Top Ten

The Top Ten materials comprise 15 short tests to practise mental mathematics and support the needs of pupils for the higher level mental mathematics paper (papers A and B, which are taken by those pupils entering at level 4–6, level 5–7 and level 6–8).

There are three sets of tests (X, Y and Z), each providing practice for different topic areas in the mental mathematics tests. There are five tests for each set, with 10 questions in each test. The same number question in each set of tests is on the same topic area. For example, in sets X1 to X5 question 1 is on place value, involving multiplying and dividing by 10, 100 and 1000.

The decision to have these 30 question areas was based on the frequency and types of question that occur in the Key Stage 3 National Curriculum test mental mathematics papers.

All of the questions used are taken from Key Stage 3 mental mathematics papers A and B for the years 1997–2001, allowing the use of 2002, 2003 and 2004 as practice tests in the classroom.

Using the Top Ten tests

With 15 tests it is important to use these in an efficient and well-paced manner and at the same time allow pupils to develop their knowledge and understanding.

- One way of using the tests is to use the last 20 minutes of two mathematics lessons a week (for the spring term), using the first 10 minutes to review two topic areas that occur on the paper and the last 10 minutes for the test and to mark and record results.

- Sitting the test and marking it should only take 10 minutes.

- Pupils should record results on the pupil record sheet. Use of the pupil record is an essential part of Top Ten.

- Before and/or after the test one or two areas within the test should be developed in the classroom to help raise achievement in those areas.

- Pupils should be encouraged to look at the questions they continue finding difficult and discuss the work with their peers or the teacher.

- It is possible to produce a 20-page booklet which includes the 15 tests, the pupil record sheet and other background information. This will fill five A4 folded sheets and will provide a record for pupils' reflection. The 15 answer papers have been provided on the CD-ROM without the questions to allow a more 'mental test' approach, if you prefer it.

Top Ten provides a tightly focused approach to review pupils' strengths and weaknesses and to focus effective teaching. It is expected that, through teaching and regular practice of the same areas of mathematics, pupils who find specific areas difficult will be able to understand and learn how to solve problems in these areas. Pupils who reflect on their own strengths and weaknesses will make more progress.

Information for pupils

About the Key Stage 3 mental mathematics papers

In Year 9 pupils sit Key Stage 3 National Curriculum tests in English, science and mathematics.

In mathematics the test has three parts:

- the non-calculator paper (1 hour);
- the calculator paper (1 hour);
- the mental mathematics paper (30 questions).

The mental mathematics paper has two versions:

- foundation (paper C) for those taking the test at level 3–5;
- higher (papers A and B) for those taking the test at level 4–6, level 5–7 or level 6–8.

The higher mental mathematics paper has an equal number of questions from each of level 4, level 5, level 6, level 7 and level 8 of the National Curriculum. The time allowed for each question is 10, 15 or 20 seconds.

About the Top Ten tests

The Top Ten tests provide practice questions from the higher mental mathematics papers. In particular, the questions target support for those at level 4–6. All of the questions are taken from mental test papers from the years 1997–2001.

The questions are taken from the following topics:

- place value;
- fractions, decimals and percentages;
- calculations: the four rules and money problems;
- approximating;
- ratio;
- powers and square roots;
- time;
- metric conversion;
- area and perimeter;
- volume;
- angles;
- spatial problems;
- algebra;
- averages;
- pie charts;
- probability.

Questions involving circle circumference and area (level 6–7), graphs (level 6–8), inequalities (level 8) and interpreting data (level 4–6) have not been included in Top Ten.

Each of sets X, Y and Z includes five different tests. Question 1 of each test in a set is on the same topic area, question 2 on another topic area, and so on. For example, all question 1s in set X are based on place value involving multiplying or dividing by 10, 100 or 1000.

Completing these tests regularly and recording the results on the record sheet will help you to spot areas of weakness and strength, and so improve in the areas that you find most difficult.

Name _____

Use these tables to keep an honest record of your results.

Topics covered by tests in set X

Topic	X1	X2	X3	X4	X5
1 Place value: multiply and divide by 10, 100, 1000					
2 Fraction, decimal and percentage equivalents					
3 Given a percentage, find the original amount					
4 Money calculations					
5 Rounding, estimating and approximating					
6 Metric conversions (e.g. mm to cm, km to m)					
7 Area and perimeter					
8 Algebra: simplification					
9 Algebra: equations					
10 Handling data: averages, including the mean					

Topics covered by tests in set Y

Topic	Y1	Y2	Y3	Y4	Y5
1 Place value: given a calculation, find answers to similar ones					
2 Finding fractions of amounts					
3 Finding one amount as a percentage of another					
4 Addition and subtraction problems					
5 Rounding to decimal places and significant figures					
6 Time problems					
7 Volume					
8 Algebra: equations					
9 Probability: total adding to 1					
10 Handling data: pie charts					

Topics covered by tests in set Z

Topic	Z1	Z2	Z3	Z4	Z5
1 Place value: writing numbers in figures					
2 Finding percentages of amounts					
3 Multiplication					
4 Combined four rules					
5 Ratio					
6 Angles					
7 Spatial problems					
8 Algebra: substitution					
9 Probability: problems					
10 Powers and square roots					