

1. Introduction

Since the introduction of optional tests for years 3, 4 and 5 from 1997, there has been much development in the teaching of mathematics. In order to reflect the changes, including the now widespread use of the National Numeracy Strategy framework for teaching, new optional tests have been developed. Although the majority of primary schools use the existing tests and teachers are accustomed to their administration and marking, many have welcomed the idea of a fresh approach to optional testing.

The years 3, 4 and 5 optional tests in mathematics offer schools a means of monitoring and measuring children's progress in the years between the statutory tests in years 2 and 6. They form part of the Government's drive to raise standards at key stage 2. The results will help schools plan for teaching and learning, in order to meet targets for achievement by the end of key stage 2.

This series can be used to track progression reliably not only between years 3, 4 and 5, but also to link it confidently to the end of key stages 1 and 2 tests on either side. During the standardisation phase of development, large numbers of children completed various components of the new tests as well as the 2003 statutory tests in order to establish a statistical link between the optional and statutory tests.

The main changes to the mathematics tests are the inclusion of more questions that require children to use their skills in using and applying mathematics. These include explaining the reason for a solution or choosing an appropriate strategy to attempt a problem.

The balance of marks within the tests will reflect the structure of the national curriculum.

Unlike the statutory tests, these optional materials are not due to be replaced annually and schools will need to store or re-order materials from year to year, as has been the case previously.

This section will provide the user with information needed to administer and mark the tests.

The structure and timing of the tests

Each child will sit two tests: a written mathematics tests and a mental mathematics test. It is recommended that the written mathematics test is administered before the mental mathematics test if both take place on the same day.

Written tests

Each written test contains 35 marks and has a recommended time limit of 45 minutes. They contain the same practice question. This means that it should be possible for you to administer both tests at the same time.

A choice of two written tests is available: Test 4a is a levels 2-3 test awarding levels 2A to 3A, and Test 4b is a levels 3-4 test awarding levels 3B to 4A. **It is not intended that children sit both tests** since some questions are common to both. You should decide which test is the more appropriate for each child.

In test 4a, the main emphasis is on level 3 but approximately one-quarter of the questions assess level 2. This test is for children who are working securely within level 2.

In test 4b, the main emphasis is on level 4 but approximately one-third of the questions assess level 3. This test is for children who are working securely within level 3 or who are working within level 4.

The following table may help you make your decision for each child.

Which written test should a child take?

Teacher assessment level	Written test
level 2B or below	Neither; use teacher assessment only
level 2A level 3C level 3B	Test 4a
level 3A level 4C level 4B level 4A	Test 4b
level 5C or above	Consider using the year 5 tests which include some questions at level 5

Mental mathematics test

The mental mathematics test is a taped test consisting of 20 timed questions with a running time of approximately 15 minutes. It is suitable for children taking either Test 4a or Test 4b. The questions are designed to assess mental recall and mental agility. Each question is worth one mark. The test should be administered using the audiotape, although a transcript is provided in ***Emergency use of tape transcript*** section in case the equipment or tape malfunctions on the day of the test. Each question is repeated twice and children are given either 5 or 10 seconds to write their response. The test is similar in style to the mental mathematics test at the end of key stage 2.

It is recommended that the mental mathematics test is administered after the written tests.

Organisation

Grouping children for the test

Both the mental and written tests can be administered to all children at the appropriate levels together, in small groups or individually. For the written tests, you may give help with reading. Your decision about grouping, therefore, should reflect the needs of children in your class and their ability to work independently.

Assistance

The test does not require the use of staff beyond those normally available in the classroom. However, any informed person, such as a language support teacher, a teaching assistant or special educational needs support staff, may administer it, under the direction of the teacher. These staff should be aware of the guidance in the section 'Assisting with the written tests'. The teacher, however, remains responsible for the assessments.

Special arrangements

The tests have been designed to be accessible to the majority of children working within the levels targeted by the tests. Schools are free to make adaptations to the tests, which will improve accessibility for children for whom English is an additional language and for children with special educational needs, provided **any adaptations made do not invalidate the assessments**. These adaptations should be similar to those made to the materials with which children work in the classroom and should be based on the special arrangements for the end of key stage 2 statutory mathematics tests.

Examples of reasonable adaptations include:

- use of readers, signers, amanuenses;
- using tactile shapes and number cards;
- photocopying onto coloured paper;
- enhancing the shading on diagrams and/or emboldening lines on diagrams, charts and graphs to increase visual clarity;
- enlarging diagrams, cutting them out, embossing or mounting them on card or other material according to normal classroom practice;
- translation of words or phrases in the tests that are likely to prove difficult for children for whom English is an additional language and also for some children who use British Sign Language or other sign-supported communication;
- using mechanical and technological aids, including computers but not calculators; and
- allowance of up to 25 per cent additional time as allowed in the *Assessment and reporting arrangements* for key stage 2.

Special arrangements should not provide an unfair advantage. It is important to ensure that any assistance given **does not alter the nature of the test questions**, and that any answer given is the child's own.

Children with special educational needs

Support may be given to poor readers in the written mathematics tests by reading words, phrases or sentences that they find difficult. Instructions may also be clarified for them **provided this does not give additional information or invalidate the assessment**; mathematical vocabulary cannot be changed.

The most appropriate conditions for testing children with special educational needs are likely to be those in which they normally work well. The tests can be administered to small groups of children or, for some children, on an individual basis. Some children may need encouragement to continue working through the tests. As well as offering reassurance to the whole group, you may also need to be active in watching for children who have problems with reading the questions or with writing their responses.

Children learning English as an additional language

Children who are learning English as an additional language may be given access to the test in any way that is usual for them. If language support is available, the questions may be translated and children may respond in a language other than English. It is not intended that children are provided with a comprehensive written translation of the test. As with all children, you may read the questions aloud in English. You may also give a fuller explanation of the context of the questions, **but it is important to ensure that you do not give any additional interpretation of the mathematics or mathematical vocabulary in doing this**. It is particularly important when assessing children for whom English is an additional language that sufficient support is given for the children to show their best attainment.

Modified versions of the tests

The Optional mathematics tests are also available in Braille and Modified Large Print. These can be ordered from ICAA (International Curriculum & Assessment Agency), QCA's agency for the distribution of Optional Modified tests on 01962 737547.

Administering the written tests

Equipment

Calculators are **not** allowed in either test.

Each child will need:

- a mathematics test booklet, (**either** Test 4a for levels 2-3 **or** Test 4b for levels 3-4), available in multiple copies from QCA Publications;
- a pen or pencil;
- a sharp pencil for mathematical drawing;
- a ruler marked in centimetres and half centimetres;
- access to mirrors; and
- a rubber (optional).

Encourage the children to cross out, rather than rub out, incorrect answers and to write their new answer by the side. Rubbing out not only takes time but also loses important information for marking and analysis. If rubbers are not provided, have a rubber available for children who wish to change answers where the changes may be clearer by rubbing out than by crossing out, for example for shapes they have drawn or shaded.

Please note:

Do not supply the children with any other support materials, for example clocks or clock faces, number lines or squares, addition squares, multiplication squares, calculators or any representation of money (toy or real).

Wall displays such as calendars, tables charts, number lines or number squares should be covered or removed. However, it is not necessary to remove wall clocks.

The tests should be carried out under test conditions; they may be held in a classroom, school hall or any other suitable accommodation. The room(s) where the tests are to be administered will need to be prepared appropriately.

Children should be seated in such a way as to prevent copying.

Timing

The children should be given **45 minutes** to complete each written test. You may indicate to the children when they are halfway through the time allowed for the test and again a few minutes before they have to stop.

The levels and age standardised scores will be calculated on the basis of the test being administered to this time limit. **If you wish to derive levels or age standardised scores from the tests, these timings must be strictly adhered to.**

Introducing the written tests

Each child will need a copy of the test booklet and access to the equipment listed above.

Tell the children that:

- they cannot talk and must not copy since this is a test to find out what they can do by themselves;
- they will do a practice question together with you (which is the same question in Test 4a and Test 4b), and then carry on by themselves;
- there are different sorts of questions and that they should try to answer as many as they can to show what they can do;
- they should read each question carefully;
- they should put their hand up if they need help with reading, but must not call out or ask any other child;
- they can use any of the space on the page for working out but they should write their answer in the space provided, which is indicated by the pencil icon;
- some questions are harder than others. If they cannot answer a question, they should go onto the next one which might be easier, and go back to the difficult ones later if they have time;
- they are not to worry if they cannot complete all the questions;
- if they make a mistake, they should change their answer by crossing it out and writing the correct answer beside it. (If rubbers are not provided, have a rubber available for children to change answers where the changes may be clearer by rubbing than by crossing out, for example for shapes they have drawn or shaded.);
- they may only use the equipment provided for them;
- they have **45 minutes** to do all they can in the test; and
- if they finish the test early, they should go back and check their answers.

Working through the written tests

Tell the children to write their names and class on the front cover of the booklet.

Read through with them the section 'Getting started', then tell them to look at the practice question. Give them time to complete the practice question.

The practice question is not part of the test and you can spend as much time as you like helping the children to understand the format, what they should do, and how and where they should record their answers.

Explain that:

- each question always has its number in the black shape at the left-hand side;
- there are other questions in the test booklet that are similar to the practice question but that none will be exactly like the practice question. Some of the questions have boxes in which to write answers but for others there may be a dotted line or they may be asked to complete a graph or sorting diagram. A pencil icon always indicates the space where the children are required to record their answers;
- they can use any of the space on the page for working out but they should write their answer in the space indicated by the pencil icon;
- emphasise that they should read each instruction very carefully and ask for help with reading if necessary; and
- they should not write in the white boxes in the margins.

To ensure that the testing is carried out in a standard way in all schools, it is important that your introduction does not exceed this information.

Assisting with the written tests

You should:

- give help with reading words or sentences, where necessary. You may need to be aware of children who do not ask for the help they need to read unfamiliar words.

In a minority of cases, a child may need to have the entire test read out to him or her. Where readers are used, they will need to be familiar with the following information.

You should **not**:

- give any help with the mathematics as this will invalidate the assessment;
- suggest to the children the mathematical operation to use;
- give clues which help the children to interpret what any question requires them to do;
- rephrase the wording of the questions (other than rephrasing words as explained in the following paragraph), since this is part of what is being assessed;
- prompt the children to confirm or change answers by pointing, frowning, smiling, head shaking or nodding, offering rubbers, or asking leading questions; or
- suggest different representations from the one provided. For example, do **not** re-present questions on addition or subtraction vertically when they are presented horizontally in the test booklet.

General instruction words used in the test may be explained or rephrased if they are not familiar to the children. Similarly, words which are used in everyday contexts only may be explained or rephrased if they are not familiar.

Teachers of children with special educational needs or of children learning English as an additional language should refer to 'Special arrangements' section.