HS4: Creative ideas for examination question practice

The following strategies are suggested as part of a planned approach to sequences of lessons leading towards an examination. Most require group work and could be used as the starter activity or in the main part of the lesson. All should be targeted at topic areas which address pupils’ needs.

Classifying – involves pupils sorting a variety of questions according to agreed criteria such as topic or method of solution. It aims to improve examination technique by strengthening strategies to make judgements about question types. This will also help to prevent pupils misreading questions or rushing towards irrelevant calculations.

Designer mathematicians – involves pupils being asked to design their own questions following recent exploration of a particular topic. For example, ‘Teaching mental mathematics from level 5 Number’ (Same calculation – different problem, p. 25).

Peer teaching – involves pupils demonstrating their abilities and understanding to others in the group by explaining their reasoning about a particular question.

Work scrutiny – involves pupils marking solutions, identifying errors and offering corrections and advice to others.

Image making – involves strategies such as collective memory and developing concept maps (see reference to ‘Leading In Learning’ below) and posters for a topic or a series of related aspects of mathematics. For example, ‘Teaching mental mathematics from level 5 Number’ (Aligning and branching diagrams, p. 24).

Reading images – involves pupils annotating a question that includes a variety of formats such as pictures, diagrams, tables, numbers, symbols and text, making links to what they already know. For detailed guidance, see ‘Leading in Learning’.

Deconstructing/creating a story for a question – involves building up the comprehension of a question structure. This might include removing the text or the diagram and asking, ‘What could the question be?’. This could also involve using graphs and charts devoid of titles and labels so that the same solution strategies are seen to apply to questions set in a different context. For example, see ‘Teaching and learning functional mathematics’ (The problem solving process, p. 37).

Resources
All references are available on the Secondary mathematics planning toolkit summer 2008 in the ‘Rich tasks’ folder:

- Teaching mental mathematics from level 5 Number
- Leading in Learning handbook for teachers Key Stage 4 (Collective memory, Concept maps, Classifying and Reading images)
- Teaching and learning functional mathematics.

Secondary mathematics planning toolkit (DCSF ref: 00342-2008CDO-EN). A copy of this CD-ROM could be obtained from the LA mathematics consultant or ordered from DCSF Publications T: 0845 60222 60, email: dcsf@prolog.uk.com