

Targeting level 4 in Year 7

Mathematics consolidation lessons

This pack contains:

- brief guidance;
- 12 mathematics consolidation lessons targeted at Year 7 pupils working towards level 4.

The pack supplements *Springboard 7: a mathematics catch-up programme for pupils entering Year 7*, issued 06/01, reference DfEE 0049/2001.

Springboard 7 provides teaching points and materials to support pupils who entered Year 7 below level 4 in mathematics but who will, with additional support, attain level 4 by the end of the year.

Why have the lessons been produced?

Following the positive response from schools to *Springboard 7*, we have produced 12 consolidation lessons that focus on the topics that pupils find difficult and that are key to attaining level 4 in mathematics. These lessons also highlight the applications and understanding of mathematical ideas. All the lessons link with and some make use of *Springboard 7* materials. The lessons also refer to the *Framework for teaching mathematics: Years 7, 8 and 9*. The format and style of lessons is similar to that in the *Year 9 booster kit: mathematics*, DfES 0015/2002, with which many teachers will be familiar.

The lessons are available on the Standards website:
www.standards.dfes.gov.uk/keystage3/strands/mathematics/

Copies of the OHTs and resource sheets are supplied on a CD.

The objectives for the lessons are drawn from the yearly teaching programmes for mathematics and are listed below.

1 Place value, addition and subtraction

- Read and write whole numbers in figures and words, and know what each digit represents (Y5)
- Use known number facts and place value to consolidate mental addition/subtraction (Y6)
- Use standard column procedures to add and subtract whole numbers (Y7)

2 Multiplication

- Use informal pencil and paper methods to support, record or explain multiplications. Extend written methods (Y5, Y6)
- Multiply and divide integers and decimals mentally by 10, 100 and 1000, and explain the effect (Y7)

3 Using fractions

- Order fractions ... and position them on a number line (Y6)
- Calculate simple fractions of quantities and measurements (Y7)
- Use names and abbreviations of units of measurement (Y7)

4 Fractions and decimals

- Reduce a fraction to its simplest form by cancelling common factors in the numerator and denominator (Y6)
- Recognise the equivalence between the decimal and fraction forms (Y6)

5 Probability

- Use vocabulary and ideas of probability, drawing on experience (Y7)

6 Calculators

- Round positive whole numbers to the nearest 10, 100 or 1000 (Y7)
- Enter numbers (in a calculator) and interpret the display in different contexts (Y7)
- Carry out calculations with more than one step (Y7)
- Check a result by considering whether it is of the right order of magnitude (Y7)

7 Word problems

- Consolidate the rapid recall of multiplication facts up to 10×10 , and quickly derive associated division facts (Y7)
- Solve word problems (Y7)
- Solve simple problems about ratio and proportion (Y7)

8 Interpreting data

- Extract and interpret data in tables, graphs, charts and diagrams (Y6)
- Interpret diagrams and graphs (including pie charts) and draw simple conclusions (Y7)

9 Shapes and angles

- Use correctly the vocabulary for lines, angles and shapes (Y7)
- Know the sum of angles at a point, on a straight line and in a triangle (Y7)

10 Coordinates and reflections

- Find coordinates of points determined by geometric information (Y7)
- Understand and use the language and notation associated with reflections (Y7)
- Recognise transformation and symmetry of a 2-D shape: reflection in given mirror lines and line symmetry (Y7)

11 Sequences

- Recognise and extend number sequences (Y6)
- Generate sequences from practical contexts (Y7)
- Recognise squares of numbers to at least 12×12 (Y7)

12 Perimeter and area

- Know and use the formula for the area of a rectangle; calculate the perimeter and area of shapes made from rectangles (Y7)
- Use names and abbreviations of units of measurement (Y7)

How should I use the lessons?

These are consolidation lessons – pupils will have met the topics before. You could use the lessons during the year as a key lesson to finish a topic or you may prefer to use them in the summer term in the run up to the progress test.

If you use the lessons as a basis for new teaching and learning, a single lesson, with suitable additional examples, discussion and practice, will need to be spread over two or three sessions. Quick revision is no substitute for sound teaching throughout the year. Remember that none of these lessons can match your pupils' needs exactly: they will need at least some modification.

It is also important to both maintain and develop pupils' mental mathematics skills. These are addressed in the starters in many of the lessons but mental skills should be used in all elements of the lessons.

Many of the lessons incorporate Key Stage 3 test questions. It is a good idea to use such questions in your lessons during the year so that pupils become familiar with the style of questions and the standard required to achieve level 4.

Previous tests on CD-ROM

Previous years' end of Key Stage tests are available on the Testbase CD-ROM produced by QCA/Doublestruck. This can be obtained from Testbase, PO Box 208, Newcastle on Tyne, NE3 1FX; tel 0870 9000 402; fax 0870 9000 403; www.testbase.co.uk.

The CD-ROM is supplied free of charge. Individual Key Stage subjects are accessed using registration codes, at a cost of £25 per subject. Some LEAs have purchased a licence.

Preparing pupils for the Year 7 progress tests

The Year 7 progress tests in mathematics are available from the QCA and will consist of two written papers and a mental mathematics paper.

Each written paper is allocated 45 minutes and carries 40 marks. Test A is to be done without a calculator; a calculator is allowed for Test B. The mental mathematics test is on audio tape and takes 20 minutes. It carries 20 marks.

Pupils are awarded a single level for mathematics.

The tests cover all the aspects of the Key Stage 3 programmes of study. They are designed to measure the overall progress that pupils have made in mathematics during Year 7.

The new progress tests (from 2003) reflect the changes in end of Key Stage mathematics tests. 'Using and Applying Mathematics' (UAM) is a key aspect. Approximately one eighth of the marks will be for questions that require UAM to get a correct answer or where UAM is assessed directly – the most common form being an 'explain' question.

As it is impossible to use and apply mathematics without some mathematical content, all UAM marks will contribute to the content balance of each test. Questions testing problem-solving skills will be similar to those already used in Key Stage 2 and Key Stage 3 tests.

Some questions will have limited structure, with few intermediate steps indicated, to enable pupils to demonstrate their skills. Topics that are developed in Key Stage 3, for example algebra and probability, will be tested at levels 3 and 4.

Pupils should know how long is allowed for each test and should be familiar with the general layout and design, which will be similar to previous tests.