

# Curriculum Continuity

Effective transfer between primary and  
secondary schools

# Contents

<b>The DVD</b>	3
An outline of the accompanying DVD.	
<b>Introduction</b>	5
An explanation of the issues and challenges for the senior leadership team to consider when reflecting on practice in its school.	
<b>The use of bridging (transition) materials</b>	10
An outline of what is available from the National Strategies and elsewhere. This section presents research findings about the use of bridging materials and offers advice about using the bridging materials successfully.	
<b>Teacher exchanges</b>	12
A summary of the benefits of organising teacher exchanges between primary and secondary schools with suggestions about how schools can get the best out of these exchanges.	
<b>Prioritising developments</b>	13
A DVD clip is used to initiate discussion on identifying priorities.	
<b>Curriculum continuity in English</b>	14
This section invites the reader to consider curriculum continuity in English by comparing video clips of a Year 6 class and a Year 7 class. The section can easily be used as a discussion session in a departmental meeting.	
<b>Curriculum continuity in mathematics</b>	21
This section invites the reader to consider curriculum continuity in mathematics by comparing video clips of a Year 6 class and a Year 7 class. The section can easily be used as a discussion session in a departmental meeting.	
<b>Curriculum continuity in science</b>	30
This section invites the reader to consider curriculum continuity in science by comparing video clips of a Year 6 class and a Year 7 class. The section can easily be used as a discussion session in a departmental meeting.	
<b>Curriculum continuity in ICT</b>	35
This section invites the reader to consider curriculum continuity in ICT by comparing video clips of a Year 6 class and a Year 7 class. The section can easily be used as a discussion session in a departmental meeting.	
<b>Curriculum continuity in the foundation subjects</b>	44
This section suggests how foundation subject departments might reflect on curriculum continuity at transfer and seek to improve it.	
<b>References</b>	49
A list of materials available to support work on transfer.	
<b>Appendix</b>	50
Summary of recent research on transfer and transition – Galton <i>et al</i> (2003)	

## The DVD

The DVD accompanying this guidance contains a number of film sequences that can support and stimulate discussion.

In the first sequence, some headteachers, other senior managers, teachers and pupils talk about the important issues for them in relation to continuity in curriculum and teaching at transfer from primary to secondary schools. You may find this a useful stimulus for discussion at a senior leadership team meeting and a focus for reviewing practice related to transfer and transition.

The other sequences are intended for subject leaders and their departments. They feature Year 6 and Year 7 lessons in the core subjects and ICT. As with all filmed lessons, they are not intended to illustrate 'perfect' lessons. Instead they show developing practice and illustrate teachers working together to provide worthwhile units of teaching to bridge from primary to secondary school, with the aim of improving continuity in curriculum and teaching.

### Outline of the film sequences on the DVD

Sequence	Duration	Title	Description
1	15 minutes	Curriculum continuity from a whole-school perspective	Senior managers and teachers talk about how their transfer arrangements have brought about better continuity in curriculum, teaching and learning. Pupils talk about what has been important from their point of view.
2	12 minutes	Curriculum continuity in English – Year 6	A Year 6 English lesson, based on lesson 3 from the Year 6 English transition unit. The lesson focuses on comparing characters from two texts. Some Year 6 pupils talk about their work.
	20 minutes	Curriculum continuity in English – Year 7	A Year 7 English lesson based on lesson 4 from the Year 7 English transition unit. The lesson focuses on narrative writing. Some Year 7 pupils talk about their work.
3a	12 minutes	Curriculum continuity in mathematics – Year 6	A Year 6 mathematics lesson, based on day 1 from the Year 6 mathematics transition unit. The lesson focuses on solving number problems. Some Year 6 pupils talk about their work.
	15 minutes	Curriculum continuity in mathematics – Year 7	A Year 7 mathematics lesson based on lesson 3 from the Year 7 mathematics transition unit. The lesson focuses on written calculation methods. Some Year 7 pupils talk about their work.
3b	13 minutes	Curriculum continuity in mathematics and London Challenge – Year 6	A Year 6 mathematics lesson, based on day 4 from the Year 6 mathematics transition unit. The lesson focuses on solving problems using multiplication and division. Some Year 6 pupils talk about their work.
	14 minutes	Curriculum continuity in mathematics and London Challenge – Year 7	A Year 7 mathematics lesson based on lesson 4 from the Year 7 mathematics transition unit. The lesson focuses on solving word problems and effective use of a calculator. Some Year 7 pupils talk about their work.
4	14 minutes	Curriculum continuity in science – Year 6	A Year 6 science lesson towards the end of a six-hour unit in the second half of the summer term. The lesson focuses on collecting and evaluating evidence from an investigation into bread dough.
	12 minutes	Curriculum continuity in science – Year 7	A Year 7 science lesson early in the autumn term. The lesson focuses on carrying out an investigation and evaluating the results.

## Acknowledgements

We are very grateful to all the teachers and pupils of the schools that feature in this DVD. Details of the schools are listed below.

School	LEA	No. on roll	FSM
Emmaville Primary School	Gateshead	199	14%
Ryton Comprehensive School	Gateshead	1225	12%
Ewanrigg Junior School	Cumbria	173	47%
Netherhall Specialist Sports College	Cumbria	875	20%
Rushmore Primary School	Hackney	474	24%
Hackney Free and Parochial CE School	Hackney	746	50%
Lakeside Primary School	York	360	9%
Canon Lee School	York	900	13%

# Introduction

Members of the senior leadership team are invited to read through this Introduction, stopping to reflect on the questions in the boxes and discussing them during or after reading.

## Purpose

The purpose of this booklet is to help schools to consider what more they can do to ensure curriculum continuity between the primary and secondary curriculum, so that pupils new to secondary school get off to a flying start. It complements the work being done in other places to support better transfer of data and to develop pastoral support.

## What is curriculum continuity?

Curriculum continuity refers to:

- knowing which topics and, in English, which texts have already been covered;
- knowing what skills and understandings have been well established;
- knowing the pace and style of previous lessons in the subject;
- using this knowledge to launch pupils' secondary education in a way that will reassure them, challenge them and take them forward rapidly.

### Questions for discussion or consideration

- For each subject of the Year 7 curriculum, are you confident that departments in your school know the information referred to in the first three bullet points above?
- Some heads of department will tell you that these issues depend upon the school the pupils come from. Do you know which subjects are struggling with an uneven mix in terms of coverage, level of skills and lesson style?
- Have you ever asked pupils about the extent to which they tread water in Year 7, repeat topics or encounter work that is not well pitched to their needs?

## Topics and texts

It is not unusual to find that pupils revisit topics they have already covered. On occasion, it can be illuminating to visit old territory and see it in a new light. But, mostly, pupils find it dull.

### Examples

A 15-year-old girl explains that she has studied the following topics on several occasions.

- Designing a toy (Years 4, 6 and 8)
- Adapting a biscuit recipe (Years 1, 5, 8, and 10)
- My local area (Years 3, 6, 7, and 9)
- About myself, my family and friends (Years 3, 4 and 7)
- About myself, my family and friends in French (Years 4, 6, 7, 8, 9, 10)
- The water cycle (Years 4, 7 and 9)

A boy in Year 7 explains that the two class readers so far studied in his English lessons were similarly used with the whole class in his primary school. Six other pupils in the group are in the same position. They have told the teacher, but the allocation of books to classes is such that she is unable to find a suitable alternative.

Thinking about curriculum continuity in advance can avoid such situations.

As a minimum, it is essential that departments know which topics (and, in English, which texts) have been covered by primary schools. Many schools have already formalised a way of collecting this information, but if they have not, some simple failsafe methods are listed below.

1. Hold a one-hour twilight session for subject coordinators in primary schools to come and meet the subject leader in the secondary school to compile an audit of what is covered locally.
2. Visit a Year 6 teacher in each of the primary schools and request a copy of the scheme of work for each subject or a summary of it.
3. Ask the Year 6 teacher to study a checklist summary of Year 7 content in each subject and alert you to any repetitions or other issues relating to the content.
4. Ask the pupils to tell you which topics and, if appropriate, which texts they have covered.
5. Ask a pupil from each partner primary school to bring in a complete set of work for you to check.

### Questions for discussion or consideration

- What liaison is already in place?
- How purposeful is it?
- Could it be used to collect some of the information mentioned above?

## Skills and understanding

Test results offer useful information in the core subjects, especially if you look at particular raw scores. Most schools use test results to monitor trends, inform setting and pick out the most able, the least able and particular pupils with an unusual profile. But the important issue is whether the schools use in their teaching the information gained about the majority of pupils.

### Questions for discussion or consideration

- Do all core subject teachers in Year 7 receive and analyse the data for their new classes?
- Do you have evidence that teachers can and do adapt their teaching plans to fit the profile of each new class?

Results from any tests are only useful if they improve the teaching that comes after them. It is not helpful to pupils if:

- they tread water while extra tests are imposed;
- their teachers don't know what the test scores represent;
- their teachers stick to the teaching plan regardless of test results.

The Frameworks of objectives for the National Literacy Strategy and the National Numeracy Strategy offer a detailed and effective line of progression, which moves into Key Stage 3 in the Frameworks for English and mathematics. Using their subject Framework is the single most important thing teachers can do to ensure good continuity and progression in transition from primary to secondary school. In other subjects, QCA schemes of work can be used to ensure continuity and progression.

Sound assessment of pupils' skills and understanding in foundation subjects is much less easy to achieve than in the core subjects. However, your foundation subject staff can glean much from:

- a desk exercise reading the latest reports in the pupils' files;
- a summer meeting to look over folders of work or exercise books for the next cohort to get a feel for the cohort and to comment about individual pupils;
- a standards moderation among partner schools using not only standardised materials on the QCA website but also pupil folders or exercise books from Years 6 and 7;
- using one or two early lessons to set exciting but revealing tasks that will give a useful perspective on pupils' strengths and weaknesses.

### Questions for discussion or consideration

- Do your core subject departments follow the Key Stage 3 Frameworks?
- How much information is received – or sought – by your foundation subject departments?

## Pace and style of lessons

Pupils know and expect that lessons will be somewhat different in secondary school.

When transferring to secondary school they may be apprehensive about:

- the demands that will be placed on them by subject specialists;
- the many different faces, rooms and teaching styles they will now meet;
- conventions of behaviour and procedures they may not know;
- past weaknesses being exposed.

On the other hand, research tells us that they are even more excited and optimistic about:

- the newness of discrete subjects;
- being inspired by enthusiastic specialists;
- the possibilities of starting afresh with high hopes and a clean sheet;
- specialist provision such as laboratories, DT rooms and drama studios;
- expanding horizons.

Recent research (Galton *et al*, 2003) suggests that pupils get a 'buzz' from the new experience and challenge of secondary school. There is no reason automatically to stifle differences between primary school and secondary school.

In the core subjects, the National Strategies are building continuity, in terms of, for example:

- teaching to objectives;
- interactive whole-class teaching;
- the use of starters and plenaries;
- the use of guided work;
- directed questions rather than hands-up responses.

Rather than seeking unique policies for each subject, it is probably wisest if the secondary school has a teaching and learning policy based on the best principles of the National Strategies. This teaching and learning policy should be used by all departments and explained to pupils when they arrive.

A group of pupils moving from their small village primary school to a secondary school in town commented, as follows, on the differences in the way the lessons work.

Primary	Secondary
<ul style="list-style-type: none"> <li>Teacher asked particular people to answer questions.</li> </ul>	<ul style="list-style-type: none"> <li>You are asked to put your hand up if you think you know the answer.</li> </ul>
<ul style="list-style-type: none"> <li>You could leave your seat to get pens and paper.</li> <li>Pens, paper and dictionaries were provided at the table.</li> </ul>	<ul style="list-style-type: none"> <li>Leaving your seat is not allowed.</li> <li>You are expected to bring your own equipment.</li> </ul>
<ul style="list-style-type: none"> <li>You were expected to work as a group.</li> </ul>	<ul style="list-style-type: none"> <li>There is less group work. Teachers often expect you to work individually.</li> </ul>
<ul style="list-style-type: none"> <li>There were group work rules such as taking turns, having a chair, a scribe and a timekeeper.</li> </ul>	<ul style="list-style-type: none"> <li>We only have group work rules in English.</li> </ul>
<ul style="list-style-type: none"> <li>You had to sit in the same place.</li> </ul>	<ul style="list-style-type: none"> <li>You can usually sit with your friends. Sometimes someone else is in your seat and you have to move. Sometimes the teacher tells you who to sit next to.</li> </ul>
<ul style="list-style-type: none"> <li>You could do your work on the computer if you wanted to.</li> </ul>	<ul style="list-style-type: none"> <li>You have to ask permission to work at the computer. In some lessons, you are told that handwriting is the rule.</li> </ul>
<ul style="list-style-type: none"> <li>We didn't have textbooks.</li> </ul>	<ul style="list-style-type: none"> <li>A lot of subjects are based on textbooks.</li> </ul>
<ul style="list-style-type: none"> <li>We had to use pencils for rough work and fountain pens for best.</li> </ul>	<ul style="list-style-type: none"> <li>Everyone uses biro.</li> </ul>
<ul style="list-style-type: none"> <li>Mrs X let us talk quietly when we were working.</li> </ul>	<ul style="list-style-type: none"> <li>All the teachers have different rules about talking. Some pupils are too noisy. Some teachers want silence.</li> </ul>

The use of textbooks is common in secondary schools but not always in primary schools. One of the things a secondary teacher can do for a new class is to introduce them to the standard textbook and show how it works – its contents, index, activity logos, the structure of each chapter, the glossary, etc.

It is also a good idea if teachers can lay out some past work, such as old exercise books or displays, so that pupils get a feel for the type of work they will do, the standard expected and the length and layout of written work.

### Questions for discussion or consideration

- Is there a school teaching and learning policy that is shared with pupils?
- How do departments introduce pupils to the rules, standards, resources and styles of work they commonly use and expect?

## The use of bridging (transition) materials

Bridging or transition units – a set of materials started in the last few weeks in the primary school and continued after transfer to secondary school – are increasingly used to support continuity in curriculum and pedagogy.

### What is available?

Different models of bridging units are currently available to schools.

- Bridging materials for English and mathematics have been produced by the Strategy: *Transition from Year 6 to Year 7: Mathematics units of work* (DfES 0118-2002); *Transition from Year 6 to Year 7: English units of work* (DfES 0113-2002).
- Published schemes are available, such as the QCA bridging units.
- Many LEAs produce materials for use within their own primary/secondary partnerships and some schools develop and produce their own bridging materials.

### How effective is the use of bridging materials?

Bridging materials support curriculum continuity but, according to research undertaken by Galton *et al* (2003), only to a limited extent. They model how continuity and progression can be achieved in one aspect of learning in a subject; similar approaches need to be considered for other aspects of learning.

Galton *et al* (2003) report that the benefits for pupils of being involved in bridging units are more marked when primary and secondary teachers engage in joint planning of the units.

It was noticeable that where primary and secondary colleagues engaged in joint planning of these units there was both continuity and a greater variety of activities so that pupils' motivation was sustained after transfer.

External evaluation of a Key Stage 3/London Challenge transition project highlighted that, where transition units are given high status and pupils' work successfully transferred from primary to secondary school, pupils:

- feel more confident and enthusiastic about their move to Year 7;
- like to show their new teacher their work from primary school;
- feel that their Year 6 work was valued by their teachers;
- like looking back at their Year 6 work so that they can see the progress they are making.

Promoting professional dialogue between primary and secondary colleagues on issues of pedagogy and assessment is one of the main benefits for teachers using bridging materials. One of the issues raised by Galton *et al* (2003) is how teachers plan post-induction programmes to build on and sustain the development of pupils as professional learners.

Few teachers in secondary schools appeared to use the units for diagnostic purposes to gain a better understating of what pupils could do and hence avoid setting future work at too low a level. Nor did schools appear to build on the curriculum continuity provided, in that once the unit was completed a new and unrelated topic would be introduced. For example, when some pupils were asked what happened when the unit ended they replied, 'the teacher put on his white coat and we did the Bunsen burner.'

### Questions for discussion or consideration

- Are teachers and pupils clear about the purpose of bridging units?
- How can you build on the work that has been done in bridging units in later parts of the curriculum?
- Are subject leaders committed to modifying schemes of work to build on and sustain continuity of learning?
- Is sufficient attention given to post-transfer or post-induction activities? How is pupils' excitement for learning sustained? How is a language for thinking and talking about their learning developed?

## Teacher exchanges

Observing teaching in primary schools is often cited by secondary teachers as an extremely valuable experience.

Since the beginning of the Strategy such opportunities for observation have been promoted, initially in English and mathematics, so that secondary teachers learned about the working of a literacy hour and structured, fast-paced primary mathematics lessons. In science, too, many secondary teachers benefited from seeing first-hand the challenge of primary science lessons.

Having the opportunity to observe primary teaching has also been of benefit to teachers in other disciplines. Secondary teachers say that they value:

- learning more about the curriculum coverage in Key Stage 2;
- gaining an insight into the teaching strategies being employed in primary schools;
- experiencing first-hand the level of expectation being set in Key Stage 2;
- reflecting on issues of classroom organisation.

More recently, there have been more opportunities for primary teachers to reciprocate these visits. Primary teachers particularly value the subject expertise of their secondary colleagues and the opportunity to see how the curriculum develops in Key Stage 3.

Interestingly, the recent research on transition (Galton *et al*, 2003) indicates that the advantages cited by teachers do not necessarily influence their own practice. To be of lasting benefit observations need to have a clear focus on a teaching strategy or an aspect of pupils' engagement. In one effective example in the research study, a pair of teachers planned peer observations with a tight focus on developing challenging questions and on how pupils responded, or evaded giving answers.

The use of peer-focused observation seemed to lead to the analysis of classroom practice at a deeper level.

### Questions for discussion or consideration

- Do you promote teacher exchanges?
- How would you ensure that teacher exchanges stimulate analysis and developments related to the curriculum, teaching and learning?

---

# Prioritising developments

---

## **DVD sequence 1: Curriculum continuity from a whole-school perspective**

Sequence 1 on the DVD contains excerpts of interviews with senior managers, teachers and pupils. Their views may help you to identify what more your school could do to ensure curriculum continuity.

### **Questions for discussion or consideration**

- Are any of the ideas presented by senior staff or teachers ones that could be applied to your school?
- Do the views of pupils resonate with views you've heard voiced in your school?
- What are the implications for developing curriculum continuity?
- What will be your priorities?

---

## Curriculum continuity in English

---

The purpose of this section is to help English teachers and departments to consider what more they can do to ensure curriculum continuity between the primary and secondary curriculum, so that pupils new to secondary school get off to a flying start. The material in this section complements the work being done in other places to support better transfer of data and to develop pastoral support.

This section invites you to consider curriculum continuity in English by comparing Year 6 and Year 7 teaching sequences on DVD. The section can be used as a discussion session in a departmental meeting (see page 18).

### What is curriculum continuity?

Recent research on transfer and transition (Galton *et al*, 2003) has pointed out the need for schools to work more on curriculum continuity and to pay attention to academic transfer and 'the specific strategies which help sustain pupils' progress'. An outline of the main findings and messages from the research is included in the Appendix. You may wish to read this before working through the materials in the relevant subject section.

Curriculum continuity refers to:

- knowing which topics and texts have already been covered;
- knowing what skills and understandings have been well established;
- knowing the pace and style of previous lessons in the subject.

This knowledge is then used to launch pupils' secondary education in a way that will reassure them, challenge them and take them forward rapidly.

As a minimum, it is essential that departments know which topics and texts have been covered by primary schools. Many schools have already formalised a way of collecting this information, but if they have not, some simple failsafe methods are listed below.

1. Hold a one-hour twilight session for subject coordinators in primary schools to come and meet the subject leader in the secondary school to audit what has been covered and the teaching approaches used.
2. Visit a Year 6 teacher in each of the primary schools and request a copy of the scheme of work for English or a summary of it. If possible, observe or team teach a lesson.
3. Ask the Year 6 teacher to study a checklist summary of Year 7 content in English and alert you to any potential overlaps or other issues relating to the content.
4. Ask the pupils to tell you which topics and texts they have already covered.
5. Ask a pupil from each partner primary school to bring in a complete set of work for you to see.

## Task 1

### Questions for discussion or consideration

- What liaison is already in place?
- How purposeful is it?
- Could it be used to collect some of the information mentioned above?

The Framework of objectives for the National Literacy Strategy offers a detailed and effective line of progression which moves into Key Stage 3 in the *Framework for teaching English: Years 7, 8 and 9*. Using the Framework is the single most important thing you can do to ensure good continuity and progression in English across the schools.

The DVD sequences used in this section are designed to draw attention to successful features of curriculum continuity in English, using the transition units developed by the National Literacy Strategy and the Key Stage 3 Strategy: *Transition from Year 6 to Year 7 – English units of work* (DfES 0116/2004).

As you watch the DVD clips, draw out key features of continuity, both in terms of curriculum links and continuity in approaches to teaching and learning, and look for features of Year 7 teaching that challenge pupils to build on and extend their Year 6 experience.

## Task 2

### DVD sequence 2: Curriculum continuity in English – Year 6

#### Emmaville Primary School

- The school is situated in a former mining village on the outskirts of Gateshead. It caters for pupils aged 3 to 11 and has 199 pupils on roll plus 22 in the nursery.
- 14% of pupils are eligible for free school meals.
- Nearly all pupils transfer to one secondary school.
- 90% of pupils in the Year 6 class featured on the DVD attained level 4 or above in the 2003 Key Stage 2 National Curriculum test for English.

The teacher, Hayley, is teaching lesson 3 from the Year 6 transition unit. Spend a few minutes reading through the plan for the whole week (page 19), concentrating particularly on the lesson you are about to see.

The lesson focuses on comparing characters from two texts. Pupils are asked to select evidence from the texts to support their opinions.

Watch the lesson and consider the following question.

- What specific literacy skills and abilities do pupils demonstrate?

Look for examples of:

- use of metalanguage to describe features of texts;
- use of evidence to support opinions;
- discussion and groupwork skills;
- writing connected prose based on notes.

Now view the pupil interviews.

- What do these interviews reveal about ways of achieving curriculum continuity?

Before going on to watch the Year 7 lesson, which is based on week 2 of the transition unit, think about the following questions.

- Given what the pupils have shown they can do in Year 6, what features of a Year 7 lesson would you expect to see that provides:
  - curriculum continuity?
  - an increased level of challenge?

### Task 3

#### DVD sequence 2: Curriculum continuity in English – Year 7

Now watch the Year 7 lesson (the first 13 minutes of this sequence) filmed at Ryton Comprehensive School.

#### Ryton Comprehensive School

- Ryton is a large comprehensive school on the outskirts of Gateshead catering for pupils aged 11 to 18 with 1225 pupils on roll.
- 12% of pupils are eligible for free school meals.
- Year 7 pupils come mainly from seven partner primary schools.
- All pupils in the Year 7 top band shown on the DVD attained level 4, with the majority at level 5, in the 2003 Key Stage 2 National Curriculum test for English.

Spend a few minutes reading through the plan for the whole week (page 20), concentrating particularly on the lesson you are about to see (lesson 4).

The lesson focuses on narrative writing. Pupils compose an opening to their own narrative, drawing on their knowledge of narrative techniques in Michael Morpurgo's writing.

Watch the lesson and consider the following question.

- What evidence is there of pupils building on their experience of the work carried out in Year 6 on the first part of the transition unit?

Look for examples of:

- use of metalanguage to describe features of texts;
- pupils offering opinions in a whole-class context;
- discussion and groupwork skills;
- pupils' confidence and increased sophistication in their answers.

Now view the pupil interviews.

- What do these interviews reveal about ways of achieving curriculum continuity?

## Task 4

### DVD sequence 2: Curriculum continuity in English – Year 7 guided writing

The last 7 minutes of the film sequence shows some of the Year 7 pupils in a guided writing session as part of the same lesson. View this clip and complete the following task to review both the Year 6 and Year 7 lessons and draw some conclusions about *pedagogical* continuity and progression.

1. Note key features of the teaching and learning that ensure that these pupils experience the pace and style of previous lessons in the subject. Consider:
  - use of objectives;
  - approaches to shared reading and writing;
  - use of teacher modelling;
  - questioning;
  - support for pupils as they begin to apply what they are learning ('scaffolding');
  - guided group work;
  - assessment for learning.
2. Identify aspects of the teaching in the Year 7 lesson that are designed to challenge the pupils and take them forward rapidly. In other words, what is *different* about the pupils' experience of English in Year 7 that will 'create a buzz' for them as the start on their secondary experience?

## Task 5

Decide on one key action you can take to improve *curriculum* continuity, and one key action for *pedagogical* continuity in English, and record these in the department's action plan.

75 minutes

## Using this section as a discussion session in a departmental meeting

### You will need:

- DVD sequence 2: Curriculum continuity in English – Year 6 and Year 7 lessons and pupil interviews and Year 7 guided writing
  - Copies of the Curriculum continuity in English section of this booklet – at least one copy between two people.
1. Use the Introduction to this booklet as the basis for a brief outline of the main issues facing secondary schools in general, and English departments in particular, over transfer and ensuring curriculum continuity. (5 minutes)
  2. Introduce colleagues to the definition of 'curriculum continuity' used in this booklet. Invite brief, focused discussion using the question in **task 1**. (5 minutes)
  3. Use the DVD and work through **task 2**, **task 3** and **task 4**. You can save time and ensure that you gain a variety of viewpoints by allocating different aspects of the tasks to different people. (55 minutes)
  4. Conclude with **task 5**, a brief action-planning discussion, determine two key actions the department will take as a result. To enable whole-school coordination, relay these planned actions to the member of the senior leadership team responsible for transfer. (10 minutes)

Year 6	Week 1	Shared text, sentence and word level work	Independent/guided work	Plenary	Class novel	Possible homework suggestions
Day 1	Introduction to reading journals	Use Ch3 of <i>Kensuke's Kingdom</i> to introduce idea of log/journal and the range of types of journal entry introduce the idea of using a reading journal (Resource Sheet A). Briefly show examples of entries from a reading journal (e.g. Sample Texts 1, 8, 9) to show how a reading journal can be used. T8	Pupils start their own reading journals by writing two or three comments they would like to make to Michael Morpurgo about any aspect of <i>Kensuke's Kingdom</i> and two questions they would like to ask him about it. T1, T8	Sample pupils' responses. Focus on and explore a wide range of reactions/responses. T1, T8	Begin reading <i>The Suitcase Kid</i> to class.	Pupils begin to read own chosen texts; they record initial comments and questions. T1
Day 2	Analysing journal entries which compare texts	Reread the opening paragraph of <i>Kensuke's Kingdom</i> ; briefly discuss its effectiveness as an opening. Read and discuss the opening of <i>The Butterfly Lion</i> (Resource Sheet B). Discuss and analyse journal entry (Sample Text 1) which compares the two openings. Note the occasional use of complex sentences to make the comparisons and the use of specific terminology (metallanguage). T1, T5, S4, W6	Pupils read the opening of <i>The Dancing Bear</i> (Resource Sheet B). In pairs or groups, they discuss and analyse a journal entry which compares this opening with the opening of <i>Kensuke's Kingdom</i> in a chart or diagram (Sample Text 2). T5, T8	Sample pupils' responses. Evaluate the effectiveness of each type of entry, e.g. in the chart, note the use of graphic alternatives to complex sentences but still the use of metallanguage. W6	Read <i>The Suitcase Kid</i> . Suggest read to page 33.	Use preferred entry type to evaluate the effectiveness of the opening in own chosen text. T1
Day 3	Applying – writing a journal entry which compares texts	Reread description of Kensuke (pages 67–70 from <i>Kensuke's Kingdom</i> ). Read the description of Roxanne in <i>The Dancing Bear</i> (Resource Sheet B). Demo-draw/write a chart/diagram to note the key points of similarity and difference between the way in which the author describes the two characters in the two books (Sample Text 3). Focus on use of journal metallanguage. Using this chart/diagram as a skeletal plan, demo-write the first two sentences of a prose journal entry on same subject (Sample Text 3). T6	In reading journals, pupils complete the prose comparison of how characters are described using the appropriate metallanguage and some complex sentences to make effective comparisons. T6, T12, S4, W6	Identify a point from the chart and invite examples of pupils' developed viewpoints; focus on complex sentences and metallanguage. T6, S4, W6	Read <i>The Suitcase Kid</i> . Suggest read to page 52.	Character analysis – prose or chart form – on any significant character from own reading. T1
Day 3	Empathising in role-play and writing	Read Andrea's description of her stepsister on pages 13–15 of <i>The Suitcase Kid</i> . Go into role as Andrea (hot-seating) and ask the pupils to question you. In pairs, pupils role-play the argument between Andrea and Katie. Demo-write a transformation piece for journal entry, e.g. letter to agony aunt (Sample Text 4). T8	In reading journals, pupils write one of the following: <ul style="list-style-type: none"> <li>letter from Katie or Andy to same agony aunt but describing the problem slightly differently;</li> <li>response from agony aunt;</li> <li>script for playlet in which Katie tells her dad what happened. T8</li> </ul>	Take examples of Katie's viewpoint. Lead discussion on how it might feel to be Katie (e.g. – small, vulnerable with similar family pressures to Andrea). T8	Read <i>The Suitcase Kid</i> . Continue to at least page 72.	Design and write own transformation piece showing empathy with any chosen character from own reading. Give brief orientation. T8
Day 5	Summarising and evaluating	Reread the incident between Andrea and Katie (pages 68–70 of <i>The Suitcase Kid</i> ). Discuss the effect of the use of first person on the reader. Demo-write an unbiased/balanced 3rd person summary of this, possibly from the point of view of a social worker. Indicate your use of complex sentences and metallanguage (Sample Text 5). T9, S4, W6	Pupils reread the family incident on pages 38–40 of <i>The Suitcase Kid</i> . Pupils write a balanced, 3rd person summary of this episode, offering an unbiased judgement of each child's role, and the roles of the adults in building up to the conflict. Pupils then offer brief personal advice to the protagonists on how to improve behaviour to lessen stress/conflict. T9, S4, W6	Active listening – volunteers read out summaries; class listens for evidence of fairness or bias. T8	Read <i>The Suitcase Kid</i> . Suggest read to page 96.	Select a conflict or stressful incident from own chosen text. Write 3rd person summary; offer a simple judgement and/or advice.

Lesson	Starter 10 mins	Introduction Estimated time 20 mins	Development Estimated time 20 mins	Plenary 10 mins	Possible homework suggestions
4 Apply in writing	Pupils find unstressed vowels within given group of words. Pupils generate range of strategies to help them spell those words.	Referring to Morpurgo's use of 'truth – mostly' in his introduction to the story; use the notes of a childhood memory and, referring to the Narrative Checklist (Resource Sheet E), rework them into a narrative using demonstration writing (Sample Text 10). <i>TW3, TR15, S1</i>	Pupils rework their own notes into narratives, drawing on their existing knowledge about writing narrative, referring to the Narrative Checklist (Resource Sheet E) and incorporating any stylistic features they have noted in Morpurgo's work. (Could use their journals for examples.) <i>TW3, S1</i>	Pupils read out examples of how they have developed an oral recount into a written narrative. Others identify the techniques used, referring to Narrative Checklist (Resource Sheet E), <i>S&amp;L2, TW3</i>	Pupils complete/refine their narratives. <i>TW3; S2</i>
5 Analyse	Card sort of words with unstressed vowels to categorise and identify the unstressed vowel.	Andrew says 'in a way I was lucky, because I always had two fathers' (p. 29). Model locating textual evidence of both fathers and representing impressions of each in diagrammatic/pictorial/grid form. In pairs, pupils use white boards or notepads to explore a variety of ways to note their impressions and to make a final summary of each father (Resource Sheet H). <i>TR6</i>	Andrew strongly admires his father's skill as an actor. As a private journal entry, pupils choose someone they admire, describe the quality they most value and say why it is important. <i>TW3, TR17</i>	Sample the qualities pupils have chosen (not the people) and list them. In pairs pupils think of other positive qualities, and list them. <i>TR17</i>	Pupils rank qualities in order of importance for different categories of people e.g. parent, friend, teacher, celebrity, etc. <i>TR17</i>
6 Analyse text	Generating lists of words beginning with the letter c followed by a vowel. Identifying the influence of vowel on the letter c. Teacher introduces cy. 'Show me' activity to discriminate between hard and soft c.	Reread sections that refer to the secrecy surrounding the boys' father (p. 31, lines 10–16; p. 33, lines 1–9; pp. 39, lines 26–30; p. 40; p. 41, lines 1–10; p. 43, lines 3–7). Lead a discussion on the brothers' response to the family secret, and their mother's, father's and Douglas' possible reasons for initiating and perpetuating the secret. <i>TR17</i>	Pupils compose a journal entry giving their personal opinion of the adults' decision to keep their father's identity secret. <i>TR17, TW3</i>	Establish how many pupils agree/disagree with the adults' decision. Ask pupils with opposing views to share their written reasons. <i>TR17</i>	Pupils review journal entries, complete/redraft/improve as necessary to prepare journals for joint Y7 display or assembly. <i>TR17</i>

---

# Curriculum continuity in mathematics

---

The purpose of this section is to help mathematics teachers and departments to consider what more they can do to ensure curriculum continuity between the primary and secondary curriculum, so that pupils new to secondary school get off to a flying start. The material in this section complements the work being done in other places to support better transfer of data and to develop pastoral support.

This section invites you to consider curriculum continuity in mathematics by comparing Year 6 and Year 7 teaching sequences on DVD. The section can be used as a discussion session in a departmental meeting (see page 25).

## What is curriculum continuity?

Recent research on transfer and transition (Galton *et al*, 2003) has pointed out the need for schools to work more on curriculum continuity and to pay attention to academic transfer and 'the specific strategies which help sustain pupils' progress'. An outline of the main findings and messages from the research is included in the Appendix. You may wish to read this before working through the materials in the relevant subject section.

Curriculum continuity refers to:

- knowing which topics have already been covered;
- knowing what skills and understandings have been well established;
- knowing the pace and style of previous lessons in the subject.

This knowledge is then used to launch pupils' secondary education in a way that will reassure them, challenge them and take them forward rapidly.

As a minimum, it is essential that departments know which topics in mathematics have been covered by primary schools. Many schools have already formalised a way of collecting this information, but if they have not, some simple failsafe methods are listed below.

1. Hold a one-hour twilight session for subject coordinators in primary schools to come and meet the subject leader in the secondary school to audit what has been covered and the teaching approaches used.
2. Visit a Year 6 teacher in each of the primary schools and request a copy of the scheme of work for mathematics or a summary of it. If possible, observe or team teach a lesson.
3. Ask the Year 6 teacher to study a checklist summary of Year 7 content in mathematics and alert you to any potential overlaps or other issues relating to the content.
4. Ask the pupils to tell you which topics they have already covered.
5. Ask a pupil from each partner primary school to bring in a complete set of work for you to see.

## Task 1

### Questions for discussion or consideration

- What liaison is already in place?
- How purposeful is it?
- Could it be used to collect some of the information mentioned above?

The *Framework for teaching mathematics from reception to Year 6* and the *Framework for teaching mathematics: Years 7, 8 and 9* offer a detailed and effective progression through Key Stages 2 and 3. Using the Frameworks is the single most important thing you can do to ensure good continuity and progression in mathematics across schools.

The DVD sequences used in this section are designed to draw attention to successful features of curriculum continuity in mathematics. There are two pairs of Year 6 and Year 7 lessons, where the teachers are using the transition units developed by the National Numeracy Strategy and the Key Stage 3 Strategy: *Transition from Year 6 to Year 7 – Mathematics units of work* (DfES 0118/2002). Before watching the lessons, read the descriptions, set out in tasks 2 and 3, of the two pairs of schools. Select the pair closest to your own context.

As you watch the DVD clips, draw out key features of continuity, both in terms of curriculum links and continuity in approaches to teaching and learning, and look for features of Year 7 teaching that challenge pupils to build on and extend their Year 6 experience.

## Task 2

### DVD sequence 3: Curriculum continuity in mathematics – Year 6

Watch one of the clips showing Year 6 lessons and pupil interviews – either featuring Ewanrigg Junior School or Rushmore Primary School.

#### Ewanrigg Junior School

- Ewanrigg is a rural school in an area of high social deprivation with 173 pupils on roll.
- 47% of pupils are eligible for free school meals.
- Nearly all Year 6 pupils transfer to one secondary school.
- 43% of pupils in the Year 6 class featured on the DVD attained level 4 or above in the 2003 Key Stage 2 National Curriculum test for mathematics.

The teacher, Helen, is teaching day 1 from the Year 6 transition unit. The DVD sequence does not show the oral and mental starter. The lesson focuses on solving problems using number. Pupils are asked whether they can pay for any goods using only 3p and 5p coins. Spend a few minutes reading through the lesson plan on page 26. Helen has annotated the plan to show how she has adapted it for her class.

### Rushmore Primary School

- Rushmore is an urban school in Hackney with 474 pupils on roll.
- 24% of pupils are eligible for free school meals.
- In 2003 Year 6 pupils transferred to 23 different secondary schools.
- 83% of pupils in the Year 6 class featured on the DVD attained level 4 or above in the 2003 Key Stage 2 National Curriculum test for mathematics.

The teacher, Niki, is teaching day 4 of the Year 6 transition unit. The lesson focuses on solving problems using multiplication and division. Pupils are asked to share a square cake equally between three people in square shaped pieces. Spend a few minutes reading through Niki's annotated lesson plan on page 27.

Watch one of the lessons and consider the following question.

- What specific mathematical skills and abilities do pupils demonstrate?

Look for examples of:

- all pupils having access to the activity;
- pupils making appropriate choices about which resources to use;
- pupils' confidence in discussing the number problems;
- different approaches to solving problems.

Now view the pupil interviews.

- What do the pupil interviews reveal about ways of achieving curriculum continuity?

Before going on to watch one of the Year 7 lessons, which are also based on the transition unit, think about the following questions.

- Given what the pupils have shown they can do in Year 6, what features of a Year 7 lesson would you expect to see that provides:
  - curriculum continuity?
  - an increased level of challenge?

## Task 3

### DVD sequence 3: Curriculum continuity in mathematics – Year 7

Now watch one of the clips showing Year 7 lessons and pupil interviews from the second section – featuring Netherhall Specialist Sports College or Hackney Free and Parochial Church of England School.

### **Netherhall Specialist Sports College**

- Netherhall is a rural school in an area of high social deprivation with 875 pupils on roll.
- 20% of pupils are eligible for free school meals.
- Year 7 pupils come mainly from seven partner primary schools.
- The Year 7 class is in the upper band; 90% of pupils attaining level 4 or above in the Key Stage 2 National Curriculum test for mathematics.

Pete is teaching lesson 3 from the Year 7 transition unit. The DVD sequence does not show the oral and mental starter. The lesson focuses on the different calculation methods that Year 7 pupils use. Spend a few minutes reading through Pete's annotated lesson plan on page 28.

### Hackney Free and Parochial Church of England School

- Hackney Free and Parochial is an urban school with 746 pupils on roll.
- 50% of pupils are eligible for free school meals.
- Year 7 pupils come from 26 partner primary schools.
- The Year 7 class is the fourth set out of six, 60% of pupils attaining level 4 or above in the Key Stage 2 National Curriculum test for mathematics.

Martens is teaching lesson 4 from the Year 7 transition unit. The lesson focuses on solving word problems in the context of number and on using a calculator effectively. Spend a few minutes reading through Martens' annotated lesson plan on page 29.

Watch the lesson and consider the following questions.

- What evidence is there of pupils building on their experience of the work carried out in the Year 6 transition unit?

Look for examples of:

- explaining their mathematics;
- identifying which problems they can tackle confidently;
- demonstrating discussion and groupwork skills;
- showing confidence and increased sophistication in their approaches to tackling mathematics questions.

Now watch the pupil interviews.

- What do the pupil interviews reveal about ways of achieving curriculum continuity?

## **Task 4**

Complete the following task to review both lessons and draw some conclusions about pedagogical continuity and progression.

1. Note key features of the teaching and learning that ensure that these pupils experience the pace and style of previous lessons in the subject. Select from:
  - use of objectives;
  - use of structured lessons;
  - use of resources;
  - use of teacher and pupil modelling;
  - questioning;
  - assessment for learning.
2. Identify aspects of the teaching in the Year 7 lesson that are designed to challenge the pupils and rapidly take them forward. In other words, what is different about the pupils' experience of mathematics in Year 7 that will create enthusiasm for them as they start on their secondary experience?

## Task 5

Decide on one key action you can take to improve *curriculum* continuity and one key action for *pedagogical* continuity in mathematics and record these in the department's action plan.

**75** minutes

### Using this section as a discussion session in a departmental meeting

#### You will need:

- DVD sequence 3: Curriculum continuity in mathematics – Year 6 and Year 7 lessons and pupil interviews.
  - Copies of the Curriculum continuity in mathematics section of this booklet – at least one copy between two people.
1. Use the Introduction to this booklet as the basis for a brief outline of the main issues facing secondary schools in general, and mathematics departments in particular, over transfer and ensuring curriculum continuity. (5 minutes)
  2. Introduce colleagues to the definition of 'curriculum continuity' used in this booklet. Invite brief, focused discussion using the question in **task 1**. (5 minutes)
  3. Use the DVD and work through **task 2**, **task 3** and **task 4**. You can save time and ensure that you gain a variety of viewpoints by allocating different aspects of the tasks to different people. (55 minutes)
  4. Conclude with **task 5**, a brief action-planning discussion, and determine two key actions the department will take as a result. To enable whole-school coordination, relay these planned actions to the member of the senior leadership team responsible for transfer. (10 minutes)

Oral and mental	Teaching activities	Main teaching Objectives, vocabulary and resources	Teaching activities	Plenary and homework
<p><b>Objectives, vocabulary and resources</b></p> <ul style="list-style-type: none"> <li>Recognise and extend number sequences</li> <li>Recognise multiples up to <math>10 \times 10</math></li> </ul> <p>Vocabulary multiples</p> <p><i>What's my rule? Use venn diagram. Can pupils add numbers to the diagram? Pairs, stickies, thinking time. Fizzbuzz (quick round).</i></p> <p><i>Simple ones e.g. 3, 6, 5, 9, 10, etc.</i></p>	<p>Write on the board:</p> $\begin{array}{r} 3 \\ \times 5 \\ \hline \end{array}$ <p>Quickly rehearse the multiplication tables for 3 and 5 with the whole class.</p> <p><b>Q: What numbers appear in the 3 and the 5 times tables?</b></p> <p><del>Divide the class into two groups. Get one group to count in 3s, the other to count in 5s to generate the sequence: 3, 5, 6, 9, 10, 12, 15, ...</del></p> <p><b>Q: What numbers do not appear in the sequence? Why?</b></p> <p>Establish that only multiples of 3 or 5 (or both) can be in the sequence.</p> <p>Draw on the board: <i>Introduce coins and my kingdom</i></p> $\begin{array}{c} (3p) \\ (5p) \end{array}$ <p>Ask the children to imagine that, as from today, the Government has decided it will issue only 3p and 5p coins.</p> <p><b>Q: What sums of money can we make using only 3p and 5p coins?</b></p> <p>Quickly collect responses and record on the board.</p> <p><b>Q: Can you make 4p?</b></p> <p>Establish that 4p cannot be made.</p> <p><b>Q: Does this mean we could not buy anything that costs 4p?</b></p>	<p><b>Objectives</b></p> <ul style="list-style-type: none"> <li>Identify and use appropriate operations (including combinations of operations) to solve problems involving numbers and quantities, and explain methods and reasoning.</li> </ul> <p><i>Use TA to illustrate using change.</i></p> <p><i>Pairs to discuss and record on whiteboard.</i></p> <p><i>Offer coins for some pupils.</i></p> <p><i>Thumbs up/thumbs down.</i></p>	<p>Tell the children that you want them to think about how they could pay for goods if they could only use 3p and 5p coins.</p> <p><b>Q: How could you pay for a 2p sweet?</b></p> <p>Establish that you could give 5p and get 3p change.</p> <p>Record as:</p> $(5p) - (3p) = 2p$ <p><b>Q: How could you pay for an item costing 29p?</b></p> <p>Collect and compare answers.</p> $8 \times (3p) + (5p) = 29p$ $7 \times (5p) - 2 \times (3p) = 29p$ <p><b>Q: What method of payment involves fewest coins changing hands?</b></p> <p>Agree on:</p> $4 \times (5p) + 3 \times (3p) = 29p$ <p><b>Q: How would you pay for a 49p can of cola?</b></p> <p>Collect and compare answers. Ensure that the children understand the nature of this problem. Point out that 49p is 20p more than 29p and that one way of solving this problem is to build on the answer from the previous question.</p> <p><i>Use transition books.</i></p> <p><i>TAs group copy of 3x and 5x table.</i></p> <p><i>Extension questions on table.</i></p>	<p><b>Teaching activities and assessment</b></p> <p><b>Q: Can we pay for goods costing 10p, 20p, 100p, 200p...?</b></p> <p>Establish that only 5p coins will be needed.</p> <p><i>Multiples of 5.</i></p> <p><b>Q: How can we pay a bill of £4.67?</b></p> <p>Explain that £4.67 is equivalent to <math>400p + 60p + 7p</math>.</p> <p>Say that we can pay the 400p and 60p with just 5p coins.</p> <p><i>Try other amounts.</i></p> <p><b>Q: How could we pay the 7p?</b></p> <p>Return to the list on the board, to establish that the 7p could be paid by giving 10p (<math>2 \times 5p</math>) and receiving a 3p coin in change.</p> <p>Ask the children to think how they might convince someone that you can pay for goods of any price using only 3p and 5p coins.</p> <p>Collect their reasons and explain that communicating and reasoning are important skills in mathematics.</p> <p><i>Practise writing sentence on whiteboard.</i></p> <p><b>Q: What other pairs of coins could the Government introduce? What about 7p and 10p?</b></p> <p><b>Homework</b></p> <p>Ask the children to decide whether 7p and 10p coins would work and to prepare a convincing argument for the next lesson.</p> <p><b>Assessment</b></p> <p>Explain to the children that, during the week, they will be completing 'My Mathematics' self-assessment sheets that they will take to their secondary school.</p>

# Handout MA2A

## Day 4 Calculation and problem solving

Oral and mental	Teaching activities	Main teaching	Teaching activities	Plenary
<p><b>Objectives</b></p> <ul style="list-style-type: none"> <li>Carry out short division of numbers</li> <li>Use tests of divisibility</li> </ul> <p><b>Resources</b></p> <p>OHP calculator</p> <p><b>Vocabulary</b></p> <p>exact remainder</p> <p><i>Remind them of Ms de Palma's tricks. Take responses quickly. Use booklets to record working out.</i></p>	<p>Write on the board:</p> <p>A <math>168 \div 2</math>                      B <math>168 \div 6</math>                      C <math>168 \div 4</math>                      D <math>168 \div 3</math>                      E <math>168 \div 5</math>                      F <math>168 \div 10</math>                      G <math>168 \div 8</math>                      H <math>168 \div 9</math></p> <p>Ask the children to work in pairs to decide which calculations:</p> <ul style="list-style-type: none"> <li>they can do mentally or with jottings</li> <li>require a written method.</li> </ul> <p>Discuss their responses and ensure that children can carry out at least A, C and F mentally.</p> <p>Remind the children of the tests of divisibility and discuss how they can be used to establish if each division is exact.</p> <p>A: Yes – 168 is even                      B: Yes – the digits 1, 6 and 8 sum to 15 (a multiple of 3) and 168 is even                      C: Yes – the last two digits are divisible by 4                      D: Yes – the digits 1, 6 and 8 sum to 15 (a multiple of 3)                      E: No – 168 does not end in zero or 5                      F: No – 168 does not end in zero                      G: Yes – repeated halving will show this                      H: No – the sum of the digits 15 is not divisible by 9</p> <p>Let the children work in pairs, using a written method, or mental, if appropriate, to work out B, D, E, G and H, giving any remainders that occur. Use an OHP calculator to confirm answers, interpreting the display carefully. Check all answers with a multiplication, explaining how to deal with the remainders.</p>	<p><b>Objectives</b></p> <ul style="list-style-type: none"> <li>Carry out short multiplication and division of numbers involving decimals</li> <li>Carry out multiplication of a two-digit number by a two-digit number</li> </ul> <p><b>Vocabulary</b></p> <p>dimensions</p> <p><b>Resources</b></p> <p>OHT 2                      OHT 3                      'My Mathematics' Self-assessment sheet 1                      Class set of calculators</p> <p><i>Ms Thompson has baked a cake. Squares not thirds. Draw squares on IWB.</i></p>	<p>Present the following problem.  <b>Jane has a square cake and wants to share it equally among three children. Jane likes squares and decides that all the pieces given to the three children will be square.</b></p> <p><b>Q: How could Jane give each of the three children a square piece of cake?</b></p> <p>Discuss children's suggestions and solutions.</p> <p><b>Q: How should Jane cut the cake so that each child gets the biggest square possible?</b></p> <p>Agree that cutting into four squares ensures that each child could receive the largest square piece and that there would be one square piece left over. Show OHT 2 and say that the area of the cake is <math>324 \text{ cm}^2</math>.</p> <p><b>Q: How can we work out the area of each piece of cake the children would get if they were given one of the squares?</b></p> <p>Establish that the required calculation is <math>324 \div 4</math>. Ask the children to do the short division to confirm that the area of each square is <math>81 \text{ cm}^2</math>.</p> <p><b>Q: Is there another way we could find the area of one of the squares?</b></p> <p>Remind the children that the area is found by multiplying the length by the breadth. Since the cake is square, the length and breadth of the cake will be the same.</p> <p><b>Q: How can we find a number that, multiplied by itself, gives 324?</b></p> <p>Explore different ways of finding the dimensions of the cake. Confirm that the cake is <math>18 \text{ cm}</math> by <math>18 \text{ cm}</math>. Agree that the dimensions of each piece of cake are <math>9 \text{ cm}</math> by <math>9 \text{ cm}</math> so the area of each piece is <math>81 \text{ cm}^2</math>.</p> <p><i>TA to support group of pupils. Keep pupils in mixed-ability pairs, target E, E, K and G.</i></p>	<p><b>Teaching activities and assessment</b></p> <p><b>Q: Is there a way that we can calculate the total area of cake for each child by looking at the problem another way?</b></p> <p>Establish that eventually there will be no cake left so all of the cake will have been shared among the three children.</p> <p>Ask the children to carry out the calculation <math>324 \div 3</math>. Record the answer on OHT 3.</p> <p>Compare this answer of <math>108 \text{ cm}^2</math> with the answer following the fourth and fifth cuts to confirm that after five cuts there is very little of the cake left to be shared. Collect in the calculators.</p> <p><b>Assessment</b></p> <p>Ask the children to take out their 'My Mathematics' Self-assessment sheet 1 and to work on the third multiplication question (multiply <math>34.8</math> by <math>2, 4, 6, 7</math> or <math>9</math>) and the division question (<math>31.68 \div 2, 4, 6</math> or <math>8</math>). Remind them that their choice of number should show how well they can perform each calculation. Give out answers and discuss.</p> <p><del>Say: 'Tomorrow we shall be looking at the 3p and the 5p problem'. Remind the children about the work that they did on Day 3 and how they thought about their reasons for the answers they gave. Tell them that they will have the chance to look at the question tomorrow but they should refer back to their work on the problem for homework.</del></p> <p><i>Work will go to Year 7 teacher. No homework today.</i></p>

Oral and mental	Main teaching	Notes	Plenary and homework
<p><b>Objectives</b></p> <ul style="list-style-type: none"> <li>Understand and use decimal notation and place value.</li> <li>Consolidate the rapid recall of number facts, including positive integer complements to 100 and multiplication facts to <math>10 \times 10</math>, and quickly derive associated division facts. <i>Framework examples pp 88, 96</i></li> </ul> <p><b>Target numbers</b></p> <p>Practise mental calculation skills and recall of number facts using a target number grid, e.g. OHT 1. Ask questions such as:</p> <ul style="list-style-type: none"> <li>What is the complement to 100 of this number?</li> <li>What is this number multiplied by 100?</li> <li>What is the sum of these two numbers?</li> <li>What is this number divided by 4?</li> <li>Which two numbers add to make 10?</li> <li>What is double this number?</li> <li>What is this number multiplied by 70?</li> </ul> <p><b>Equivalent products</b></p> <p>Use OHT 2. <i>Equivalent products</i> or write <math>6.2 \times 100</math> in the middle of the board.</p> <p>Invite pupils to give equivalent products, for example: <math>62 \times 10</math>, <math>3.1 \times 200</math>, <math>62\,000 \times 0.01</math>, ...</p> <p><i>Quick starter, lots of time needed for explanation in main part.</i></p> <p><i>Use 'Twenty questions' to identify number – multiples, factors.</i></p>	<p><b>Objectives</b></p> <ul style="list-style-type: none"> <li>Use standard column procedures to add and subtract whole numbers and decimals with up to two decimal places.</li> <li>Multiply and divide three-digit by two-digit whole numbers; extend to multiplying and dividing decimal with one or two places by single-digit whole numbers. <i>Framework examples pp 48, 104, 106</i></li> </ul> <p><b>Calculation methods</b></p> <p>Emphasise the importance of being able to calculate mentally and to use efficient written calculation methods. Acknowledge that you know the sorts of calculations they can already do from their teachers' assessments and from the pupils' own self-assessments from Year 6, but you would like to find out more about the methods they use.</p> <p>Ask one or two pupils to model examples of calculation methods they can use. Ask them to explain how they would estimate and check their answers.</p> <p><i>Note: By the age of 11, pupils are expected to use a formal written method for calculations such as <math>460 \times 237</math> or <math>23 \times 17</math>. The most common methods expected of 11-year-olds are column addition and subtraction, long multiplication or 'grid' multiplication, short division or 'chunking'. See Framework examples pp 104, 106.</i></p> <p>Distribute Resource sheet 2 <i>Calculations</i> and ask pupils to work through the examples, making a decision for each one whether they would do it:</p> <ul style="list-style-type: none"> <li>mentally (with or without jottings)</li> <li>using a formal written method.</li> </ul> <p><i>Cut up into cards for pupils to sort into categories. Work in pairs and discuss. Use large cards to sort onto board.</i></p>	<p><i>Refer to Year 6 books.</i></p> <p><i>Do calculations on paper that can be used as display later. Work in pairs.</i></p> <p><b>ESTIMATE AND CHECK</b></p> <p>Emphasise that you are particularly interested in how they calculate, not just the accuracy of their answers. You are also keen to know how they estimate what might be a reasonable answer and how they check their answers after they do the calculation.</p> <p>Circulate to observe and note the different calculation strategies being used. Use the assessments you have received from Year 6 to probe pupils' understanding and to help them extend and refine their strategies.</p> <p>When pupils have completed all the questions they can tackle, say that you would like them to help you identify errors pupils have made in the past. Give out Resource sheet 3 <i>Errors in calculations</i> and ask them to work in pairs to estimate an answer for each calculation, to identify what has gone wrong in each example and to correct the calculation.</p> <p><i>Show addition, subtraction and multiplication. Check vocabulary.</i></p>	<p><b>Plenary</b></p> <p>Review the errors pupils have identified and establish important points for them to remember when doing calculations. These could be written on a sheet of sugar paper so that they can be referred to at a later stage.</p> <p>Explain that, in the next lesson, they will be looking at some word problems that involve calculations.</p> <p>Write the following word problem on the board and ask pupils to think about how they would tackle it:</p> <div style="border: 1px solid black; padding: 5px;"> <p>▪ <b>A shop sells sheets of sticky labels. On each sheet there are 36 rows and 18 columns of labels. How many labels are there altogether on 9 sheets?</b></p> </div> <p>Model a sensible way to approach the problem, for example:</p> <ul style="list-style-type: none"> <li>underline the important information needed</li> <li>decide what operation(s) is (are) needed</li> <li>estimate, do and check the calculation</li> <li>write the answer as a sentence, checking that it makes sense.</li> </ul> <p>Solve the problem together and ask pupils to try to use a similar approach to the problem set for homework</p> <p><b>Homework</b></p> <p>Set this word problem:</p> <div style="border: 1px solid black; padding: 5px;"> <p>▪ <b>A teacher needs 220 booklets. The booklets are sold in packs of 16. How many packs must the teacher order?</b></p> </div>
	<p><i>What rules do we need?</i></p> <p><b>Support</b></p> <p>Select some more simple examples, initially with whole numbers, from <i>Springboard 7</i>, Unit 2 (sections 4, 5) and Unit 6 (sections 5, 6).</p> <p><b>Extension</b></p> <p>Give examples involving multiplication and division by numbers with up to two places of decimals.</p> <p><i>Extension questions – D, S, L, Sa?</i></p> <p><i>Support questions – C, Ch, S, K?</i></p>	<p><i>Use next lesson – no homework.</i></p>	

## Lesson 4 Solving calculation problems

## Handout MA2B

Oral and mental	Main teaching	Notes	Plenary and homework
<p><b>Objectives</b></p> <ul style="list-style-type: none"> <li>Enter numbers in a calculator and interpret the display in different contexts (decimals, money, metric measures).</li> <li>Solve word problems and investigate in the context of number; compare and evaluate solutions. <i>Framework examples pp 2, 108</i></li> </ul> <p><b>Using a calculator</b></p> <p>Put this calculation on the board.</p> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> <math>950.4 \div \square = 49.5</math> </div> <p>Give pupils 30 seconds to agree, in pairs, an estimate for the answer. Take some feedback and establish a sensible estimate.</p> <p>Now tell pairs they can use a calculator to find the missing number. Give them a couple of minutes, then invite someone to use an OHP calculator to demonstrate how they calculated the answer.</p> <p>Ask if anyone tackled it in a different way. If so, ask them to demonstrate on the OHP calculator.</p> <p>Ask pupils how they would check the answer. Establish how this can be done.</p> <p><b>Interpreting calculator answers</b></p> <p>Ask pupils to calculate <math>136 \div 32</math> on their calculators. Ask them to write the answer on a mini whiteboard or piece of paper and hold it up.</p> <p>Now pose the question:</p> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> <p>■ Jim took part in a charity cycle ride. He cycled 136 kilometres at 32 kilometres per hour. How long did he take to complete the cycle ride?</p> </div> <p>Confirm that the calculation is the same (<math>136 \div 32</math>). Ask pupils to discuss the answer, in pairs, and to decide how to interpret the answer displayed on the screen.</p> <p>Establish how to interpret the answer. Set some other questions, involving money and measures, that illustrate the need to interpret calculator answers.</p> <p><i>Work in pairs. Use mini whiteboards for quick assessment.</i></p>	<p><b>Objectives</b></p> <ul style="list-style-type: none"> <li>Understand and use decimal notation and place value; multiply and divide integers and decimals by 10, 100, 1000, and explain the effect.</li> <li>Enter numbers in a calculator and interpret the display in different contexts (decimals, money, metric measures).</li> <li>Solve word problems and investigate in the context of number; compare and evaluate solutions. <i>Framework examples pp 2, 6, 108</i></li> </ul> <p><b>More problem solving</b></p> <p>Review the problem set for homework:</p> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> <p>■ A teacher needs 220 booklets. The booklets are sold in packs of 16. How many packs must the teacher order?</p> </div> <p>Ask two or three pupils to explain:</p> <ul style="list-style-type: none"> <li>how they tackled the problem</li> <li>what calculation they did</li> <li>how they did the calculation (mentally? formal written calculation? using a calculator?)</li> <li>how they interpreted the answer on the calculator screen.</li> </ul> <p>Ask pupils to work in pairs on the word problems on Resource sheet 4 <i>Problems in the millions!</i></p> <p><i>Make links with knowledge of decimal and fraction equivalences.</i></p> <p><i>How many hours is 1000 minutes?</i></p> <p><i>What STRATEGIES are they using?</i></p>	<p><i>Check that pupils are clear that they need to order 14 packs and why.</i></p> <p><i>Choose which question to do first.</i></p> <p>Ask pupils to read through each problem, in pairs, estimate the answer and think about how they might solve it. Encourage pupils to jot down their methods of tackling the problem.</p> <p>After about five minutes, check on progress and discuss the approaches pupils are adopting. If possible, draw on pupils' own strategies, highlighting effective approaches to tackling the problems.</p> <p>Give pupils time to work on some more examples, encouraging them to make sensible use of calculators and to take care in interpreting the calculator display.</p>	<p><b>Plenary</b></p> <p>Collect answers and discuss pupils' approaches, using the OHP calculator to illustrate methods.</p> <p>Round off the lesson by setting two number puzzles for pupils to solve, using a calculator. Ask pupils first to estimate each missing number, then use a calculator to work it out.</p> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> <math>\square \times 24.3 = 400.95</math>  <math>24 \times 16.5 + \square = 79.2</math> </div> <p><b>Homework</b></p> <p>Ask pupils to make up a similar number puzzle for someone in their class to solve.</p> <p><i>Use mini whiteboards again. Pupils to check answers using inverses.</i></p>
	<p><b>Support</b></p> <p>Links to <i>Springboard 7</i>, Unit 2 (section 6), calculating with money.</p> <p><b>Extension</b></p> <p>Select more demanding problems from <i>Framework examples pp 3, 7, 109</i>.</p>	<p><i>Mini-plenary q1, 2 or 4. Introduce q3.</i></p>	

---

## Curriculum continuity in science

---

The purpose of this section is to help science teachers and departments to consider what more they can do to ensure curriculum continuity between the primary and secondary curriculum, so that pupils new to secondary school get off to a flying start. The material in this section complements the work being done in other places to support better transfer of data and to develop pastoral support.

This section invites you to consider curriculum continuity in science by comparing Year 6 and Year 7 teaching sequences on DVD. The section can be used as a discussion session in a departmental meeting (see page 33).

### What is curriculum continuity?

Recent research on transfer and transition (Galton *et al*, 2003) has pointed out the need for schools to work more on curriculum continuity and to pay attention to academic transfer and 'the specific strategies which help sustain pupils' progress'. An outline of the main findings and messages from the research is included in the Appendix. You may wish to read this before working through the materials in the relevant subject section.

Curriculum continuity refers to:

- knowing which topics have already been covered;
- knowing what skills and understandings have been well established;
- knowing the pace and style of previous lessons in the subject.

This knowledge is then used to launch pupils' secondary education in a way that will reassure them, challenge them and take them forward rapidly.

As a minimum, it is essential that departments know which topics in science have been covered by primary schools. Many schools have already formalised a way of collecting this information, but if they have not, some simple failsafe methods are listed below.

1. Hold a one-hour twilight session for subject coordinators in primary schools to come and meet the subject leader in the secondary school to audit what has been covered and the teaching approaches used.
2. Visit a Year 6 teacher in each of the primary schools and request a copy of the scheme of work for science or a summary of it. If possible, observe or team teach a lesson.
3. Ask the Year 6 teacher to study a checklist summary of Year 7 content in science and alert you to any potential overlaps or other issues relating to the content. It is also useful to know the partner primary school's approaches to the teaching of investigative work.
4. Ask the pupils to tell you which topics they have already covered.
5. Ask a pupil from each partner primary school to bring in a complete set of work for you to see.

## Task 1

### Questions for discussion or consideration

- What liaison is already in place?
- How purposeful is it?
- Could it be used to collect some of the information mentioned above?

Many primary schools use the QCA scheme of work for Key Stage 2. If your school is using the QCA scheme of work for Key Stage 3 (or a modified version of it) then you should find that the science covered in the primary school fits well with that taught in your own school.

The DVD sequences used in this section are designed to draw attention to successful features of curriculum continuity in science. As you watch, draw out key features of continuity both in terms of curriculum links and continuity in approaches to teaching and learning. Look also for features of Year 7 teaching which challenge pupils to build on and extend their Year 6 experience.

## Task 2

### DVD sequence 4: Curriculum continuity in science – Year 6

#### Lakeside Primary School

- Lakeside is a suburban primary school in a city in the north of England with 360 pupils on roll.
- 9% of pupils are eligible for free school meals.
- Year 6 pupils transfer to five secondary schools, but the majority go to one school.
- 93% of the Year 6 pupils attained level 4 or above in the 2003 Key Stage 2 National Curriculum test in science.

The teacher, Sarah, is teaching a lesson towards the end of a six-hour unit in the second half of the summer term, jointly agreed between the primary and secondary school. This lesson focuses on collecting and evaluating the quality of evidence from an investigation into bread dough.

Watch the first section of the science sequence and consider the following question.

- What specific skills and abilities do pupils demonstrate?

Look for examples of:

- scientific knowledge and understanding;
- vocabulary;
- investigative skills;
- analysis of results.

Before going on to watch the Year 7 lesson think about the following questions.

- Given what the pupils have shown they can do in Year 6, what features of a Year 7 lesson would you expect to see that provides:
  - curriculum continuity?
  - an increased level of challenge?

## **Task 3**

### **DVD sequence 4: Curriculum continuity in science – Year 7**

#### **Canon Lee School**

- Canon Lee is a suburban school in a city in the north of England with 900 pupils on roll.
- 13% of pupils are eligible for free school meals.
- Year 7 pupils come from eight partner primary schools.
- 62% of the Year 7 class attained level 4 or above in the 2003 Key Stage 2 National Curriculum test in science.

Spend a few minutes reading through the teacher's plan for the lesson (on page 34).

Now watch the Year 7 lesson and consider the following questions.

- What evidence is there of pupils building on their experience of the work carried out in Year 6?

Look for examples of:

- how the teacher builds on what the pupils can already do;
- continuity with Year 6 teaching.

The following checklist may be helpful:

- planning the investigation;
- organisation of practical work;
- development of practical skills;
- language and vocabulary;
- handling of results;
- understanding of reliability of evidence;
- numeracy skills.

## **Task 4**

Decide on one key action you can take to improve *curriculum* continuity and one key action point for *pedagogical* continuity in science and record these in the department's action plan.

75 minutes

## Using this section as a discussion session in a departmental meeting

### You will need:

- DVD sequence 4: Curriculum continuity in science – Year 6 and Year 7 lessons.
  - Copies of the Curriculum continuity in science section of this booklet – at least one copy between two people.
1. Use the Introduction to this booklet as the basis for a brief outline of the main issues facing secondary schools in general, and the science department in particular, over transfer and ensuring curriculum and pedagogical continuity. (5 minutes)
  2. Introduce colleagues to the definition of 'curriculum continuity' used in this booklet. Invite brief, focused discussion using the question in **task 1**. (10 minutes)
  3. Use the DVD and work through **task 2** and **task 3**. You can save time and ensure that you gain a variety of viewpoints by allocating different aspects of the tasks to different people. (50 minutes)
  4. Conclude with **task 4**, a brief action-planning discussion, and determine two key actions the department will take as a result. To enable whole-school coordination, relay these planned actions to the member of the senior leadership team responsible for transfer. (10 minutes)

## Lesson plan

**Unit:** Energy resources

**Class:** Year 7

**Session/context:** Pupils planned the fuel investigation the previous lesson

**WALT** We are learning to:

- Investigate what happens when a fuel burns
- Carry out a more complex investigation with a large set of results
- Evaluate the reliability of our results

**WILF** What I'm looking for: You can tell me:

- What happens to the energy when a fuel is burnt
- If your results are reliable

Timing	Activities		Resources/Differentiation
10 mins	Starter	Card sort of statements that describe the investigation method – pupils work in small groups to put these into the correct order.	Sets of statements on card
30 mins	Main activity	<p>Pupils carry out the investigation: Which is the best fuel?</p> <p>Two or three groups test each fuel – measure the temperature rise of a given volume of water when the fuel is burnt for a fixed length of time.</p> <p>Pupils record their results onto a group results table on the OHP.</p>	
20 mins	Plenary	<p>Class discusses from their observations, what do we mean by: the 'best' fuel; the cleanest and hottest flame?</p> <p>Are all the results reliable?</p> <p>Can we judge which is the best fuel from our results?</p> <p>Has all the energy from the flame been transferred to the water? Or has some been transferred elsewhere?</p>	Vocabulary: reliable/unreliable, evaluate, energy transfer

---

# Curriculum continuity in ICT

---

The purpose of this section is to help ICT teachers and departments to consider what more they can do to ensure curriculum continuity between the primary and secondary curriculum, so that pupils new to secondary school get off to a flying start. The material in this section complements the work being done in other places to support better transfer of data and to develop pastoral support.

This section invites you to consider curriculum continuity in ICT by considering video clips of Year 6 classes and by looking at continuity between the QCA scheme of work for ICT in Key Stage 2 and the sample teaching units in Year 7. The section can easily be used as a discussion session in a departmental meeting (see page 38).

## What is curriculum continuity?

Recent research on transfer and transition (Galton *et al*, 2003) has pointed out the need for schools to work more on curriculum continuity and to pay attention to academic transfer and 'the specific strategies which help sustain pupils' progress'. An outline of the main findings and messages from the research is included in the Appendix. You may wish to read this before working through the materials in the relevant subject section.

Curriculum continuity refers to:

- knowing which topics have already been covered;
- knowing what skills and understandings have been well established;
- knowing the pace and style of previous lessons in the subject.

This knowledge is then used to launch pupils' secondary education in a way that will reassure them, challenge them and take them forward rapidly.

As a minimum, it is essential that departments know which topics in ICT have been covered by primary schools. Many schools have already formalised a way of collecting this information, but if they have not, some simple failsafe methods are listed below.

1. Hold a one-hour twilight session for subject coordinators in primary schools to come and meet the subject leader in the secondary school to audit what has been covered and the teaching approaches used.
2. Visit a Year 6 teacher in each of the primary schools and request a copy of the scheme of work for ICT or a summary of it. If possible, observe or team teach a lesson.
3. Ask the Year 6 teacher to study a checklist summary of Year 7 content in ICT and alert you to any potential overlaps or other issues relating to the content.
4. Ask the pupils to tell you which topics they have already covered.
5. Ask a pupil from each partner primary school to bring in a complete set of work for you to see.

## Task 1

### Questions for discussion or consideration

- What liaison is already in place?
- How purposeful is it?
- Could it be used to collect some of the information mentioned above?

There is an effective line of progression which moves into the *Framework for teaching ICT: Years 7, 8 and 9* from the QCA scheme of work for ICT Key Stage 1 and Key Stage 2. Using the Framework and the sample teaching units is the single most important thing you can do to ensure good continuity and progression across the schools.

Further helpful advice can be found in the key messages leaflet from the *Year 7: Transfer and progression in ICT* training.

The video sequences used in this section are drawn from this training and were designed to draw attention to successful features of curriculum continuity in ICT. As you watch, draw out key features of continuity both in terms of curriculum links and continuity in approaches to teaching and learning.

## Task 2

**Note:** You will need to use the video from *Year 7: Transfer and progression in ICT* training (sequences 1, 2 and 4 – Year 6 lessons).

### Video sequence 1, 2 and 4: Curriculum continuity in ICT – Year 6

#### St John's Church of England Primary School

- St John's is situated in a semi-rural area in the north of England and has 213 pupils on roll.
- Less than 5% of pupils are eligible for free school meals.
- There are 32 pupils in the Year 6 class.

#### Lordsgate Township Church of England Primary School

- Lordsgate Primary School is situated in a semi-rural area in the north of England and has 198 pupils on roll.
- 12.5% of pupils are eligible for free school meals.
- There are 33 pupils in the Year 6 class.

The teachers are teaching lesson 5 from Unit 6B of the ICT scheme of work (pages 39–41) and one is also conducting the end of unit review. Spend a few minutes reading through Unit 6B, concentrating particularly on the part of the unit you are about to see. Also read the planned teaching sequences for both lessons on pages 42 and 43, looking particularly at the references to models and modelling.

Watch the lessons and consider the following questions.

- What specific ICT capability do pupils demonstrate?

Look for examples of:

- use of language to describe modelling using ICT;
- use of demonstration to remind pupils of prior learning and to describe activities;
- discussion and groupwork skills;
- the balance between software skills and understanding of modelling.

- Given what the pupils have shown they can do in Year 6, what features of a Year 7 lesson, particularly in sample teaching unit 7.4, would you expect to see that provides:

- curriculum continuity?
- an increased level of challenge?

### Task 3

Look at the following materials.

- QCA Unit 6B: Spreadsheet modelling from the ICT scheme of work for Key Stage 2 on pages 39–41.
- Sample teaching unit 7.4. This should be available in the ICT department, or it can be downloaded from [www.standards.dfes.gov.uk/keystage3/publications](http://www.standards.dfes.gov.uk/keystage3/publications)

- What are the key progression points in these two units?

Look for examples of:

- revision of prior teaching and learning;
- an appropriate balance of skills teaching and ICT capability;
- the development of modelling techniques, for example pupils moving from understanding to exploring, investigating, predicting and testing;
- use of review points to check understanding.

In sample teaching unit 7.4, look for the points where you may have to allow for pupils who have not used spreadsheets before, or who have had limited experience of modelling, to catch up.

### Task 4

One of the main problems facing Year 7 teachers is the lack of knowledge being passed from primary schools about pupils' ICT experience and achievement.

Identify some techniques you could use in the classroom to find out what pupils already know, understand and can do, for example:

- asking pupils to complete a 'traffic lights' checklist of skills;
- observing how proficient pupils are when manipulating the software, for example when entering data, formulae, or using formatting;

- observing whether pupils can predict the effects of changing data in a spreadsheet model;
- questioning pupils about why they use a spreadsheet for modelling;
- questioning pupils about their choices, for example using a formula to calculate a total, or using a spreadsheet to answer 'what if' questions.

## Task 5

Decide on one key action you can take to improve *curriculum* continuity and one for *pedagogical* continuity in ICT and record these in the department's action plan.

### Using this section as a discussion session in a departmental meeting

**75 minutes**

#### You will need:

- Video sequences 1, 2 and 4: Curriculum continuity in ICT – Year 6 lessons.
  - Copies of the ICT section of this booklet – at least one between two people.
1. Use the Introduction to this booklet and, if available, the *Year 7: Transfer and progression in ICT* key messages leaflet as the basis for a brief outline of the main issues facing secondary schools in general, and ICT departments in particular, over transfer and ensuring curriculum continuity. (5 minutes)
  2. Introduce colleagues to the definition of 'curriculum continuity' used in this booklet. Invite brief, focused discussion using the question in **task 1**. (5 minutes)
  3. Use the video and work through **task 2**, **task 3** and **task 4**. You can save time and ensure that you gain a variety of viewpoints by allocating different aspects of the tasks to different people. (55 minutes)
  4. Conclude with **task 5**, a brief action-planning discussion, and determine two key actions the department will take as a result. To enable whole-school coordination, relay these planned actions to the member of the senior leadership team responsible for transfer. (10 minutes)

## QCA Unit 6B

## Handout 1.1

## Spreadsheet modelling

ICT  
Year 6**About the unit**

In this unit children learn to use a spreadsheet to explore a mathematical model.

Children will be taught to use formulae in spreadsheets to answer 'what if ...?' questions. They will explore how changes in a spreadsheet affect results and identify simple rules.

Children will apply what they have learned in this unit when exploring mathematical and scientific models.

**Where the unit fits in**

This unit builds on Unit 5D 'Introduction to spreadsheets'.

This unit assumes that children:

- can calculate total costs
- can recognise number patterns
- know the formula for the area of a rectangle.

**Technical vocabulary**

- spreadsheet
- cell
- formula
- calculate
- data
- model

**Resources**

- spreadsheet software
- a variety of receipts

**Expectations**

At the end of this unit

**most children will:** explore the effects of changing data in a spreadsheet

**some children will not have made so much progress and will:** use a spreadsheet to calculate totals

**some children will have progressed further and will:** explore the effects of changing data in a spreadsheet; make predictions and use a spreadsheet to test them.

Learning objectives	Possible teaching activities	Learning outcomes	Points to note
Children should learn:		Children:	
<b>Setting the scene</b>	<ul style="list-style-type: none"> <li>• <b>key idea:</b> that mathematical models can be explored using a spreadsheet</li> <li>• Remind the children about their earlier work with spreadsheets and discuss mathematical investigations they have carried out. Tell them they are going to use a spreadsheet to explore a mathematical problem.</li> </ul>	<ul style="list-style-type: none"> <li>• understand that spreadsheets can be used to explore mathematical models</li> </ul>	
<b>Short focused tasks</b>	<ul style="list-style-type: none"> <li>• <b>technique:</b> to identify formulae and enter them into a spreadsheet</li> <li>• Remind children how to enter a formula into a spreadsheet, such as '=c2/c3'. Ask the children to identify the formulae they would need to enter to calculate:               <ul style="list-style-type: none"> <li>– the area of a rectangle</li> <li>– the perimeter of a rectangle.</li> </ul> </li> <li>• Ask the children to set up a spreadsheet to work out the area and perimeter of a rectangle. The length and width of the rectangle should appear so that the values can be changed.</li> <li>• Ask the children to explore what happens when the data in the two cells are changed.</li> </ul>	<ul style="list-style-type: none"> <li>• identify and enter the correct formulae into cells, modify the data, make predictions of changes and check them</li> </ul>	<p>Children who find the work difficult could be given a prompt sheet showing cell references.</p> <p>More able children could try more complex formulae such as '=2*(10-c2)' to find the lowest values.</p>

## Handout 1.1 cont.

Learning objectives	Possible teaching activities	Learning outcomes	Points to note									
Children should learn:		Children:										
<b>Setting the scene</b>	<ul style="list-style-type: none"> <li>• <b>technique:</b> to copy cells</li> </ul> <p>Show the class how to copy formulae from one cell to another. Ask the children to create a set of multiplication tables such as:</p> <table border="1" data-bbox="571 1055 679 1682"> <thead> <tr> <th>number A</th> <th>number B</th> <th>number A x number B</th> </tr> </thead> <tbody> <tr> <td>4</td> <td>1</td> <td>4</td> </tr> <tr> <td>4</td> <td>2</td> <td>8</td> </tr> </tbody> </table> <p>The spreadsheet should extend number B to 12. Ask the children to investigate changing number A.</p>	number A	number B	number A x number B	4	1	4	4	2	8	<ul style="list-style-type: none"> <li>• copy formulae to create tables of results</li> </ul>	Children could be shown how to use and copy a formula such as '=C3+1' to produce a second column of figures.
number A	number B	number A x number B										
4	1	4										
4	2	8										
	<ul style="list-style-type: none"> <li>• <b>technique:</b> to use a spreadsheet to draw a graph</li> </ul> <p>Show the class how to create graphs using the spreadsheet. Ask the children to investigate graphs such as <math>y = x^2</math>, <math>y = 2x</math>, <math>y = x + 3</math>.</p>	<ul style="list-style-type: none"> <li>• create graphs</li> </ul>										
<b>Integrated task</b>	<ul style="list-style-type: none"> <li>• Ask the children to use a spreadsheet model to find out the maximum area that can be included in a rectangular field of fixed perimeter. Ask them to set up formulae in a spreadsheet and to try whole numbers for one side first. Ask them to look at a graph of the areas to see where the maximum point is.</li> </ul>	<ul style="list-style-type: none"> <li>• create and use a spreadsheet to identify an optimum shape</li> </ul>	<p>Children may guess that the answer is a square, but they should be encouraged to list their predictions using the spreadsheet model.</p> <p>More able children could be given a perimeter which produces side lengths which are not whole numbers.</p>									

<p><b>Lesson plan: ICT</b>                  Date: Lesson 5                  Class: 6                  Time: 1 hour 15 minutes                  Activity: Modelling</p>	<p><b>Context/past experience</b>                  Children completed Year 7 Modelling QCA Unit 5A – entering data into cells, formatting cells, basic formula – children have used spreadsheets in Year 6 for Literacy and Numeracy work</p>	<p><b>Cross-curricular links</b> – Mathematics KS2 NC Ma2 4d  <b>Breadth of understanding: 1f</b> exploring and using a variety of resources and materials, including ICT</p>						
<p><b>Resources:</b>                  1. Lesson 5 template                  2. party.xls</p>	<p><b>Anticipated outcome:</b>                  Children will have investigated a mathematical problem and used a spreadsheet to arrive at a solution.</p>	<p><b>Key vocabulary</b>                  Spreadsheet                  Cell                  Formula                  Calculate                  Data                  Model</p>						
<p><b>Assessment/staff</b>                  Which children had understood? Who had grasped the task? What areas had they not grasped?  <b>Self-assessment</b>                  If I did this activity again, what would I change? What went well? Why would I use ICT for this task?                  Traffic Lights Assessment</p>								
<p><b>Objectives/theme taken from medium-term plan</b>                  Children learn to use a spreadsheet to explore a mathematical model.                  Children will be taught to use formulae in spreadsheets to answer 'What if...?' questions. They will explore how changes in a spreadsheet affect results and identify simple rules.                  Children will apply what they have learned in this unit when exploring mathematical and scientific models.</p>	<p><b>Lesson objectives</b>                  Children will be able to ask the question 'What if...?'                  Children will be able to use the information to answer questions and also review the process (2a, 2b, 4c).</p> <p><b>Introduction – whole class</b>                  Remind the pupils of how we have developed a model, asked questions, and solved problems using modelling. Use party.xls.                  Suggested questions:                  What is the formula? How do we input it?                  What does the graph tell us? How do we create a graph?                  What is the number repeated? How do we copy cells?</p>	<p><b>Main Activity 25–30 minutes</b></p> <table border="1"> <tr> <th>Lower core</th> <th>Core</th> <th>Upper core</th> </tr> <tr> <td>Explain to pupils that they are going to investigate using a spreadsheet model to find out the maximum area that can be included in a rectangular field of fixed perimeter. They need to set up the formula in a spreadsheet to carry out the investigation. Give children a template with the formula completed and use it to enter data to investigate the task. Pupils can share their solutions; allow them time to talk through the process. Identify how it was not just guessing the answer but using the model to try to work through the possible solutions. Draw out how a model allows us to run through predictions and develop patterns very quickly so that we can test theories and create hypotheses. Children can create graphs of data. <b>LC</b> ~ The pupils who need support may need some data already entered in columns A, B. <b>UC</b> ~ The more able pupils can use the template without the entered formula.</td> <td></td> <td></td> </tr> </table>	Lower core	Core	Upper core	Explain to pupils that they are going to investigate using a spreadsheet model to find out the maximum area that can be included in a rectangular field of fixed perimeter. They need to set up the formula in a spreadsheet to carry out the investigation. Give children a template with the formula completed and use it to enter data to investigate the task. Pupils can share their solutions; allow them time to talk through the process. Identify how it was not just guessing the answer but using the model to try to work through the possible solutions. Draw out how a model allows us to run through predictions and develop patterns very quickly so that we can test theories and create hypotheses. Children can create graphs of data. <b>LC</b> ~ The pupils who need support may need some data already entered in columns A, B. <b>UC</b> ~ The more able pupils can use the template without the entered formula.		
Lower core	Core	Upper core						
Explain to pupils that they are going to investigate using a spreadsheet model to find out the maximum area that can be included in a rectangular field of fixed perimeter. They need to set up the formula in a spreadsheet to carry out the investigation. Give children a template with the formula completed and use it to enter data to investigate the task. Pupils can share their solutions; allow them time to talk through the process. Identify how it was not just guessing the answer but using the model to try to work through the possible solutions. Draw out how a model allows us to run through predictions and develop patterns very quickly so that we can test theories and create hypotheses. Children can create graphs of data. <b>LC</b> ~ The pupils who need support may need some data already entered in columns A, B. <b>UC</b> ~ The more able pupils can use the template without the entered formula.								
<p><b>Plenary 10–15 minutes</b>  <b>Link to learning objectives</b>                  Display examples of other areas of our lives where modelling is used.  <ul style="list-style-type: none"> <li>• Traffic planning</li> <li>• Flight simulators</li> <li>• Computer adventure games</li> <li>• Driving simulators</li> </ul>                 Ask pupils why it is useful to use modelling in the above activities.                  Expect answers such as cost and safety.</p>								
<p><b>LINKS</b>  <b>QCA Unit 5D</b>                  In this unit children learn to enter numbers, labels and simple formulae into a spreadsheet and to use the data to calculate totals.                  Children will be introduced to spreadsheet software and will explore how changes in price and quantity can affect total cost.  <b>QCA Year 7 Unit 4</b>                  Developing ideas and making things happen                  2. Pupils should be taught:                  a) to develop and explore information, solve problems and derive new information for particular purposes                  c) how to use ICT to test predictions and discover patterns and relationships, by exploring, evaluating and developing models and changing their rules and values</p>	<p><b>Further differentiation/inclusion</b>  <b>SEN Provision</b>                  Effective questioning can give support.  <b>Gifted and Talented (ICT/Maths)</b>                  Children can be given perimeters that produce side length of non-whole numbers.</p>	<p><b>Common misconceptions/problems</b></p> <ul style="list-style-type: none"> <li>• Strong links to mathematics – lower ability in mathematics may result in an inability to access the ICT</li> </ul>						
		<p><b>Assessment of learning</b>                  Children who did not reach objectives:                  Children who could have gone further:</p>						

## Teacher planning sequence 2

## Handout 1.6

<b>Teacher : Sally</b>	<b>Summer term</b>
<b>Unit 6B</b> : Spreadsheet modelling – Lesson 5	
<b>Objectives</b>	
<ul style="list-style-type: none"> <li>• To be able to answer 'What if ...?' questions</li> <li>• To use the information to answer questions and also review the process</li> </ul>	
<b>Starter</b>	
<p>Review with pupils how we have developed models throughout the unit so far, asked questions and solved problems using modelling.</p> <ul style="list-style-type: none"> <li>• Encourage pupils to think about when we used the times-table model – what were the benefits of using this model?</li> <li>• Ask a pupil to model to the class – techniques and skills used.</li> <li>• Use questioning and discussion to secure understanding.</li> </ul>	
<b>Main activity</b>	
<p><b>Question:</b> What is the maximum area that can be included in a rectangular field of fixed perimeter? Give pupils a minute to discuss:</p> <ul style="list-style-type: none"> <li>• What does the question mean?</li> <li>• What formulae are needed to find out the answer and how will they set up their spreadsheet?</li> </ul> <p>(TA with pupils who make less progress – guiding their discussions to come up with an appropriate answer. T to circulate and guide pupils to discuss possible answers.)</p> <p>Ensure full understanding of: area, perimeter and formula. Feedback, leading to next episode of lesson. Discuss with class: What order should the information be presented? Why? Ask a pupil to model: formula, cell reference, copy and paste.</p> <p><b>Investigation:</b> What is the maximum area that can be included in a rectangular field of fixed perimeter?</p>	
<b>Resources</b>	
<p>Less progress – TA support and the spreadsheet model Average progress – Spreadsheet model More progress – Create their own model Extension activity: If the fixed perimeter was 60–90 cm would the findings be the same?</p>	
<b>Plenary</b>	
<p>Ask pupils to discuss their findings and identify a pattern through questioning. How did the model help us to investigate our problem? Final evaluation of the task. Reflection on learning using self-evaluation records.</p>	

---

# Curriculum continuity in the foundation subjects

---

The purpose of this section is to help foundation subject teachers and departments to consider what more they can do to ensure curriculum continuity between the primary and secondary curriculum, so that pupils new to secondary school, in all classes and all subjects, get off to a flying start. The material in this section complements the work being done in other places to support better transfer of data and to develop pastoral support.

This section invites you to consider curriculum continuity in foundation subjects. This section might be used as a focus for a departmental meeting (see page 48).

## What is curriculum continuity?

Recent research on transfer and transition (Galton *et al*, 2003) has pointed out the need for schools to work more on curriculum continuity and to pay attention to academic transfer and 'the specific strategies which help sustain pupils' progress'. An outline of the main findings and messages from the research is included in the Appendix. You may wish to read this before working through the materials in the relevant subject section.

Curriculum continuity refers to:

- knowing which topics have already been covered;
- knowing what skills and understandings have been well established;
- knowing the pace and style of previous lessons in the subject.

This knowledge is then used to launch pupils' secondary education in a way that will reassure them, challenge them and take them forward rapidly.

As a minimum, it is essential that departments know which topics have been covered by primary schools. Many schools have already formalised a way of collecting this information, but if they have not, some simple failsafe methods are listed below.

1. Hold a one-hour twilight session for subject coordinators in primary schools to come and meet the subject leader in the secondary school to audit what has been covered and the teaching approaches used.
2. Visit a Year 6 teacher in each of the primary schools and request a copy of the scheme of work for the subject or a summary of it. If possible, observe or team teach a lesson.
3. Ask the Year 6 teacher to study a checklist summary of Year 7 content in the subject and alert you to any potential overlaps or other issues relating to the content.
4. Ask the pupils to tell you which topics they have already covered.
5. Ask a pupil from each partner primary school to bring in a complete set of work for you to see.

## Task 1

Primary schools are not required to assess foundation subjects according to National Curriculum levels at the end of Key Stage 2. Some primary schools do carry out this assessment, but, in general terms, there is little teacher assessment data transferred from the end of Key Stage 2 to teachers at Key Stage 3 in foundation subjects.

However, this provides an opportunity to forge close liaisons between primary and secondary schools to focus on what has been taught, what has been learned, what standards have been achieved and what measures exist to ensure progress for all pupils from the start of Key Stage 3.

It has been shown that pupils' progress across the transfer is enhanced when there is some compatibility between the teaching approaches used either side of the transfer.

Research on transfer and transition indicates that dips in progression in subjects within and across key stages can be addressed through a shared understanding between primary and secondary teachers of the subject issues.

There can be no perfect model for how this liaison should be set up, but a number of approaches are often successful. These include subject networking and communication between primary and secondary schools, often supported by LEA advisers.

### Questions for discussion or consideration

- What liaison is already in place?
- Are subject networks already established?
- Do these networks focus on supporting the learning needs of pupils?
- How could the network better facilitate a shared understanding of the subject across key stages?

The liaison is likely to identify issues related to continuity between the key stages. In any networks formed, it might be useful to explore whether there is:

- awareness of the programmes of study for Key Stage 2 and Key Stage 3 in the subject;
- planning of work from the start of Year 7 that directly takes account of the programme of study at Key Stage 2;
- an agreed understanding of the standards expected and achieved at the point of transfer.

## Task 2

### Making effective use of the DfES/QCA schemes of work for Key Stage 2 and Key Stage 3

To ensure that pupils make good progress within and across key stages it is important to be aware of the programmes of study for Key Stage 2 and Key Stage 3. This will help to identify the progression in knowledge, skills and understanding across the key stages for your subject.

The schemes of work for Key Stage 3 build on the knowledge, skills and understanding developed through the Key Stage 2 programmes of study. The expectation is that pupils starting Key Stage 3 are working at level 4 or higher. However, the units take account of the fact that some pupils will be working at level 3 in any given subject.

Refer to the subject guidance given in the National Curriculum and in the DfES/QCA schemes of work for your subject.

The schemes of work for all foundation subjects are available on the Standards website at <http://www.standards.dfes.gov.uk/schemes3/subjects/>

On this website you can select your subject for Key Stage 3. Click on 'Using the scheme' to find guidance on planning for progression across the key stages and building on pupils' prior experience in the subject. You will find guidance here on the subject-specific issues relating to transfer in your subject. In particular, advice is given on those areas that will help to ensure continuity and progression within the subject from the start of Key Stage 3.

Reference to this section of the guidance will help to ensure that planning from the start of Year 7 reflects pupils' prior experience in the subject and that pupils make appropriate progress from the start of the key stage.

Use this subject-specific guidance to determine whether there are areas that are given insufficient emphasis in the teaching of classes in Years 7, 8 and 9.

Consider the following questions alongside the guidance referred to above.

#### Questions for discussion or consideration

- What aspects of the subject are less well developed in our scheme of work for Key Stage 3?
- What opportunities are there to build on pupils' prior experiences more explicitly in Key Stage 2?
- What subject-specific knowledge, skills, concepts and understanding require further development?
- What are the planning issues related to addressing these areas?

## Task 3

### Making effective use of subject exemplification

Refer to the National Curriculum in Action website at [www.ncaction.org.uk](http://www.ncaction.org.uk)

This website provides examples of:

- the standard of pupils' work at different ages and key stages;
- how the programmes of study translate into real activities;
- effective use of ICT across the curriculum.

You can use the Key Stage 2 section of this website to determine the nature and standard of work likely to be achieved in primary schools. This would be best supplemented with examples of work from your feeder primary schools.

In addition, refer to the Key Stage 3 examples to ensure that they are consistent with the expectations and standards you are setting in your subject.

From this website there are links to:

- the National Curriculum programme of study for the subject;
- the relevant attainment targets for the subject;
- the scheme of work for Key Stage 2;
- the scheme of work for Key Stage 3.

Consider the following questions.

#### Questions for discussion or consideration

- Are the expectations of your schemes of work in Year 7 building on the prior experience and standards at Key Stage 2?
- To what extent is the department's understanding of 'levelness' consistent across all members of staff and consistent with the exemplification on the National Curriculum in Action website?

## Task 4

Decide on one key action you can take to improve *curriculum* continuity, and one key action for *pedagogical* continuity in your subject and record these in the department's action plan.

75 minutes

## Using this section as a discussion session in a departmental meeting

**You will need copies of the Curriculum continuity in foundation subjects section – at least one between two people.**

1. Use the Introduction to this booklet as the basis for a brief outline of the main issues facing secondary schools in general, and foundation subjects in particular, over transfer and ensuring curriculum continuity. (5 minutes)
2. Introduce colleagues to the definition of 'curriculum continuity' used in this booklet. Invite brief, focused discussion using the questions in **task 1**. (10 minutes)
3. Use either **task 2** or **task 3** to facilitate discussion on curriculum continuity. (45 minutes)
4. Conclude with **task 4**, a brief action-planning discussion, and determine two key actions the department will take as a result. To enable whole-school coordination, relay these planned actions to the member of the senior leadership team responsible for transfer. (15 minutes)

---

# References

---

*Transfer and transitions in the middle years of schooling (7–14): Continuities and discontinuities in learning* Galton et al (2003) (Research Report no. 443, June)

This is the report of a project which set out to investigate issues on the primary and secondary sides of the transfer divide and to explore some areas where schools intervene when progress stalls in Key Stage 3.

A summary of the whole report is included as an Appendix (page 50).

In the context of these guidance materials, schools will find the section on the effectiveness of bridging units particularly useful.

*Transition from Year 6 to Year 7 Mathematics units of work (DfES 0118/2002)*

*Transition from Year 6 to Year 7 English units of work (DfES 0113/2002)*

These units are available to download from the Key Stage 3 website:  
[www.standards.dfes.gov.uk/keystage3/publications](http://www.standards.dfes.gov.uk/keystage3/publications)

The units are intended to be used in English and mathematics lessons, beginning in Year 6 and completing in Year 7.

*Moving on in mathematics (DfES 0375/2003)*

*Moving on in English (DfES 0308/2004)*

These pupil booklets, linked to the English and mathematics transition units, have been developed for a Key Stage 3/London Challenge transition project to raise the status of pupils' work being transferred from primary to secondary schools. Following successful implementation, the booklets are being made available more widely on the Key Stage 3 website:  
[www.standards.dfes.gov.uk/keystage3/publications](http://www.standards.dfes.gov.uk/keystage3/publications)

---

## Appendix Transfer and transitions in the middle years of schooling (7–14): continuities and discontinuities in learning

---

*Maurice Galton, John Gray and Jean Rudduck*

*University of Cambridge*

*with Mary Berry, Helen Demetriou, Janet Edwards,*

*Paul Goalen, Linda Hargreaves, Steve Hussey, Tony Pell*

*and Ian Schagen and Maria Charles*

*National Foundation for Educational Research*

### Introduction

The project (January 2000 – December 2002) was concerned with factors which affect pupils' progress between the ages of 7 and 14. It considered the primary side of the transfer divide and the transfer to secondary school, and explored some areas where schools can intervene when progress stalls during Key Stage 3. Taking the long view enabled the researchers to build a fuller picture of pupils' progress and also to redress the imbalance in earlier research which focused on *transfer* between schools rather than *transitions* between years within the same school.

### Key Findings

- Headteachers acknowledged a 'push' during Y6 with 82% using practice testing and 74% booster classes. The researchers suggest that given the findings on progress patterns (i.e. only around 40% of pupils make 'equal-sized' steps in progress in reading and maths from KS1-2. There is some support for 'equal-sized' steps being most effective), schools may wish to redistribute their efforts towards earlier interventions in Y3 and 4.
- At transfer, schools are paying increased attention to curriculum and pedagogic issues but both pupil attitudes and progress, especially in English and science, suggest pupils are still insufficiently challenged in Y7.
- In year-to-year transitions learning is better supported if schools give clear messages about the status of different years and if teachers recognise the value of peer support and provide sustained encouragement for pupils trying to re-engage and shed their previous reputations as 'shirkers' or 'dossers'.

### Aims

The aims of the research were to:

- Investigate issues on the primary side of the transfer divide;
- Assess issues on the secondary side of the transfer divide;
- Explore some areas where schools intervene when progress stalls at Key Stage 3.

## Background

This project builds on an earlier review which concluded that schools' arrangements for transfer were mainly working well but also highlighted the need to understand more about 'dips' in attitude, engagement and progress at key transition points (notably Years 3 and 8) and the post-transfer period (*The Impact of School Transitions and Transfers on Pupil Progress and Attainment*, Galton, Gray and Rudduck, DfEE RR131, 1999).

## Methods

The project had three strands:

The first strand analysed progress data from over 3,000 pupils based on KS1 and 2 tests and optional tests at years 3, 4 and 5. This is the first analysis of its kind and presents a unique picture of the learning trajectories of thousands of pupils. Headteachers' perceptions in 50 schools drawn randomly from this sample provided additional data.

The second strand involved collaboration with 9 LEAs who were self-selected on the basis of a strong interest and commitment to transfer issues. A resource file (accessible through the web at <http://creict.homerton.cam.ac.uk/transfer/>) of examples of work from schools and LEAs other than those closely involved in the project was built up. Ninety entries have been posted on the site.

The third strand involved 25 schools in studies of transfer and transition issues, including the role of friendships, how disengaged pupils can recommit themselves to learning and the management of year to year transitions. In each case, strategies were identified in the partner schools that reported pupils' learning.

## Other Findings

### The Primary side of the transfer divide

- **Tracking pupils' progress from KS1 to KS2:**
  - Pupils' progress across KS2 was assigned to one of four progress 'routes' for both reading and maths. Around 40% of pupils made roughly 'equal-sized' steps from year to year in reading and a slightly higher proportion in maths. Around 25% of the pupils in reading and a third in maths made 'variable' progress. Limited numbers of pupils were also found on routes involving 'increasingly' large steps and 'decreasingly' small ones. Some pupils 'dipped' every year, not just in Year 3 as previous evidence had suggested.
  - The analysis explored whether the 'route' taken affected pupils' performance. In reading pupils who were on the 'equal-sized' steps route made most progress but their advantage was modest - about three months' more than pupils on the 'decreasing' steps route. In maths, pupils who were on the 'decreasing' steps route (a fast start followed by smaller steps or 'consolidation' in subsequent years) made the expected two levels of progress, whilst those on the 'increasing' steps route lagged further behind, eventually by around half a level. Across the two subjects, there is some support for the desirability of pupils making 'equal-sized' steps which neither compensate for a 'slow' start nor rely on a 'spurt' in the finishing straight.

- Pupils attending 'more effective' primary schools throughout KS2 made as much as half a level more progress (roughly a year) when compared to their counterparts at 'less effective' schools. However, when schools were classified in terms of their pupils' 'routes', there was hardly any difference between them in their pupils' levels of progress.
- **Headteachers' views and experiences:**
  - Heads interviewed for this project acknowledged the existence of a 'push' during Year 6. Two strategies dominated heads' approaches to Year 6: regular use of 'practice tests' (reported by 82%) and the provision of 'booster' classes (74%). A majority concentrated their more experienced teaching staff in Y6 classes, reduced the scope of the curriculum taught during Y6 and focused the efforts of any support staff here (around 60% in each case). Heads who made use of booster classes were divided about their usefulness. Two thirds employed some form of 'intervention' in Years 3, 4 or 5 or, more occasionally, in all three. These were mainly 'booster' type activities or, in some cases, forms of setting.
  - 76% of heads expressed generally negative views about testing but were nonetheless proactive in terms of intervention; only 14% adopted a positive and proactive stance. The latter were more likely to extend interventions into KS1, employ setting, use practice tests regularly, locate more experienced teachers in Y6 and deploy support staff to boost KS2 results.

### Continuities and Discontinuities at Transfer

- **Taking stock of the current situation at transfer:**
  - Schools are paying increased attention to curriculum and pedagogic issues at transfer. As a result of the increasing number of visits between Y6 and Y7 staff, secondary teachers are now better informed about the KS2 programmes of study but many still hold over-optimistic views of primary practice. The reality is that for many pupils much of Y6, in the run up to the tests, consists largely of revision with an emphasis on whole class direct instruction. This narrowing of the curriculum and the limited range of pedagogy employed in Y6 have implications for teaching at the lower end of the secondary school.
  - Measurement of pupils' attitudes immediately before transfer and in the November and July following the move to secondary school suggests that the present Y7 curriculum is still not sufficiently challenging - or different from Y6. By the end of their first year after transfer many pupils were finding school a less enjoyable experience but, despite the dip in enjoyment, motivation remained relatively high.
  - In mathematics, and still more so in science, it appeared that pupils who made most progress after transfer did not express very positive attitudes to these subjects. Only in English was attitude and attainment positively correlated. Pupils stated that in Y7 there was more variety in English and that it was more interesting. By contrast, many pupils said that mathematics involved doing similar things (albeit more *complex*) in Y7 to those they had done in Y5 and Y6. However, more pupils in

mathematics gained at least one National Curriculum level after transfer compared to English. In Y7 science, pupils spent much of their time copying out details of experiments or writing out instructions under the teacher's guidance; able pupils said they were easily bored by these lessons.

- **The effectiveness of some recent transfer initiatives:**

- Bridging Units were usually started in the last few weeks of the primary school and continued for several weeks after transfer to secondary; they were designed to support curriculum continuity. They did this to a limited extent but their main value was in promoting dialogue between primary and secondary colleagues on issues of pedagogy and assessment; this occurred more often when schools constructed their own units.
- A number of secondary schools were beginning to experiment with post *induction* programmes in an attempt to develop pupils as *professional learners*. These programmes typically involve the development of study skills, introduction to problem solving strategies and the identification of preferred learning styles. Pupils were generally very enthusiastic about them.

Managing institutional and personal transitions

This strand of the project focused on three different transition experiences.

- **How friendships affect learning, at transfer and beyond:**

Evidence showed that at transfer friendships were widely seen as a means of social support while their potential for academic support tended to be overshadowed by anxiety about distraction. Some key observations:

- Pupils are discerning about friends whom they do and do not work well with, and which friends are helpful in relation to different subjects and tasks. The data suggest that, at transfer and beyond, pupils might be given a greater say in the construction of seating patterns and working groups.
- It is important for teachers to recognise the value of peer support in the classroom and to find ways of legitimising it.
- Pupils in top sets who lack confidence, and who find a pressured and competitive teaching style difficult to cope with, rely on friends for academic and social support.

- **Helping pupils to re-commit themselves to learning:**

The project explored how tensions and pressures can lead pupils to adopt particular persona and the difficulties they have in dropping them. In one-to-one discussions, some pupils said that they wanted to change from 'dossier' or 'shirker' to 'worker' but didn't know how to: some described themselves as 'addicted' to 'messaging about'; some found it difficult to escape the norms of their anti-work peer group; and others felt that their reputations were so indelibly inscribed in teachers' minds that a fresh start was not possible. Some key observations:

- The process of disengagement can be reversed if pupils feel that significant others in the school are able to see and acknowledge some of their strengths.

- Anti-work identities, once established, are difficult to change and it is better to intervene early in pupils' school careers. Whatever support is given, it needs to be sustained over a period of time; one-off sessions are not enough.
- Things that could make a difference for these pupils include more time in school to talk about difficulties, targets that they can identify themselves, and recognition of effort and small successes.
- **How transitions in the same school can affect learning:**
  - Schools give more attention to the exits and entrances years than to the in-between years; Y8, for instance, is widely seen by pupils as unimportant and they adjust their effort accordingly. Moreover, there is no tradition of organising induction events that would help pupils look forward with excitement and confidence to the year ahead. Some key observations:
    - It can be useful for schools to monitor the messages that they are giving about the status of different years and to check out what pupils' views of the year ahead are and what, retrospectively, they felt they needed more help with.
    - Schools need to ensure that they are sustaining the view, in all they say and do, that Y8 matters.
    - Pupils would welcome more opportunities, as they move up through school, to be more autonomous in their learning and to feel that they can make a contribution as valued members of the school community.

### Recommendations

The report acknowledges the very real progress that schools have made in ensuring that transfer is a relatively anxiety-free experience for pupils and their families. A large number of schools, with support from LEAs and government policy-makers, could now usefully direct their attention to:

- the **academic (as opposed to social) dimensions of transfer** and the specific strategies which help to sustain pupils' progress; this is a concern for both primary and secondary schools.
- the **coherence of the initiatives schools** have in place to sustain pupils' progress during the 'middle years' as opposed to investing most of their energy in 'catch-up' strategies, especially during Y6; this is mainly an issue for primary schools.
- the **balance of pre and post-transfer activities**; in particular, the time and resources invested in post-transfer activities designed to sustain the excitement of learning and to help pupils develop a language for thinking and talking about their learning; this is mainly a concern for secondary schools.
- the **social and the academic dimensions of within-school transitions** including: ways of marking pupils' social maturity by increased responsibility and induction events for the in-between years that give pupils a positive orientation to the next year and a more confident understanding of what its academic demands will be. These concerns are relevant to both sectors.

To make time for these activities, primary and secondary schools will need to consider which aspects of their liaison activities are supporting the learning of their pupils, which activities need to be modified and which might usefully be reduced.

### **Additional Information**

*Copies of the full report (RR443) - priced £4.95 - are available by writing to DfES Publications, PO Box 5050, Sherwood Park, Annesley, Nottingham NG15 0DJ.*

*Cheques should be made payable to "DfES Priced Publications".*

*Copies of this Research Brief (RB443) are available free of charge from the above address (tel: 0845 60 222 60). Research Briefs and Research Reports can also be accessed at <http://www.dfes.gov.uk/research/>*

*Further information about this research can be obtained from Joanna Mackie, DfES, Sanctuary Buildings, Great Smith Street, London SW1P 3BT.*

*Email: [joanna.mackie@dfes.gsi.gov.uk](mailto:joanna.mackie@dfes.gsi.gov.uk)*