Key Stage 3
National Strategy

Mathematics

Interacting with mathematics in Key Stage 3

School file

Contents

Guide to the pack

Introduction

The school pack *Interacting with mathematics in Key Stage 3* is designed to support mathematics departments in planning their teaching. The aim is to promote teaching that engages and challenges pupils and helps them to develop mathematical reasoning, and so to raise standards of achievement in Year 8.

The mathematics strand of the Key Stage 3 National Strategy recommends collaborative planning to develop schemes of work. Many departments will be taking a long-term approach to this goal. The vital step is setting up a regular programme for discussing your teaching together, starting with one or two units of work and examining them in depth.

The training and guidance materials in this pack focus on two sample units of work. The sample units are likely to be more ambitious than units created by individual departments. As well as being used as freestanding units, they are designed to:

- encourage a fresh look at the mathematics itself, in particular at 'big ideas' and how they might be developed in the classroom, perhaps in ways that are new and challenging;
- suggest imaginative activities that engage pupils in discussion and reasoning about mathematics;
- gather together useful resources on which teachers can draw, for example a data library;
- stimulate new approaches that will spill over into other lessons and influence mathematics departments in developing their work together.

Both units feature:

- a focus on key mathematical ideas and thinking that must be developed with all Year 8 pupils if they are to achieve level 5 and beyond in Year 9;
- objectives taken from the Year 8 teaching programmes – forming the core of each lesson;
- mathematical activities that help pupils to conjecture, link different ideas, generalise, and solve problems – providing scope for extending their thinking;
- classroom management strategies and questioning techniques that foster discussion and collaborative ways of working – supporting pupils who will find the objectives challenging.

The materials

This school file contains two mini-packs, one on handling data and one on multiplicative relationships including proportional reasoning. Each mini-pack starts with teaching objectives, an overview and a detailed plan for a sample unit of work. Next it provides the resources needed to teach that unit.

The file also contains notes for two departmental meetings on each mini-pack. You can use these notes to guide staff through an exploration of the sample unit. The notes focus on specific aspects of teaching and learning, and on how your department can use the sample unit.

The video in the school pack is to be viewed during the meetings, as a stimulus to discussion.

The school pack also contains:

- overhead transparencies of the charts used in video sequences 2 and 4;
- seven copies of the poster 'Handling data cycle';
- two copies of the data library CD-ROM;
- five additional copies of *Year 8 handling data: mini-pack;*
- five additional copies of *Year 8 multiplicative relationships: mini-pack*;
- an additional copy of this school file.

How to use the materials

It is recommended that, following the training in the second half of the summer term 2002, departments choose **one** of the mini-packs as the basis for collaborative work. You, as head of department, will have begun to explore both mini-packs during the initial training and started think about how to use the material.

The notes for departmental meetings are structured to make the best use of time and resources. You may be used to a more informal approach to meetings, but it is important to consider the benefits of structured group study, whilst maintaining the ethos of the department. The following programme of action may help:

- Read the notes carefully in advance and consider sharing the management of the meetings with a colleague.
- Consider handing out copies of the unit plan in advance, with the expectation that everyone will read it before the first meeting.
- Make it clear to colleagues that you want to work to certain timings in order to ensure that all issues are covered effectively in the time available – the sessions are timed at 75 minutes, but could be expanded to 90 minutes.

After working with one mini-pack you may decide to continue with the second pack at a suitable time, as well as evaluating your approach to planning other units in your scheme of work. The mini-packs have been produced in a ringbinder to allow you to incorporate notes of your own and the additional mini-packs that will be produced during 2002/3.

The video

Sequence	Meeting	Duration	Title	Description
1	Handling data 1	6 min	Test questions on handling data	Year 9 pupils explain how they answered questions in the 2001 Key Stage 3 national tests
2	Handling data 2	18 min	Episodes from a lesson on interpreting data	Andrew teaches a Year 8 class of average attainment
3	Multiplicative relationships 1	4 min	Test questions on proportion	Year 9 pupils explain how they answered questions in the Key Stage 3 national tests
4	Additional material	6 min	Making conjectures using bar charts	Andrew teaches a Year 8 class of average attainment

We are grateful to the teachers and pupils of the schools featured in the video. They are:

School	LEA	No. on roll	FSM*
Chilwell School	Nottinghamshire	991	6.7%
Alderman White School	Nottinghamshire	603	23%
Redhill School	Nottinghamshire	1250	18%

* Proportion of pupils eligible for free school meals

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