that parents and carers know what the current priorities are. The homework tasks are designed for the child to share with others at home. They involve simple activities and games that do not take too long to do.

SPRINGBOARD 4

FEEDBACK SHEET

Group

Unit of work

Date of sessions

Look carefully at the teaching objectives for your sessions

List those children who, you feel, have now achieved these objectives.

--

List those children who, you feel, are well on the way to achieving these objectives but need further consolidation.

--

List any children who, you feel, are still some way from achieving these objectives.

--

What particular achievements have been made in the two sessions?

--

What particular difficulties have children had in the two sessions?

--

SPRINGBOARD 4 MY TARGETS

Name _____

Class _____

I CAN NEARLY REACH MY TARGET: ✖

I CAN DO IT WELL: ✓

I HAVE REACHED MY TARGET: 😊

Target	What I think	What my teacher thinks	My teacher says that I have reached my target (date)
I can read and write whole numbers to at least 1000 (U1)			
I can order whole numbers to at least 1000 (U1)			
I know by heart my addition and subtraction facts to 20 (U2)			
I know all pairs of multiples of 5 with a total of 100 (U2)			
I can partition a number into hundreds, tens and ones and recombine (U3)			
I can count in steps of 3 or 4 (U4)			
I can count on or back in twos and recognise odd and even numbers (U4)			
I know that division is the inverse of multiplication and I know that halving is the inverse of doubling (U5)			
I know by heart facts of the 2-, 5-, and 10- times tables (U5)			
I can use the right operation to solve a word problem (U6)			
I can recognise fractions such as $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$, and $\frac{1}{10}$. I can find the fractions of shapes and numbers (U7)			
I can read the time to 5 minutes on a 12-hour digital clock and on an analogue clock (U8)			
I can add or subtract a near multiple of 10 to or from a two-digit number (U9)			
With money, I can find a total, give change and work out which coins to pay (U10)			

I CAN PRACTISE MY TARGETS AT HOME

LINKING SPRINGBOARD 4 UNITS TO THE PLANNING GRIDS

Unit	Days	Pages	Topic	Associated Springboard 4 Units
1	3	2-15 94-95	<ul style="list-style-type: none"> Place value, ordering, estimating, rounding Reading numbers from scales 	1
2-3	10	34-37 40-47 48-51 82-85 72-75	<ul style="list-style-type: none"> Understanding + and – Mental calculation strategies (+ and –) Pencil and paper procedures (+ and –) Money and 'real life' problems Making decisions and checking results 	2 3
4-6	13	86-101 102-111 76-81	<ul style="list-style-type: none"> Measures, including problems Shape and space Reasoning about shapes 	
7	2		Assess and review	

Year 4: Autumn

8	5	16-21 76-81	<ul style="list-style-type: none"> Properties of numbers Reasoning about numbers 	4
9-10	10	52-57 60-65 66-69 82-85 72-75	<ul style="list-style-type: none"> Understanding + and – Mental calculation strategies (+ and –) Pencil and paper procedures (+ and –) Money and 'real life' problems Making decisions and checking results 	5 6
11	5	22-31	<ul style="list-style-type: none"> Fractions and decimals 	7
12	5	34-37 40-47 48-51 98-101 88	<ul style="list-style-type: none"> Understanding + and – Mental calculation strategies (+ and –) Pencil and paper procedures (+ and –) Time, including problems 	8
13	5	114-117	<ul style="list-style-type: none"> Handling data 	
14	2		Assess and review	

Year 4: Autumn

1	3	2-15 94-95	<ul style="list-style-type: none"> Place value, ordering, estimating, rounding Reading numbers from scales 	
2-3	10	34-37 40-47 48-51 82-85 72-75	<ul style="list-style-type: none"> Understanding + and – Mental calculation strategies (+ and –) Pencil and paper procedures (+ and –) Money and 'real life' problems Making decisions and checking results 	9 10
4-6	13	86-101 102-111 76-81	<ul style="list-style-type: none"> Measures, including problems Shape and space Reasoning about shapes 	
7	2		Assess and review	

Year 4: Spring