

Ma

YEAR

5

LEVELS

3–5

Year 5 optional tests in mathematics

Teacher's guide

5



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Introduction

Since the introduction of the optional tests for years 3, 4 and 5 in 1997, there has been much development in the teaching of mathematics. In order to reflect the changes, including the use of the National Numeracy Strategy Framework for teaching mathematics, new optional tests were introduced in 2003. Most primary schools use these tests and teachers are accustomed to their administration and marking. These new optional tests are administered and marked in the same way, providing fresh material for pupil assessment while maintaining consistency for teachers.

The years 3, 4 and 5 optional tests in mathematics offer schools a way of monitoring and measuring pupils' 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 tests at the end of key stages 1 and 2. During development of the tests, large numbers of pupils completed various components of the new tests, as well as the most recent statutory tests, to establish a statistical link between the optional tests and the statutory tests.

The balance of marks within the tests reflects 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 reorder materials from year to year, as has been the case previously.

This guide will provide the user with information needed to administer and mark the tests. It also presents the necessary information to convert total marks to national curriculum levels and age standardised scores.

The structure and timing of the tests

There are three parts to each test: two written mathematics tests and a mental mathematics test. It is not recommended that all three parts are administered on the same day.

Written tests

There are two written tests, Test 5A (calculator not allowed) and Test 5B (calculator allowed). Calculators must be available for Test 5B. The tests contain mainly level 3 and level 4 questions but approximately one-fifth of the questions assess level 5. Each written test contains 35 marks and has a recommended time limit of 45 minutes.

Mental mathematics test

The mental mathematics test is a recorded test consisting of 20 timed questions with an administration time of approximately 20 minutes. The questions are designed to assess mental recall and mental agility. Each question is worth one mark. The test should be administered using the CD, although a transcript is provided on pages 16–19 in case of an equipment malfunction on the day of the test. Each question is repeated twice and pupils are given either 5, 10 or 15 seconds to write their response. The test is similar in style to the mental mathematics test at the end of key stage 2. Schools requiring the test on audiotape are able to order one from the QCA Orderline on 08700 606015.

Mark schemes and analysing the results

Separate mark schemes for each written test are provided on pages 24–38.
The mark scheme for the mental mathematics test is included on pages 52–53.

Age standardised scores

Age standardised score tables are provided on pages 60–63. These scores take into account the pupil's age in years and completed months, giving an indication of how each pupil is performing relative to other pupils of the same age.

Grids for test analysis

QCA has produced national curriculum references for each question, which will allow teachers, if they wish, to analyse the performance of pupils in their class. These sheets are included in the Teacher pack. Further copies can be ordered from the QCA Orderline on 08700 606015. Teachers may also analyse performance using the DfES Pupil Achievement Tracker (PAT). The PAT software can be downloaded from www.standards.dfes.gov.uk/performance.

Organisation

Grouping pupils for the test

Both the mental and written tests can be administered to all pupils 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 pupils 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 member may administer it under the direction of the teacher. These staff should be aware of the guidance provided in the sections 'Assisting with the written tests' on page 13 and 'Guidance for teaching assistants' on pages 64–65. Details on how to administer the tests and their timing are also printed in the *Subject-specific guidance* on the reverse of the top sheet in the Pupil pack for ease of reference.

Special arrangements

The tests have been designed to be accessible to the majority of pupils working within the levels targeted by the tests. Schools are free to make adaptations to the tests which will improve accessibility for pupils for whom English is an additional language and for pupils with special educational needs, **provided any adaptations made do not invalidate the assessments**. These adaptations should be similar to those the pupils normally use 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:

- using 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
- translating words or phrases in the tests that are likely to prove difficult for pupils for whom English is an additional language and also for some pupils who use British Sign Language or other sign-supported communication
- using mechanical and technological aids, including computers but not calculators
- allowing up to 25 per cent additional time as set out in the *Assessment and reporting arrangements* for key stage 2
- rest breaks, provided pupils remain supervised and do not discuss the tests.

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 pupil's own. Please refer to the *Assessment and reporting arrangements* booklet for further guidance.

Pupils with special educational needs

Support may be given to poor readers in the written mathematics tests by reading words, phrases or sentences that pupils 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 or explained.

The most appropriate conditions for testing pupils with special educational needs are likely to be those in which they normally work well. The tests can be administered to small groups of pupils or, for some pupils, on an individual basis. Some pupils 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 pupils who have problems with reading the questions or with writing their responses.

Pupils learning English as an additional language

Pupils 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 pupils may respond in a language other than English. It is not intended that pupils are provided with a comprehensive written translation of the test. As with all pupils, 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 pupils for whom English is an additional language that sufficient support is given for them 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 QCA's agency for the distribution of optional modified tests. Full details can be found on the NAA's test orders website. All orders must be placed as soon as possible, to ensure delivery of the tests by the end of April. Ideally, orders will be placed before the end of January in the year the pupil will be taking the test.

Administering the written tests

This information is for anyone involved in administering the tests including teachers, other members of school staff and other adults who may assist with test administration. The term ‘test administrator’ is used to cover anyone who is responsible for, or involved with, test administration.

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.

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.

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

Equipment

For each of the written tests, Test 5A and Test 5B, each pupil will need:

- a mathematics test booklet, available in multiple copies from the QCA Orderline
- a pen or pencil
- a sharp pencil for mathematical drawing
- a ruler marked in centimetres and millimetres
- access to mirrors and tracing paper
- a rubber (optional).

For Test 5B, each pupil will also need:

- a calculator.

Encourage the pupils 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 pupils 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 pupils with any other support materials, for example clocks or clock faces, number lines or squares, addition squares, multiplication squares, calculators (except in Test 5B) or any representation of money (toy or real).

Timing

The pupils should be given **45 minutes** to complete each written test. You may indicate to the pupils 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 are 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, you must adhere to these timings.**

Introducing the written tests

Each pupil will need a copy of the appropriate test booklet and access to the equipment listed on page 10.

Tell the pupils that:

- they cannot talk and must not copy since this is a test to find out what they can do by themselves
- there are different sorts of questions and they should try to answer as many as they can
- for Test 5A they are **not** allowed to use a calculator and for Test 5B they are allowed to use a calculator
- 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 pupil
- some questions are harder than others. If they cannot answer a question, they should go on to 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 pupils 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
- if they finish the test early, they should go back and check their answers.

Working through the written tests

Tell the pupils to write their name, class and school on the front cover of the booklet.

Ask the pupils to turn to page 2 of the booklet and look at the pictures of the three children Luke, Emma and Reshma. Read the names of the three children and explain that they will feature in some of the questions in the booklet. Explain that some other children may also be mentioned in the test.

Tell the pupils to look at page 3 and read through the instructions with them.

Explain that:

- each question always has its number in the black shape at the left-hand side
- some of the questions have boxes in which to write answers but for others there may be a dotted line or pupils may be asked to complete a graph, chart or diagram
- a pencil icon always indicates the space where the pupils should 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
- they should read each instruction very carefully and ask for help with reading if necessary.

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 pupils who do not ask for the help they need to read unfamiliar words.

In a minority of cases, a pupil 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 pupils the mathematical operation to use
- give clues which help the pupils to interpret what any question requires them to do, for example you may read out the word *symmetry* in question 6 in Test 5A, but you must not give any clues about its meaning
- prompt the pupils to confirm or change answers by pointing, frowning, smiling, head shaking or nodding, offering rubbers, or asking leading questions
- 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.

Questions must **not** be rephrased. However, general instruction words used in the test may be explained or rephrased if they are not familiar to the pupils. For example, the word *complete* in question 27 in Test 5B may be explained since it is not a mathematical term and not part of what is being assessed. Similarly, words which are used in everyday contexts only may be explained or rephrased if they are not familiar, for example *percussion* in question 5 in Test 5B.

Teachers of pupils with special educational needs or of pupils learning English as an additional language should refer to ‘Special arrangements’ on pages 8–9.

Administering the mental mathematics test

If the mental mathematics test is administered on the same day as one of the written tests, allow a break of at least 15 minutes between them.

There is one mental mathematics test. It is a recorded test consisting of a practice question and 20 timed questions. The test has an administration time of approximately 20 minutes. It starts with instructions to the pupils followed by the questions. There will be two opportunities for you to pause the recording. These will be indicated by a bleep. The first pause comes near the beginning of the recording, once the instructions have been given. This will allow clarification of any of the instructions not understood by the pupils. The second pause is after the practice question. After this second pause, the recording should be allowed to play without interruption.

The mental mathematics test is organised in three sections. In the first section, pupils are given 5 seconds in which to answer each of the questions. The time is increased to 10 seconds per question and 15 seconds per question in the second and third sections respectively. Each section includes easy and more difficult questions, arranged so that the easier questions are at the beginning of the section. This means that there are a number of relatively difficult questions early in the test with some relatively easy questions later. Pupils should be made aware that questions will vary in difficulty.

Equipment

You will need:

- a CD player
- a CD of the mental mathematics test.

Each pupil will need:

- a copy of the year 5 mental mathematics pupil answer sheet (photocopiable from pages 66–67 of the *Teacher's guide* or available in multiple copies from the QCA Orderline)
- a pen or pencil.

Please note:

Pupils should have only pens or pencils. They should **not** have rubbers, rulers, calculators or any other mathematical equipment for the mental mathematics test. Access to paper for working out answers is **not** allowed **but the pupils may jot things down outside the answer box on their answer sheets if this helps them.**

They should be made aware that they must answer in the allocated time for each question and that recording extensive written working may slow down their responses.

Introducing the mental mathematics test

Ensure that each pupil has a copy of the mental mathematics pupil answer sheet. Tell the pupils to write their name, class and school in the box at the top of it.

Ensure the pupils understand that:

- they must complete the test on their own without copying or discussing questions with other pupils
- they will be told how long they have to answer each group of questions and that the time given will increase from 5 to 10 to 15 seconds as the test progresses through the three sections
- for some of the questions, the information they will need is included in or beside the answer box on the pupil answer sheet
- they are not allowed to use a calculator or any other mathematical equipment
- they should work out the answer to each question in their head but they may jot things down outside the answer box if it will help them
- if they want to change their answer they should put a cross through their first answer. They are not allowed to rub out any answers
- they should answer as many questions as they can. If they find a question too difficult, they should put a cross in the answer box and wait for the next question
- they should not interrupt the test by asking any questions once the test has started.

Working through the mental mathematics test

When you are ready, start the recording. Instructions will be given to the pupils. The recording will indicate, with a bleep, where you should pause the recording and answer any questions.

When the bleep is heard, pause the recording and answer any questions that the pupils have, ensuring that the instructions are clearly understood. It is important that the 'pause' function is used rather than the 'stop' function. This will ensure that the correct place is maintained within the recording.

Restart the recording. The pupils will be asked a practice question. After a 5-second pause for the pupils to write their answer a bleep will sound, indicating that you should pause the recording again to answer any questions.

After pausing the recording, ensure that the pupils have correctly placed their answer to the practice question on the answer sheet and that they are aware of the information provided to the right of the answer box for some questions.

When they are ready to begin the test, tell the pupils that you will not be able to stop the recording again, or answer any questions, once the recording has restarted.

Restart the recording and the test will begin. At the end of the test, pupils will be told to put down their pens and pencils, and you should stop the recording and collect in the answer sheets.

In the case of an equipment malfunction, the test will need to be read to the pupils. Instructions and a copy of the transcript for introducing the mental mathematics test in such an event are included in the following section.

Emergency use of the transcript

This section contains a transcript for the teacher-read version of the year 5 mental mathematics test. It should be used **only** in the event of equipment failure. In such an event, you should follow the instructions below.

1. You must have access to a clock or watch that measures accurately in seconds.
2. Give out the appropriate equipment as stated on page 14 and read through with the pupils 'Introducing the mental mathematics test' on page 15.
3. Read out the following script, **using exactly these words**:

Listen carefully to the instructions I am going to give you. When I have finished reading them, I will answer any questions. However, you will not be able to ask any questions once the test has begun.

I will start by reading a practice question. Then I am going to ask you 20 questions for the test. On your sheet there is an answer box for each question, where you should write the answer to the question and nothing else. You should work out the answer to each question in your head, but you may jot things down outside the answer box if this helps you. Do not try to write down your calculations because this will waste time and you may miss the next question. For some of the questions, important information is already written down for you on the sheet.

I will read out each question twice. Listen carefully both times. You will then have time to work out your answer. If you cannot work out an answer, put a cross in the answer box. If you make a mistake, cross out the wrong answer and write the correct answer next to it.

There are some easy and some harder questions, so don't be put off if you cannot answer a question.

4. Pause and answer any questions that the pupils have.

5. Read out the following:

*Here is the **practice** question to show you what to do.*

I will read the question twice, and you will have 5 seconds to work out the answer and write it in the answer box.

What is twelve add six?

6. Repeat the question.

What is twelve add six?

Wait 5 seconds (measured accurately using a clock or watch), then read out the following:

Now put down your pen or pencil.

7. Ensure that the pupils have correctly placed their answers to the practice question on their answer sheet. Remind the pupils that, for some questions, information is provided in or beside the answer sheet. When they are ready to begin the test, tell the pupils that you will not be able to answer any further questions, or interrupt the test, once you have started reading the questions.
8. The questions follow. They must be read out exactly as written. Start by stating the question number, then read out each question twice in quick succession before leaving the 5-, 10- or 15-second response time. **These timings must be strictly adhered to.**
9. At the end of the test, tell the pupils to put down their pens or pencils, then collect their answer sheets.

Mental mathematics test questions

'Now we are ready to start the test.'

'For the first group of questions you will have 5 seconds to work out each answer and write it down.'

1	What is half of twenty-eight?
2	Add together fifteen, twenty and twenty-five.
3	What is seven times eight?
4	What is the sum of one point five and one point six?
5	Subtract three hundred and forty from eight hundred.

'For the next group of questions you will have 10 seconds to work out each answer and write it down.'

6	Look at your answer sheet. Tick the shape that has two lines of symmetry.
7	Apples cost nineteen pence each. How much do five apples cost?
8	Look at your answer sheet. The scale shows Reshma's weight. What is Reshma's weight?
9	Look at your answer sheet. How much does it cost for an egg sandwich and two bananas?
10	Emma's journey starts at two thirty pm. It takes seven and a half hours. At what time does her journey end?

'Now turn over your answer sheet.'

11	Jack was born in nineteen ninety-nine. In what year will he have his eighteenth birthday?
12	Look at your answer sheet. Put a ring around the fraction that is equal to one-third.
13	The temperature is minus seven degrees Celsius. It goes up by six degrees. What is the new temperature?
14	The perimeter of a square is fifty centimetres. How long is each side?
15	What is two-thirds of seventy-five?

'For the next group of questions you will have 15 seconds to work out each answer and write it down.'

16	What number is double one thousand four hundred and fifty?
17	What is the difference between three hundred and ninety-five and five hundred and one?
18	Look at your answer sheet. Emma's dog weighs between five kilograms and six kilograms. Put a ring around its weight.
19	I multiply a number by one hundred. My answer is two hundred and fifty. What was the number I started with?
20	A notebook costs eighty pence. How many notebooks can I buy with ten pounds?

'Now put down your pen or pencil. The test is finished.'

Marking the tests

You should mark the test in accordance with the guidance given. The *General guidance for marking* on pages 22–23 should be used in conjunction with the mark schemes, and you should read this before you begin marking.

The mark schemes help to identify the appropriate answers and tell you how many marks to allocate to each answer. Marking spaces have been provided in the right-hand margin of the test booklet beside each question. It is recommended that you fill in the marking spaces as follows:

1	Mark awarded
0	Question attempted but no mark awarded
–	Question omitted

These codes correspond with those used for filling in the *Grids for test analysis*.

If a pupil has altered an answer or the answer is not clear, try to establish what the original intention was. You may, on occasion, need to talk with the pupil individually to check this. Be sure to ask questions that do not suggest the required answer, for example *What is your answer here?*

For the written tests, we recommend that you mark the same double-page spread for the whole class before turning to the next double-page spread. This will make it easier for you to concentrate on a small section of the mark scheme at a time and on the *Supplementary marking guidance* (where appropriate). It also means that you are more likely to gain diagnostic information about particular questions to inform your teaching. The mark schemes have been designed to facilitate marking double-page spreads.

The structure of the mark schemes

The marking information for each question is set out in the form of tables, which start on page 24.

The ‘Question’ column on the left-hand side of each table provides a quick reference to the question number and the question part.

The ‘Mark’ column indicates the total number of marks available for each question part.

For some questions the code U1 is shown in the mark column. The ‘U’ indicates that there is a Using and applying mathematics element in the question. The number, 1, shows that one mark can be attributed to using and applying mathematics in this question.

The ‘Requirement’ column may include two types of information:

- a statement of the requirements for the award of each mark, with an indication of whether credit can be given for correct working
- examples of some different types of correct response.

The ‘Additional guidance’ column indicates alternative acceptable responses, and provides details of the range of acceptable answers. This column may also indicate unacceptable responses which should not be awarded a mark.

In order to ensure consistency of marking, the most common marking errors and difficulties are addressed in the *General guidance for marking* with the action the marker should take. Unless otherwise specified in the mark scheme, markers should apply these general guidelines in all cases.

The *Supplementary marking guidance* on pages 39–50 provides further instructions for the marking of questions containing a working mark, questions containing a method mark and questions requiring a written explanation. The section includes examples of acceptable and unacceptable responses to the questions.

It is important that marking is carried out accurately according to the appropriate mark scheme to ensure consistency of results.

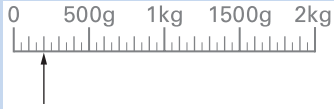
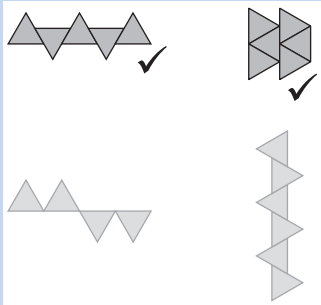
General guidance for marking

What if ...	Marking procedure
... the pupil reverses digits when recording?	Reversed digits are acceptable if they are clearly recognisable as the digit intended; for example, a reversed 2 must clearly show the characteristics of a 2 rather than a 5.
... the pupil writes a transposed number as the answer?	Transposed numbers should not be awarded the mark; for example, an answer of '16' when the correct answer is '61' should not be marked as correct.
... the pupil's response is numerically equivalent to the answer in the mark scheme?	The mark scheme will generally specify which equivalent responses are allowed. If this is not the case, award the mark unless the mark scheme states otherwise.
... the pupil's answer is correct but the wrong working is shown?	Always award the mark for a correct response unless the mark scheme states otherwise.
... the pupil has responded in a non-standard way?	Calculations and written responses do not have to be set out in any particular format. Pupils may provide evidence in any form, provided that its meaning can be understood. Diagrams, symbols or words are acceptable for explanations or for indicating a response. Any correct method of setting out working, however idiosyncratic, should be accepted.
... the correct response has been crossed (or rubbed) out and not replaced?	Mark, according to the mark scheme, any legible crossed out work that has not been replaced. If the work has been replaced, then do not consider the crossed out work.
... the pupil has worked out the answer correctly and then written an incorrect answer in the answer box?	Give precedence to the answer given in the answer box over any other workings. However, there may be cases where the incorrect answer is due to a transcription error, in which case you may check the pupil's intention and decide whether to award the mark.
... more than one answer is given?	<p>If all answers given are correct (or a range of answers is given, all of which are correct), award the mark unless the mark scheme states otherwise.</p> <p>If both correct and incorrect responses are given, do not award the mark unless the mark scheme states otherwise. This includes multiple-choice style questions, where, for example, pupils are required to indicate the correct answer(s) from a list of four or five options.</p>


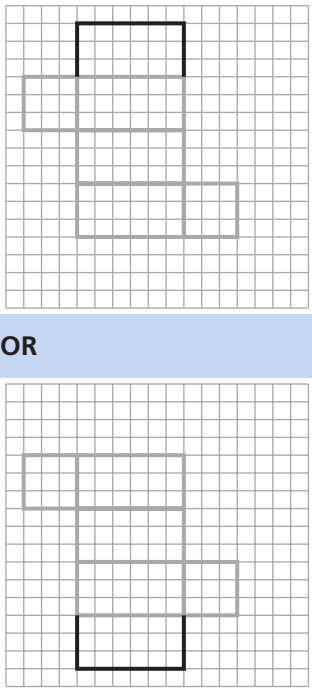
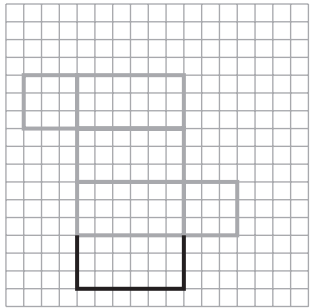
What if ...	Marking procedure
<i>... the pupil's response does not match closely any of the examples given in the mark scheme?</i>	Judge whether the response corresponds with the requirements in the 'Requirement' column of the mark scheme. Refer also to the 'Additional guidance' column and to the <i>Supplementary marking guidance</i> (where appropriate).
<i>... there appears to be a misread of numbers affecting the working?</i>	This is when the pupil misreads the information given in the question and uses different information without altering the original intention of the question. In one-mark questions, no mark should be awarded. However, in two-mark questions that have a working or method mark, one mark should be awarded if the working is applied correctly using the misread numbers, provided that the misread numbers are comparable in difficulty to the original numbers. For example, if '243' is misread as '234', both numbers may be regarded as comparable in difficulty.
<i>... no answer is given in the expected place, but the correct answer is given elsewhere?</i>	Where a pupil has shown understanding of the question, award the mark. In particular, where a word or number response is expected, a pupil may meet the requirement by annotating a graph or labelling a diagram elsewhere in the question.
<i>... the pupil's answer correctly follows through from earlier incorrect work?</i>	'Follow-through' marks may be awarded only when specifically stated in the mark scheme. Either the correct response or an acceptable 'follow-through' response should be marked as correct.

Mark scheme for Test 5A

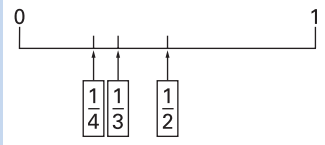
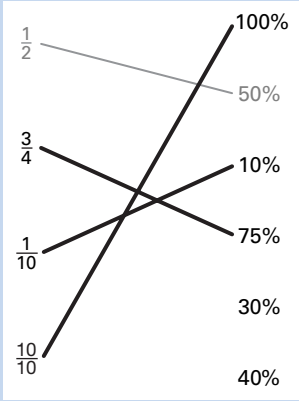
Test 5A questions 1–6

Question	Requirement	Mark	Additional guidance
1	969	1m	
2	<p>Sentences completed as shown:</p> <p>The smallest number in the list is 1040</p> <p>The largest number in the list is 1440</p>	1m	Both answers must be correct for the award of the mark.
3	£6 OR £6.00	1m	Accept £6.00p OR £6.00 pence OR £6-00 OR £6:00 OR £6 00 Do not accept £600p OR £600
4	<p>Arrow drawn to 200g as shown:</p> 	1m	Arrow should be closer to 200g than 150g or 250g for the award of the mark. Accept any other clear way of indicating the correct point, such as a cross.
5	<p>Award TWO marks for the correct answer of 25</p> <p>If the answer is incorrect, award ONE mark for evidence of appropriate working, eg</p> <p>$23 + 30 = 53$ $78 - 53 = \text{wrong answer}$</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>'Supplementary marking guidance' on pages 39–40 shows some responses which are acceptable and unacceptable for the mark.</p> </div>	Up to 2m	<p>If both marks are awarded, record by entering 1 in each marking space.</p> <p>The working must be carried through to reach an answer for the award of ONE mark.</p> <p>Award ONE mark by entering 1, 0 in the marking spaces.</p>
6	<p>Two patterns ticked as shown:</p> 	1m	<p>Both answers must be correct for the award of the mark.</p> <p>Accept any other clear way of indicating the correct two patterns, such as circling.</p>

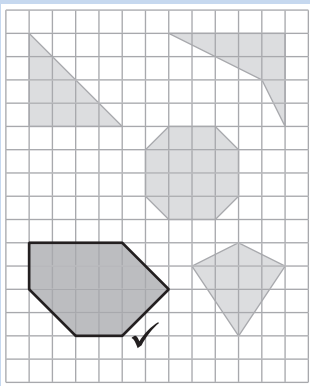
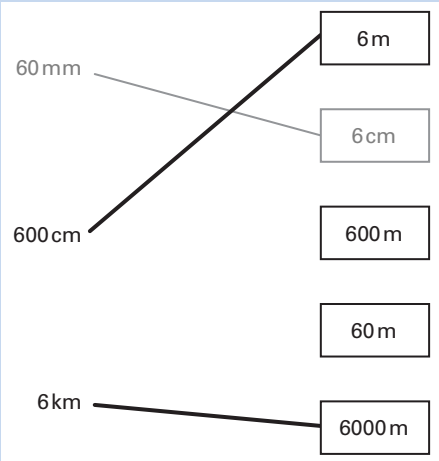
Test 5A questions 7–9

Question	Requirement	Mark	Additional guidance
7	137	1m	
8	<p>Three numbers circled as shown:</p> 	1m	<p>All three numbers must be correct for the award of the mark.</p> <p>Accept any other clear way of indicating the correct numbers, such as ticking or underlining.</p>
9	<p>Net completed as shown:</p>  <p>OR</p> 	<p>1m</p> <p>U1</p>	<p>Accept slight inaccuracies in drawing, provided the intention is clear.</p> <p>Vertices must be within 2mm of the correct grid points.</p>

Test 5A questions 10–15

Question	Requirement	Mark	Additional guidance
10	Three numbers circled as shown: 11 (17) (25) 34 40 (49)	1m	All three numbers must be correct for the award of the mark. Accept any other clear way of indicating the correct numbers, such as ticking or underlining.
11	Boxes completed as shown: 	1m	All three boxes must be correct for the award of the mark.
12a	10	1m	Accept answers between 9 hours 45 mins and 10 hours 15 mins exclusive.
12b	3	1m	Accept a correct list of names, Luke, Sam and Julian.
13	All three fractions matched as shown: 	1m	All three lines must be drawn correctly for the award of the mark. Lines need not touch the numbers, provided the intention is clear. Do not accept fractions which have been matched to more than one percentage.
14	Award TWO marks for the correct answer of £1.15 OR 115p If the answer is incorrect, award ONE mark for evidence of appropriate working, eg £5 – 40p = £4.60 £4.60 ÷ 4 = wrong answer 'Supplementary marking guidance' on page 41 shows some responses which are acceptable and unacceptable for the mark.	Up to 2m	Accept £1.15p OR £1.15 pence OR £1-15 OR £1:15 OR £1 15 OR 115 OR 1.15 If both marks are awarded, record by entering 1 in each marking space. Accept for ONE mark £115p OR £115 OR 1.15p OR £11.50p OR £11.50 as evidence of appropriate working. The working must be carried through to reach an answer for the award of ONE mark. Award ONE mark by entering 1, 0 in the marking spaces.
15	22	1m	

Test 5A questions 16–20

Question	Requirement	Mark	Additional guidance
16	74	1m	
17	22	1m	Accept –22
18	<p>One shape ticked as shown:</p> 	1m	Accept any other clear way of indicating the correct shape, such as circling.
19	<p>Both lengths matched as shown:</p> 	1m	<p>Both lines must be matched correctly for the award of the mark.</p> <p>Lines do not have to touch the lengths or boxes, provided the intention is clear.</p> <p>Do not accept lengths which have been matched to more than one box.</p>
20a	Answer in the range 29°C to 29.9°C inclusive.	1m	
20b	4	1m	

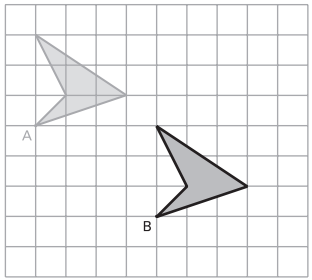
Test 5A questions 21–25

Question	Requirement	Mark	Additional guidance
21	21 OR 21st	1m	
22	16.11	1m	
23	<p>Award TWO marks for the correct answer of 7</p> <p>If the answer is incorrect, award ONE mark for evidence of appropriate working, eg</p> $3 \times 12 = 36$ $50 - 36 = 14$ $14 \div 2 = \text{wrong answer}$ <p>'Supplementary marking guidance' on page 42 shows some responses which are acceptable and unacceptable for the mark.</p>	<p>Up to 2m</p> <p>U1</p>	<p>If both marks are awarded, record by entering 1 in each marking space.</p> <p>The working must be carried through to reach an answer for the award of ONE mark.</p> <p>Award ONE mark by entering 1, 0 in the marking spaces.</p>
24	(6,7)	<p>1m</p> <p>U1</p>	<p>Coordinates must be in the correct order.</p> <p>Accept unambiguous answers written on the diagram.</p>
25	<p>An explanation which compares the proportion of odd and even numbers on the spinner and dice, eg:</p> <ul style="list-style-type: none"> 'On the dice there are 3 odd and 3 even numbers. On the spinner there are 3 odd and 2 even numbers' 'There is an extra even number on the dice'. <p>OR</p> <p>An explanation which recognises that there are more odd than even numbers on the spinner OR that there is an equal number of odd and even numbers on the dice, eg:</p> <ul style="list-style-type: none"> 'Most of the numbers on the spinner are odd' 'There are 3 odd numbers and 2 even numbers on the spinner' 'There are only 2 even numbers on the spinner' 'There are the same number of odd and even numbers on the dice'. <p>'Supplementary marking guidance' on pages 47–48 shows some responses which are acceptable and unacceptable for the mark.</p>	<p>1m</p> <p>U1</p>	<p>Do not award the mark for circling 'Yes' alone.</p> <p>If 'No' is circled but a correct unambiguous explanation is given, then award the mark.</p> <p>Do not accept an explanation that is vague or arbitrary, eg:</p> <ul style="list-style-type: none"> 'The last number on the spinner is 5, but on the dice it is 6' 'The dice has one more number on it'. <p>Do not accept an explanation that is ambiguous, eg:</p> <ul style="list-style-type: none"> 'There are more odd numbers on the spinner'.

Test 5A questions 26–27

Question	Requirement	Mark	Additional guidance
26	<p>Award TWO marks for the correct answer of 1344</p> <p>If the answer is incorrect, award ONE mark for evidence of appropriate working which contains no more than ONE arithmetical error, eg:</p> <ul style="list-style-type: none"> Conventional algorithms, eg $\begin{array}{r} 56 \\ \times 24 \\ \hline 224 \\ 1120 \\ \hline \end{array}$ wrong answer OR Grid methods, eg $\begin{array}{r rr} & 50 & 6 \\ \hline 20 & 1000 & 120 \\ 4 & 200 & 24 \\ \hline \end{array}$ = wrong answer OR Decomposition methods, eg $24 \times 50 = 1200$ $24 \times 6 = 144$ $1200 + 144 = \text{wrong answer}$ <p>'Supplementary marking guidance' on page 43 shows some responses which are acceptable and unacceptable for the mark.</p>	Up to 2m	<p>If both marks are awarded, record by entering 1 in each marking space.</p> <p>For the award of ONE mark accept follow through of ONE error in working.</p> <p>Do not award any marks if:</p> <ul style="list-style-type: none"> The error is in the place value, for example the omission of the zero when multiplying by the 2 tens The final (answer) line of digits is missing. <p>Variations on algorithms are acceptable, provided they represent viable and complete methods.</p> <p>The working must be carried through to reach an answer for the award of ONE mark.</p> <p>Award ONE mark by entering 1, 0 in the marking spaces.</p>
27	<p>Award TWO marks for all three boxes completed correctly as shown:</p> <p>$2\frac{1}{2}$ 8 $13\frac{1}{2}$ 19 $24\frac{1}{2}$ 30</p> <p>If the answer is incorrect, award ONE mark for any two boxes completed correctly.</p>	Up to 2m	<p>If both marks are awarded, record by entering 1 in each marking space.</p> <p>Accept for ONE mark all three numbers lower than the correct answers by $\frac{1}{2}$, ie $7\frac{1}{2}$ $18\frac{1}{2}$ $29\frac{1}{2}$</p> <p>Accept for ONE mark all three numbers higher than the correct answers by $\frac{1}{2}$, ie $8\frac{1}{2}$ $19\frac{1}{2}$ $30\frac{1}{2}$</p> <p>Award ONE mark by entering 1, 0 in the marking spaces.</p>

Test 5A question 28

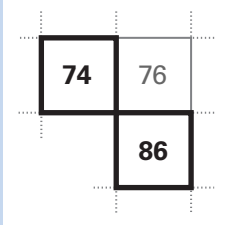
Question	Requirement	Mark	Additional guidance
28	<p>Diagram completed as shown:</p> 	1m	<p>Accept slight inaccuracies in drawing, provided the intention is clear.</p> <p>Vertices must be within 2mm of the correct grid points.</p> <p>The shape need not be shaded.</p>
Maximum 35 marks			

Mark scheme for Test 5B

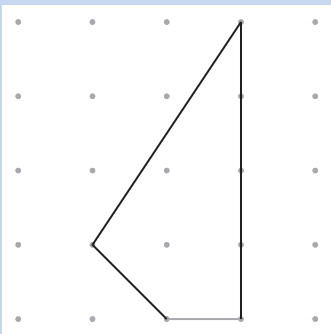

Test 5B questions 1–5

Question	Requirement	Mark	Additional guidance
1a	4	1m	
1b	250	1m	
2	Boxes completed as shown: <div style="display: inline-block; border: 1px solid black; padding: 2px;">5</div> <div style="display: inline-block; border: 1px solid black; padding: 2px;">3</div> – <div style="display: inline-block; border: 1px solid black; padding: 2px;">6</div> = 47	1m	All three digits must be correct for the award of the mark.
3	All three shapes matched as shown: 	1m	All three shapes must be matched correctly for the award of the mark. Lines need not touch the shapes or names exactly, provided the intention is clear. Do not accept shapes which have been matched to more than one name.
4	£18.10	1m	Accept £18.10p OR £18.10 pence OR £18-10 OR £18:10 OR £18 10 Do not accept £1810 OR £1810p OR £18.1
5a	16	1m	
5b	39	1m	

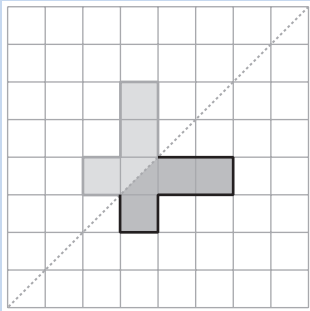
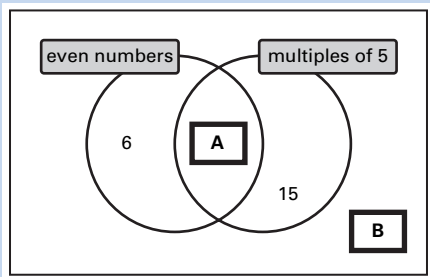
Test 5B questions 6–9

Question	Requirement	Mark	Additional guidance
6	<p>Boxes completed as shown:</p> <p>There are 32 sweets in a bag.</p> <p>6 friends share them equally.</p> <p>Each friend gets 5 sweets.</p> <p>2 sweets are left over.</p> <p>OR</p> <p>There are 32 sweets in a bag.</p> <p>5 friends share them equally.</p> <p>Each friend gets 6 sweets.</p> <p>2 sweets are left over.</p>	<p>1m</p> <p>U1</p>	All four boxes must be correct for the award of the mark.
7	<p>One answer circled as shown:</p> <p>$\frac{1}{4}$ hour $\frac{1}{2}$ hour $\frac{3}{4}$ hour</p> <p>1 hour more than 1 hour</p>	1m	Accept any other clear way of indicating the correct answer, such as ticking or underlining.
8	<p>Grid completed as shown:</p> 	<p>1m</p> <p>U1</p>	<p>Both numbers must be correct for the award of the mark.</p> <p>Disregard any additional numbers written elsewhere on the diagram.</p>
9	350	1m	

Test 5B questions 10–12

Question	Requirement	Mark	Additional guidance
10	Diagram completed as shown: 	1m	Accept slight inaccuracies in drawing, provided the intention is clear. Vertices must be within 2mm of the correct grid points.
11	Arrow drawn in the range 62mm to 66mm inclusive, measured from zero mark. 	1m	The arrow need not touch the line, provided the intention is clear. Accept other any other way of indicating the correct point, such as a cross.
12	Boxes completed as shown: 100 <input type="text"/> 10 × 10 100 <input type="text"/> 15 × 5 100 <input type="text"/> 20 × 6	1m	All three answers must be correct for the award of the mark.

Test 5B questions 13–16

Question	Requirement	Mark	Additional guidance
13	Diagram completed as shown: 	1m	Accept slight inaccuracies in drawing, provided the intention is clear. Vertices must be within 2mm of the correct grid points. The shape need not be shaded.
14	Boxes completed as shown:  Box A: any multiple of 10, eg 10, 50, 120 AND Box B: any number ending in a 1, 3, 7 or 9	1m	Both answers must be correct for the award of the mark. If answers are written in the answer boxes, disregard any additional numbers written elsewhere on the diagram. If no answers are written in the answer boxes, accept correct answers written in the relevant two regions of the diagram provided that all numbers written in the two regions are correct.
15	One number circled as shown: 4 5 6 7 8	1m U1	Accept any other clear way of indicating the correct number, such as ticking or underlining.
16	One answer circled as shown: $\frac{1}{2}$ $\frac{1}{3}$ $\frac{1}{4}$ $\frac{1}{5}$ $\frac{1}{6}$	1m	Accept any other clear way of indicating the correct answer, such as ticking or underlining.

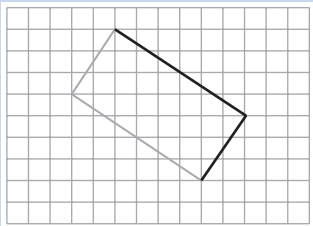
Test 5B question 17

Question	Requirement	Mark	Additional guidance
17a	£2.70 OR 270p	1m	Accept £2.70p OR £2.70 pence OR £2-70 OR £2:70 OR £2 70 OR 2.70 OR 270 Do not accept £270 OR £270p OR 2.7 OR 2.70p
17b	Award TWO marks for the correct answer of 150g If the answer is incorrect, award ONE mark for evidence of appropriate method, eg 80p for 100 grams 40p for 50 grams 100 + 50 OR $120 \div 80 = 1.5$ 1.5×100 OR A ‘trial and improvement’ method, eg 80p for 100g 240p for 300g 160p for 200g <div style="border: 1px solid black; padding: 5px;">‘Supplementary marking guidance’ on page 44 shows some responses which are acceptable and unacceptable for the mark.</div>	Up to 2m	If both marks are awarded, record by entering 1 in each marking space. An answer need not be given for the award of ONE mark. Award ONE mark by entering 1, 0 in the marking spaces. A ‘trial and improvement’ method must show evidence of improvement, but a final answer need not be given for the award of ONE mark.

Test 5B question 18

Question	Requirement	Mark	Additional guidance
18	<p>An explanation which recognises that if the last digit of a number is odd, then the number must be odd (and vice versa), eg:</p> <ul style="list-style-type: none"> ■ 'If it is odd the number is odd' ■ 'If the last number is an odd number, eg 7, the number is odd' ■ 'If the last number is a 1, 3, 5, 7 or 9 it is odd' ■ 'If it is a 0, 2, 4, 6 or 8 the number is even' ■ 'If the last number is a multiple of 2 the number is even'. <p>OR</p> <p>An explanation which uses an example to illustrate that a number is odd if its last digit is odd (and vice versa), eg:</p> <ul style="list-style-type: none"> ■ '45 is odd because the last number is odd' ■ '74 is even because the 4 is even'. <p>OR</p> <p>An explanation, with evidence, which recognises that digits other than the last digit have no effect on a number being odd or even, eg:</p> <ul style="list-style-type: none"> ■ 'Tens are even, so only the units matter'. <div> <p>'Supplementary marking guidance' on pages 49–50 shows some responses which are acceptable and unacceptable for the mark.</p> </div>	<p>1m</p> <p>U1</p>	<p>Do not award the mark for circling 'Yes' alone.</p> <p>If 'No' is circled but a correct unambiguous explanation is given, then award the mark.</p> <p>Do not accept an explanation where an incomplete list of odd digits is given but the intention appears to be to provide a complete list, eg:</p> <ul style="list-style-type: none"> ■ 'If the last number is a 1, 3, 5 or 7 it is odd'. <p>Do not accept an explanation with an example that fails to demonstrate why the number is odd or even, eg:</p> <ul style="list-style-type: none"> ■ '45 is odd'. <p>Do not accept an explanation that provides no evidence that other digits have no effect, eg:</p> <ul style="list-style-type: none"> ■ 'The other digits don't make any difference, only the last one does' ■ 'The unit is the digit that tells you if a number is odd or even'.

Test 5B questions 19–25

Question	Requirement	Mark	Additional guidance
19	<p>Answer boxes completed as shown:</p> $\begin{array}{ c c } \hline 5 & 5 \\ \hline \end{array} \times \begin{array}{ c c } \hline 2 & 0 \\ \hline \end{array}$ <p>OR</p> $\begin{array}{ c c } \hline 5 & 0 \\ \hline \end{array} \times \begin{array}{ c c } \hline 2 & 2 \\ \hline \end{array}$ <p>OR</p> $\begin{array}{ c c } \hline 4 & 4 \\ \hline \end{array} \times \begin{array}{ c c } \hline 2 & 5 \\ \hline \end{array}$	1m	<p>Accept numbers written in either order.</p> <p>Do not accept an answer that includes a 3-digit number.</p>
20	<p>Rectangle completed as shown:</p> 	1m	<p>Accept slight inaccuracies in drawing, provided the intention is clear.</p> <p>Vertices must be within 2mm of the correct grid points.</p>
21	<p>Three numbers circled as shown:</p> <p>$\textcircled{4}$ 7 24 $\textcircled{25}$ $\textcircled{36}$ 40</p>	1m	<p>All three numbers must be circled for the award of the mark.</p> <p>Accept any other clear way of indicating the correct numbers, such as ticking or underlining.</p>
22	15	1m $\textcircled{\text{U1}}$	
23a	14	1m	
23b	$\frac{8}{40}$ OR $\frac{1}{5}$	1m	Accept equivalent fractions, decimals or percentages, eg 0.2 or 20%
24	12	1m	Do not accept 12%
25	<p>Award TWO marks for the correct answer of 22</p> <p>If the answer is incorrect, award ONE mark for evidence of appropriate method, eg</p> $80 - 7 - 7 = 66$ $66 \div 3$ <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>'Supplementary marking guidance' on page 45 shows some responses which are acceptable and unacceptable for the mark.</p> </div>	<p>Up to 2m</p> <p>$\textcircled{\text{U1}}$</p>	<p>If both marks are awarded, record by entering 1 in each marking space.</p> <p>An answer need not be given for the award of ONE mark.</p> <p>Award ONE mark by entering 1, 0 in the marking spaces.</p>

Test 5B questions 26–27

Question	Requirement	Mark	Additional guidance
26	<p>Award TWO marks for the correct answer of 107°</p> <p>If the answer is incorrect, award ONE mark for evidence of appropriate method, eg</p> <p>$34 + 39 = 73$ $180 - 73$</p> <p>'Supplementary marking guidance' on page 46 shows some responses which are acceptable and unacceptable for the mark.</p>	Up to 2m	<p>If both marks are awarded, record by entering 1 in each marking space.</p> <p>An answer need not be given for the award of ONE mark.</p> <p>Award ONE mark by entering 1, 0 in the marking spaces.</p>
27a	500 AND 600	1m	Accept numbers in either order.
27b	45 AND 55	1m	Accept numbers in either order.
Maximum 35 marks			

Supplementary marking guidance for Tests 5A and 5B

This section includes examples of responses to three types of questions – those in Test 5A containing a working mark (pages 39–43), those in Test 5B containing a method mark (pages 44–46), and those in Tests 5A and 5B that require an explanation (pages 47–50).

Questions containing a working mark

For the award of one mark, pupils are required to:

- show a complete and correct method which reaches an answer, **or**
- record an answer that is accepted as evidence of a complete and correct method.

Examples of responses from Test 5A question 5

1 mark

0 marks

Rachel has identified that she needs to add together the number of children in Class 1 and Class 2, and then subtract her answer from the total number of children in the school. Although she made an arithmetic error in the first of these calculations, she has recorded a complete and correct method so can be awarded one mark. Charlie has also added together the number of children in Class 1 and Class 2. However, he has not recorded any further working. While it is possible that his answer of 35 was found by attempting to work out $78 - 53$, this cannot be assumed. Therefore his method is incomplete and cannot be awarded one mark.

Rachel

$$23 + 30 = 63$$

$$78 - 63 = 15$$

15

1

0

Charlie

$$\begin{array}{r} 23 \\ + 30 \\ \hline 53 \end{array}$$

35

0

0

Tanya has not recorded the addition of 23 and 30, but we can assume that she has done this since she recorded the correct answer 53 in her subsequent subtraction. She made an arithmetic error when subtracting 53 from 78, and reached an incorrect final answer. However, she can be awarded one mark since we can assume from her working that she used a complete and viable method. Rohan has recorded a correct method. However, an answer is required for the award of the working mark in the non-calculator paper. Therefore, without an answer, Rohan cannot be awarded one mark.

Tanya

$$78 - 53 = 15$$

15

1

0

Rohan

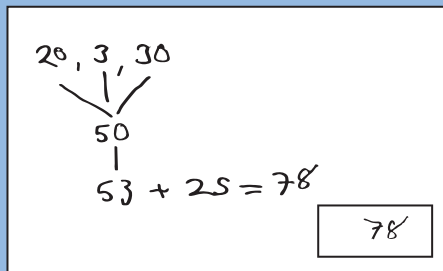
$$\begin{array}{r} 30 \\ + 23 \\ \hline 53 \end{array} \quad \begin{array}{r} 78 \\ - 53 \\ \hline \end{array}$$

0

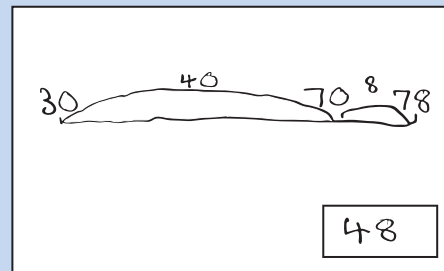
0

Examples of responses from Test 5A question 5 – continued**1 mark****0 marks**

Benjamin has recorded a complete and correct method, without any errors. However, he has copied the wrong number from his final calculation into the answer box, resulting in an incorrect final answer. While he cannot be awarded both marks for a correct answer, he can be awarded one mark for a complete and correct method. Sameena has used a number line to count up to 78. However, she failed to total the two classes first, and instead counted up from 30, the number of children in Class 2. Therefore her working is not correct and she cannot be awarded one mark.

**Benjamin**

1
0

**Sameena**

0
0

Examples of responses from Test 5A question 14**1 mark****0 marks**

Sophie has not recorded how she found the difference between £5 and 40p. However, the presence of £4.60 in her written calculation is sufficient evidence that she did this. She recorded the correct second stage of her method, but made an arithmetic error to reach an incorrect final answer. Despite this error, she can be awarded one mark since we can assume that she used a complete and viable method. Joel subtracted 40p from £5.00 to give £4.60. However, he failed to record any more working. While it is quite possible that his answer of £1.20 was the result of attempting to divide £4.60 by four, this cannot be assumed. Joel cannot be awarded one mark since we cannot assume that his method was either complete or viable.

Sophie

$$£4.60 \div 4 =$$

£1.85

☐ 1
☐ 0

Joel

$$£5.00 - 40p = £4.60$$

£1.20

☐ 0
☐ 0

Akash correctly recorded both of the stages required for a correct method. However, he made an arithmetic error when completing the second stage and reached an incorrect final answer. Despite this error, his working is complete and correct, so he can be awarded one mark. Chantelle failed to carry out the first step in the calculation, instead dividing £5.00 by 4. She cannot be awarded one mark as her working is incorrect.

Akash

$$\begin{array}{r}
 £5.00 - \\
 40p = £4.60 \\
 \hline
 1.25 \\
 4 \overline{)4.60}
 \end{array}$$

£1.25

☐ 1
☐ 0

Chantelle

$$\begin{array}{r}
 1.25 \\
 \hline
 4 \overline{)5.00}
 \end{array}$$

£125

☐ 0
☐ 0

Examples of responses from Test 5A question 23

1 mark

0 marks

Sean has successfully managed to calculate the weight of the three square blocks. He subtracted his answer from 50g to find the weight of the two circular blocks, and then halved this answer to find the weight of one circular block. While he made an arithmetic error in completing the subtraction, his working is correct and complete and he can therefore be awarded one mark. Judith has carried out the first two of these steps correctly, to calculate the total weight of the two circular blocks. However, she has not completed the problem by finding the weight of a single circular block. She therefore cannot be awarded one mark since her method is incomplete.

$$12 \times 3 = 36$$

$$50 - 36 = 14$$

$$14 \div 2 = 7$$

each  weighs 12 g

Sean

1

0

$$12 + 12 + 12 = 36$$

$$50 - 36 = 14$$

each  weighs 14 g

Judith

0

0

Kian attempted to work out the weight of three square blocks, but made an arithmetic error when doing this. We can assume that he used a mental method to find the difference between his answer 33 and 50g, since his second multiplication includes the number 17. He then used a correct mental method to halve 17 to reach a final answer of $8\frac{1}{2}$. Despite the arithmetic error in the first stage of his method, it can be assumed that he used a complete and viable method. Kian can be awarded one mark. Megan has also worked out the weight of the three square blocks. However, she has failed to find the difference between this answer and 50, instead halving her answer of 36. Her method is not correct, so she cannot be awarded one mark.

$$3 \times \text{square} = 33$$

$$2 \times \text{circle} = 17$$

each  weighs $8\frac{1}{2}$ g

Kian

1

0

$$12 \times 3 = 36$$

$$36 \div 2 = 18$$

each  weighs 18 g

Megan

0

0

Examples of responses from Test 5A question 26**1 mark****0 marks**

Rahima has used a grid method to show her working. Rahima's work clearly shows her understanding of place value and her ability to interpret the numbers on the grid. Although she has made an error when trying to multiply 50 by four, her error is not in the understanding of the place value. Her method is complete and correct, and she can be awarded one mark. Toby has used a conventional algorithm to find the answer. His working shows an error in place value since he has omitted the zero when multiplying 56 by 20. He therefore cannot be awarded one mark.

Rahima

X	20	4	
50	1000	250	= 1250
6	120	24	= 144

$$\begin{array}{r} 1250 \\ 144 \\ \hline 1394 \end{array}$$

1394

1

0

Toby

$$\begin{array}{r} 56 \\ \times 24 \\ \hline 224 \\ 1120 \\ \hline 336 \end{array}$$

336

0

0

Both Josh and Leah have chosen to partition the numbers to assist with the multiplication. Josh calculated 56×20 correctly but made an error when attempting to calculate 56×4 . However, his method is complete and correct since his error is not in his understanding of place value. He can be awarded one mark. Leah has only partially applied the method she has chosen to use. She has failed to recognise that she also needs to add the totals of 20 multiplied by 6 and 50 multiplied by 4 to 1024 to obtain the correct answer. Her method is not complete or correct, and she cannot be awarded one mark.

Josh

$$\begin{array}{l} 56 \times 20 = 1120 \\ 56 \times 4 = 124 \\ \hline 1244 \end{array}$$

1244

1

0

Leah

$$\begin{array}{l} 50 \times 20 = 1000 \\ 6 \times 4 = 24 \\ \hline 1024 \end{array}$$

0

0

Questions containing a method mark

For the award of one mark, pupils are required to:

- show a complete and correct method (although the final answer need not be written), or
- record an answer that is accepted as evidence of a complete and correct method.

Examples of responses from Test 5B question 17b**1 mark****0 marks**

Both Mike and Liz have used a proportional method, dividing 120 by 80 to get an answer of 1.5. Mike has attempted to multiply his answer by 100. Therefore he can be awarded one mark for recording a complete and viable method. Liz stopped after the first stage in her method, failing to multiply her answer by 100. Her method is therefore incomplete and she cannot be awarded one mark.

$$120 \div 80 = 1.5$$

$$1.5 \times 100 = 15$$

15 g

Mike

①

①

$$120 \div 80 = 1.5$$

$1\frac{1}{2}$ g

Liz

①

①

Anna has used a trial and improvement method to answer this question. She has correctly calculated the cost for 300g of cherries and the cost for 200g of cherries. Her working records several stages, which demonstrates evidence of improvement. She can therefore be awarded one mark for a viable method, since a final answer is not needed for the award of one mark. Moya has shown that 80p would buy 100g of cherries, and therefore that 40p would buy 50g. However, rather than adding 100g and 50g, she incorrectly added 80p and 40p. She cannot be awarded one mark since the final step in her method was not appropriate to solve the problem.

$$100\text{g} = 80\text{p}$$

$$300\text{g} = £2.40$$

$$200\text{g} = £1.60$$

g

Anna

①

①

$$80\text{p for } 100\text{grams}$$

$$40\text{p for } 50\text{grams}$$

$$80 + 40 = 120$$

120 g

Moya

①

①

Examples of responses from Test 5B question 25**1 mark****0 marks**

Bindiya and Kevin have both identified the need to add together the length of the two gaps and then find the difference between their answer and 80cm, the total length of the line. Bindiya continued her method to attempt to find the length of a single block, but made an arithmetic error to reach an incorrect final answer. Despite this error, she has used a complete and viable method, so can be awarded one mark. Unlike Bindiya, Kevin has not attempted to calculate the length of a single block. Therefore his method is not complete so he cannot be awarded one mark.

Bindiya

$$\begin{array}{r}
 7+7=14\text{cm} \\
 23\text{cm} = \text{block} \\
 \begin{array}{r}
 +23 \\
 23 \\
 \hline
 66 \\
 \hline
 80
 \end{array}
 \end{array}$$

23 cm

1

0

Kevin

$$\begin{array}{l}
 7+7=14 \\
 80-14=66
 \end{array}$$

66 cm

0

0

Jo has not recorded a method for finding the difference between 80 and two lots of seven, but we can assume that she did this since she recorded the correct answer 66 in her subsequent division. She has recorded the division $66 \div 3$ to find the length of a single block. Jo can be awarded one mark for recording a method that we can assume to be correct and complete; in the calculator-allowed test she is not required to give a final answer for the award of one mark. Ramona has also subtracted the length of the gaps from 80cm to give 66cm. However, she has then divided 66 by 2 instead of 3. She cannot be awarded one mark, since the final stage of her method is not correct.

Jo

$$66 \div 3$$

cm

1

0

Ramona

$$\begin{array}{l}
 80-14=66 \\
 66 \div 2 = 33
 \end{array}$$

33 cm

0

0

Examples of responses from Test 5B question 26**1 mark****0 marks**

Although Sarah has not recorded the first part of her method, we can assume that she has added 34 and 39 to make 73. She has then identified a correct method to find the third angle in the triangle. Although she has made an arithmetic error in completing this calculation, her method is complete and correct. Sarah can be awarded the mark. Carlos has correctly identified that he needs to add together the two given angles of the triangle, but has then subtracted his total from 360 instead of 180. His method is therefore incorrect. He cannot be awarded one mark.

$$180 - 73 = 117$$

Sarah

①

①

117°

$$\begin{array}{r} 34 \quad 360 \\ + 39 \quad - 73 \\ \hline 73 \quad 287 \end{array}$$

Carlos

①

①

287°

Adam's working shows evidence that he understood the correct steps required to reach the answer. He has attempted to add the two given angles together, and has then subtracted the total from 180 to find angle x . Although he made an error in his addition, his method is complete and correct. Adam can be awarded the mark. Sharon has correctly added 34 and 39 to give a total of 73. However, she has not continued to find the size of the third angle, and there is no evidence that she knows the correct rule for the angle sum of a triangle. Her method is not complete and she cannot be awarded one mark.

$$\begin{array}{l} 34 + 39 = 63 \\ 180 - 63 = 117 \end{array}$$

Adam

①

①

117°

$$34 + 39 = 73$$

Sharon

①

①

°

Questions requiring an explanation

For the award of the mark, pupils may provide evidence in any form, including diagrams, symbols or words. If the incorrect option ('Yes' or 'No') is circled, the mark should still be awarded if a correct and unambiguous explanation is given.

Examples of responses from Test 5A question 25

The mark scheme separates the types of acceptable answer to this question into two categories. The responses included in the first category compare the two objects (spinner and dice) in order to show why an odd number is more likely on the spinner. However, pupils at this age will rarely explain the behaviour of both objects in their answer. An explanation which deals with one or other object unambiguously may also be acceptable, provided that the response highlights that an odd number on the spinner is more likely than on the dice. Examples of such responses are included in the second category in the mark scheme.

1 mark**0 marks**

Simon has pointed out that the extra even number on the dice means that an odd number being spun on the spinner is more likely. He has successfully managed to isolate the difference between the two objects that results in the fact that an odd number is more likely on the spinner. He can therefore be awarded the mark. While Karen compares the two objects and identifies a difference, there is not enough evidence in her explanation to suggest that she understands why an odd number is more likely on the spinner. She cannot be awarded the mark.

Simon

☒ Yes / ☐ No

Because on a dice there is one more number and that number is even, therefore you are more likely to get a odd number on the spinner than on the dice.

1

Karen

☒ Yes / ☐ No

because on the dice 6 is the last number on spinner 5 is.

0

Rita recognises that most of the numbers on the spinner are odd. As this is not true in the case of the dice, her explanation accounts for why an odd number is more likely in the case of the spinner than the dice. She is therefore awarded the mark. Matthew's explanation, on the other hand, only compares the number of numbers on the two objects. He does not explain why an odd number is more likely on the dice than the spinner, and cannot be awarded the mark.

Rita

☒ Yes / ☐ No

there are more odd numbers than even numbers on the spinner.

1

Matthew

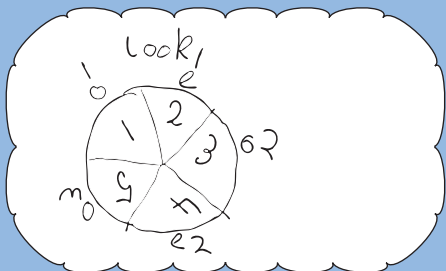
☒ Yes / ☐ No

The dice has more numbers than the spinner

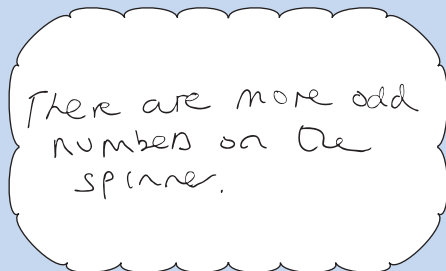
0

Examples of responses from Test 5A question 25 – continued**1 mark****0 marks**

Kate has used a diagram in order to answer the question, and this is a perfectly acceptable method of communication. She has identified in her drawing that there are 3 odd numbers and 2 even numbers on the spinner. This is sufficient for the mark. Roger has stated that there are more odd numbers on the spinner. His answer is ambiguous as it is unclear whether he means that there are more odd numbers than even numbers on the spinner (a correct answer) or more odd numbers on the spinner than on the dice (an incorrect answer). Roger cannot be awarded the mark.



Kate
☒ Yes / ☐ No
1



Roger
☒ Yes / ☐ No
0

Examples of responses from Test 5B question 18

The mark scheme separates the types of acceptable answer to this question into three categories. The first of these contains answers that show that, provided the last digit of a number is odd, the number must be odd. Pupils do not need to attempt to give a list of the odd digits – simply stating that a number is odd if its last digit is odd is sufficient. However, if pupils do aim to give a complete list, the list must be complete and correct.

The second category contains responses where an example (typically a 2- or 3-digit number) is used as evidence. In such cases, simply providing an example of an odd number is not sufficient for the award of the mark. Pupils must point out that the number is odd because the last digit within the number is odd.

The final category consists of responses that recognise that values of digits other than the last digit are always even, and therefore it is the last digit that determines whether a number is odd or even. If no evidence is provided as to why digits other than the last digit have no effect, the mark cannot be awarded, as such an answer is essentially a repetition of information included in the question.

1 mark**0 marks**

Both Oliver and Naomi correctly indicated 'Yes' in response to the question and used examples to demonstrate their response. Oliver has given examples of an odd number and an even number, and has shown that it is the last digit that determines whether a number is odd or even. He can therefore be awarded the mark for a correct, unambiguous explanation. Naomi has given a correct example of an odd number. However, she has failed to demonstrate the precise properties of the number that make it odd or even. Her explanation does not address the statement in the question so cannot be awarded the mark.

Oliver
Yes / No

because if it was 160 then it would be even but if it was 161 then it would be odd and I only changed the end number.

1

Naomi
Yes / No

because let's take 27 that is an odd number

0

In her explanation, Natalie has clearly recognised that if the last digit of a number is odd, then the number must be odd. Although she indicated 'No' in response to the question, she can be awarded the mark since her explanation is correct and unambiguous. David has recorded a correct statement, saying that a number is odd if it ends in 5, and he has correctly indicated 'Yes'. However, his explanation cannot be regarded as complete since it does not take account of all possible odd digits. David cannot be awarded the mark.

Natalie
Yes / No

I know this because if the last number is odd, the number itself is odd.

1

David
Yes / No

Because if the end number is 5 it is an odd number.

0

Examples of responses from Test 5B question 18 – continued

1 mark	0 marks
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Abe has observed that multiples of 10 are even and has given an example of a multiple of 10 starting with an odd digit. He has shown that you do not need to look at any digit other than the last digit to check whether a number is odd. He can therefore be awarded the mark. Vicky has circled 'Yes' and has recorded a true statement. However, her statement is essentially a repetition of the statement in the question. Unlike Abe, she has failed to show why digits other than the last digit have no effect on a number being even or odd. Her explanation is therefore insufficient for the award of the mark.

Abe

☒ Yes / No

1

if you have the number 90
although 9 is odd 90 is not and
every multiple of ten is even so
you only look at the last one

Vicky

☒ Yes / No

0

I know, that it doesn't matter
about the numbers before all you
need to know is the last one.

Applying the mark scheme for the mental mathematics test

Please note that pupils should not be penalised if they record any information given in the question or show their working. Ignore any annotation, even if in the answer space, and mark only the answer. Accept an unambiguous answer written in the stimulus box or elsewhere on the answer sheet.

Full mark scheme information is given on pages 52–53. In addition, a ‘quick reference’ mark scheme is provided on pages 54–55. This is presented in a similar format to the pupil answer sheet.

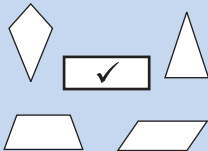
General guidance for marking the mental mathematics test

The general guidance for the marking of the written tests also applies to the mental mathematics test. In addition, please apply the principles below.

1. Unless otherwise stated in the mark scheme, accept answers written in words, or a combination of words and figures.
2. Where units are specified, they are given on the answer sheet. Do not penalise pupils for writing the units again.
3. Where answers need to be ringed and an incorrect response is indicated in addition to the correct response(s), the mark should not be awarded.

Mark scheme for the mental mathematics test

Questions 1–10

Question	Requirement	Mark	Additional guidance
Practice	18	None	
1	14	1m	
2	60	1m	
3	56	1m	
4	3.1	1m	
5	460	1m	
6	One shape ticked as shown: 	1m	Accept any other way of indicating the correct shape, such as circling.
7	95p	1m	Accept £0.95p OR £0-95p OR £0:95p OR £0 95p
8	Accept answer in the range 36 to 38 inclusive.	1m	
9	£2.05 OR 205p	1m	Accept £2.05p OR £2.05 pence OR £2-05 OR £2:05 OR £2 05 OR 2.05 OR 205 Do not accept £205p OR £205
10	10:00pm	1m	Accept 10 OR 10.00 OR ten OR 10 o'clock

Mark scheme for the mental mathematics test – continued

Questions 11–20

Question	Requirement	Mark	Additional guidance
11	2017	1m	
12	One answer circled as shown: $\frac{3}{6}$ $\frac{1}{30}$ $\frac{10}{30}$ $\frac{3}{12}$ $\frac{3}{4}$	1m	Accept any other clear way of indicating the correct answer, such as ticking or underlining.
13	–1	1m	Do not accept 1 OR 1–
14	12.5 OR $12\frac{1}{2}$	1m	Accept 12 and a half
15	50	1m	
16	2900	1m	
17	106	1m	
18	One answer circled as shown: 5g 56g 560g 5 600g 56 000g	1m	Accept any other clear way of indicating the correct answer, such as ticking or underlining.
19	2.5 OR $2\frac{1}{2}$	1m	
20	12	1m	Do not accept 12.5 OR $12\frac{1}{2}$ OR 12 rem 40
Maximum 20 marks			

Year 5 mental mathematics quick reference mark scheme

Practice question

	18
--	-----------

Time: 5 seconds

1	14
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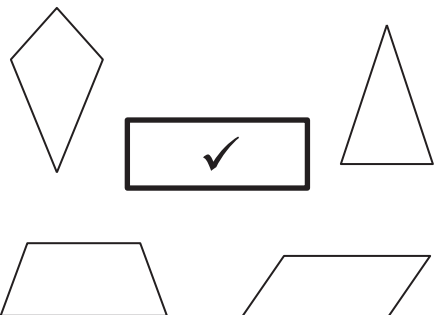
2	60
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3	56
----------	-----------

4	3.1
----------	------------

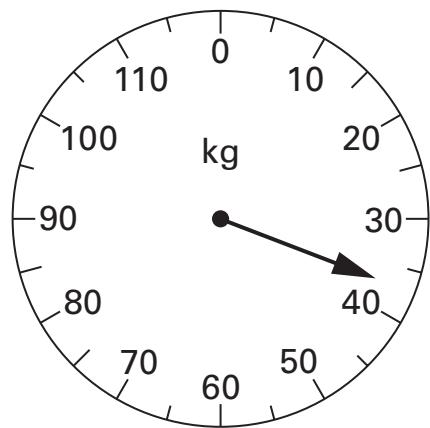
5	460
----------	------------

Time: 10 seconds

6	
----------	---

Time: 10 seconds continued

7	95 p	Accept £0.95p or £0 95p
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8	
	36 to 38 inclusive kg

9	Egg sandwich £ 1.65 Bananas 20p each
	£ 2.05 or 205p Accept 2.05 or 205

10	10:00 pm	Accept 10 or ten or 10 o'clock
-----------	-----------------	-----------------------------------

Time: 10 seconds continued

11	2017
----	------

12	$\frac{3}{6}$ $\frac{1}{30}$ $\frac{10}{30}$ $\frac{3}{12}$ $\frac{3}{4}$
----	--

13	-1 °C	Do not accept 1
----	-------	------------------------

14	12.5 or $12\frac{1}{2}$ cm	Accept 12 and a half
----	----------------------------	----------------------

15	50
----	----

Time: 15 seconds

16	2900
----	------

17	106
----	-----

18	5g 56g 560g 5600g 56000g
----	--

19	2.5 or $2\frac{1}{2}$
----	-----------------------

20	12
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Using the outcomes of the tests

Finding the level

The total mark from Test 5A, Test 5B and the **mental mathematics test** provides a level outcome ranging from level 3C to level 5B.

The level is calculated by adding up the marks gained from Test 5A, Test 5B and the mental mathematics test, and reading across to a level in the usual way.

Test 5A, Test 5B and mental mathematics test

Number of marks	0–22	23–31	32–39	40–47	48–56	57–64	65–73	74–80	81–90
level	below level 3C	level 3C	level 3B	level 3A	level 4C	level 4B	level 4A	level 5C	level 5B

Grids for test analysis

The questions in the mathematics tests are aimed at a variety of aspects of the Programme of Study for key stage 2, including Using and applying mathematics, and complement the National Numeracy Strategy Framework for teaching mathematics.

An analysis of incorrect answers and the ways in which pupils attempted these different types of question could give useful diagnostic information about the pupils' understanding of and ability to cope with the required mathematics. This information can help you plan future learning for the class, for groups and for individuals. The *Grids for test analysis*, included in the Teacher pack, give national curriculum references for each question, which will facilitate the analysis.

Age standardised scores

This section explains how to work out age standardised scores for mathematics.

Age standardised scores take into account the pupil's age in years and months, so you have an indication of how each pupil is performing relative to other pupils of the same age. It also means that the tests can be administered at different points in the school year (including, in the case of year 5 tests, in the first half of the autumn term in year 6) and comparative information still be obtained.

The standardised scores in this booklet cover the age range 9 years 5 months to 11 years 4 months. If you have decided to give the tests to pupils outside this range, you will not be able to use the tables. You will still be able to calculate national curriculum levels.

Calculating age standardised scores

To convert a pupil's total mark into an age standardised score:

- find the pupil's age in years and completed months at the time of testing
- locate his or her age in years and months along the top of the table
- locate the pupil's total mark down the left side of the table
- read off the standardised score from where the row and column meet.

Statistically, the average standardised score is 100. A higher score is above average and a score below 100 is below average. About two-thirds of pupils will have standardised scores between 85 and 115. Almost all pupils will fall within the range 70 to 130, so scores outside this range can be regarded as exceptional. Very low standardised scores are printed in the table as ***. This means that they would be below the lowest score in the table, but cannot be calculated with the necessary degree of statistical reliability. If an exact score is needed, 69 should be used for these pupils.

National comparisons – using the shaded bands

The tables of standardised scores are divided into five shaded bands. These bands indicate how the scores relate to the national population. The band nearest the top of the table contains the scores that correspond to the lowest fifth of the population; the next band, the next fifth; and so on. If a pupil has a score in the final band, you know that his or her score is in the top 20 per cent nationally, once age has been taken into account.

Making use of age standardised scores

If you choose to work out age standardised scores, you may use this additional information about the pupils' performance in various ways, for example:

- age standardised scores could be averaged across a group, for example a class or a year group. In the average school, year group or class, the mean score should be close to 100; if it is much above or below this, the performance of your class or school varies from the national average
- you may include it as part of the information to parents, for example an age standardised score of 112 shows that test performance was above average for his or her age
- you may be able to identify patterns or results which indicate teaching and learning issues to be addressed, eg the difference in older/younger pupils' performance
- similarly, age standardised scores can be used to consider differences in performance between boys and girls, or between pupils who have English as an additional language and those who do not. In order to provide useful information, these groups need to be reasonably large; small groups will not provide reliable information
- the progress made by an individual, a class or a school can be monitored from one year to the next. Age standardised scores can be calculated and reported for individual pupils. However, because of the nature of the scores and the fact that they are a statistical estimate (see 'Confidence bands' below) the scores are much more reliable when calculated for groups of pupils. In addition, if reported to parents, the fact that a pupil who is making typical progress from year to year will remain on a similar age standardised score will need to be explained.

Confidence bands

As the standardised scores in the table are derived from only one short test, some margin of error is inevitable, as is the case for all standardised tests. A margin of error does not mean pupils have been assessed incorrectly. It is simply a statistical estimate, based on the fact that tests sample only the particular areas of learning which they assess. To indicate how wide this margin of error is likely to be, a '90 per cent confidence band' has been calculated. This means that you can have 90 per cent certainty that the pupil's true score lies within the confidence band. In this case, the 90 per cent confidence band is 5. So, for example, if a pupil has a standardised score of 107 in mathematics, you can be 90 per cent certain that the true score is between 102 and 112.

Age standardised scores for pupils taking the year 5 tests

Total mark	Age in years and (completed) months											
	9.05	9.06	9.07	9.08	9.09	9.10	9.11	10.00	10.01	10.02	10.03	10.04
0	***	***	***	***	***	***	***	***	***	***	***	***
1	***	***	***	***	***	***	***	***	***	***	***	***
2	***	***	***	***	***	***	***	***	***	***	***	***
3	***	***	***	***	***	***	***	***	***	***	***	***
4	***	***	***	***	***	***	***	***	***	***	***	***
5	***	***	***	***	***	***	***	***	***	***	***	***
6	71	70	70	70	70	70	70	70	70	70	***	***
7	72	72	72	71	71	71	71	71	71	71	71	70
8	73	73	73	73	72	72	72	72	72	72	72	72
9	74	74	74	74	74	73	73	73	73	73	73	73
10	75	75	75	75	75	75	74	74	74	74	74	74
11	76	76	76	76	76	76	75	75	75	75	75	75
12	78	77	77	77	77	77	76	76	76	76	76	76
13	79	78	78	78	78	78	77	77	77	77	77	77
14	80	79	79	79	79	79	78	78	78	78	78	77
15	81	80	80	80	80	80	79	79	79	79	79	78
16	82	81	81	81	81	81	80	80	80	80	80	79
17	83	82	82	82	82	82	81	81	81	81	80	80
18	84	83	83	83	83	83	82	82	82	82	81	81
19	85	84	84	84	84	83	83	83	83	83	82	82
20	86	85	85	85	85	84	84	84	84	83	83	83
21	86	86	86	86	85	85	85	85	85	84	84	84
22	87	87	87	87	86	86	86	86	85	85	85	85
23	88	88	88	87	87	87	87	86	86	86	86	85
24	89	89	89	88	88	88	88	87	87	87	87	86
25	90	90	89	89	89	89	88	88	88	88	87	87
26	91	91	90	90	90	90	89	89	89	88	88	88
27	92	91	91	91	91	90	90	90	90	89	89	89
28	93	92	92	92	91	91	91	91	90	90	90	90
29	93	93	93	93	92	92	92	91	91	91	91	90
30	94	94	94	93	93	93	92	92	92	92	91	91
31	95	95	94	94	94	94	93	93	93	92	92	92
32	96	95	95	95	95	94	94	94	94	93	93	93
33	96	96	96	96	95	95	95	95	94	94	94	93
34	97	97	97	96	96	96	96	95	95	95	94	94
35	98	98	97	97	97	97	96	96	96	96	95	95
36	99	99	98	98	98	97	97	97	97	96	96	96
37	100	99	99	99	98	98	98	98	97	97	97	96
38	100	100	100	99	99	99	99	98	98	98	97	97
39	101	101	100	100	100	100	99	99	99	99	98	98
40	102	101	101	101	101	100	100	100	100	99	99	99
41	103	102	102	102	101	101	101	101	100	100	100	99
42	103	103	103	102	102	102	102	101	101	101	100	100
43	104	104	103	103	103	103	102	102	102	101	101	101
44	105	104	104	104	104	103	103	103	102	102	102	102

Age standardised scores for pupils taking the year 5 tests – continued

Total mark	Age in years and (completed) months											
	10.05	10.06	10.07	10.08	10.09	10.10	10.11	11.00	11.01	11.02	11.03	11.04
0	***	***	***	***	***	***	***	***	***	***	***	***
1	***	***	***	***	***	***	***	***	***	***	***	***
2	***	***	***	***	***	***	***	***	***	***	***	***
3	***	***	***	***	***	***	***	***	***	***	***	***
4	***	***	***	***	***	***	***	***	***	***	***	***
5	***	***	***	***	***	***	***	***	***	***	***	***
6	***	***	***	***	***	***	***	***	***	***	***	***
7	70	70	70	70	70	70	70	70	***	***	***	***
8	71	71	71	71	71	71	71	71	70	70	70	70
9	72	72	72	72	72	72	72	71	71	71	71	71
10	73	73	73	73	73	73	73	72	72	72	72	72
11	74	74	74	74	74	74	73	73	73	73	73	73
12	75	75	75	75	75	75	74	74	74	74	74	74
13	76	76	76	76	76	75	75	75	75	75	75	74
14	77	77	77	77	77	76	76	76	76	76	75	75
15	78	78	78	78	77	77	77	77	77	77	76	76
16	79	79	79	79	78	78	78	78	78	77	77	77
17	80	80	80	79	79	79	79	79	78	78	78	78
18	81	81	81	80	80	80	80	79	79	79	79	79
19	82	82	81	81	81	81	80	80	80	80	80	79
20	83	82	82	82	82	82	81	81	81	81	80	80
21	84	83	83	83	83	82	82	82	82	81	81	81
22	84	84	84	84	83	83	83	83	83	82	82	82
23	85	85	85	85	84	84	84	84	83	83	83	83
24	86	86	86	85	85	85	85	84	84	84	84	83
25	87	87	86	86	86	86	85	85	85	85	84	84
26	88	87	87	87	87	86	86	86	86	85	85	85
27	89	88	88	88	87	87	87	87	86	86	86	86
28	89	89	89	89	88	88	88	87	87	87	87	86
29	90	90	90	89	89	89	89	88	88	88	87	87
30	91	91	90	90	90	90	89	89	89	89	88	88
31	92	91	91	91	91	90	90	90	90	89	89	89
32	92	92	92	92	91	91	91	91	90	90	90	89
33	93	93	93	92	92	92	92	91	91	91	90	90
34	94	94	93	93	93	93	92	92	92	91	91	91
35	95	94	94	94	94	93	93	93	93	92	92	92
36	95	95	95	95	94	94	94	94	93	93	93	92
37	96	96	96	95	95	95	95	94	94	94	93	93
38	97	97	96	96	96	96	95	95	95	94	94	94
39	98	97	97	97	97	96	96	96	95	95	95	95
40	98	98	98	98	97	97	97	96	96	96	96	95
41	99	99	99	98	98	98	97	97	97	97	96	96
42	100	100	99	99	99	98	98	98	98	97	97	97
43	101	100	100	100	99	99	99	99	98	98	98	98
44	101	101	101	100	100	100	100	99	99	99	99	98

Age standardised scores for pupils taking the year 5 tests – continued

Total mark	Age in years and (completed) months											
	9.05	9.06	9.07	9.08	9.09	9.10	9.11	10.00	10.01	10.02	10.03	10.04
45	105	105	105	105	104	104	104	103	103	103	103	102
46	106	106	106	105	105	105	104	104	104	104	103	103
47	107	107	106	106	106	105	105	105	105	104	104	104
48	108	107	107	107	106	106	106	106	105	105	105	105
49	108	108	108	107	107	107	107	106	106	106	106	105
50	109	109	108	108	108	108	107	107	107	107	106	106
51	110	109	109	109	109	108	108	108	108	107	107	107
52	110	110	110	110	109	109	109	109	108	108	108	107
53	111	111	111	110	110	110	110	109	109	109	108	108
54	112	112	111	111	111	111	110	110	110	109	109	109
55	113	112	112	112	112	111	111	111	110	110	110	110
56	113	113	113	113	112	112	112	111	111	111	111	110
57	114	114	114	113	113	113	112	112	112	112	111	111
58	115	115	114	114	114	113	113	113	113	112	112	112
59	115	115	115	115	114	114	114	114	113	113	113	113
60	116	116	116	115	115	115	115	114	114	114	114	113
61	117	117	116	116	116	116	115	115	115	115	114	114
62	118	117	117	117	117	116	116	116	116	115	115	115
63	118	118	118	118	117	117	117	117	116	116	116	116
64	119	119	119	118	118	118	118	117	117	117	117	116
65	120	120	119	119	119	119	118	118	118	118	118	117
66	121	120	120	120	120	119	119	119	119	119	118	118
67	121	121	121	121	120	120	120	120	120	119	119	119
68	122	122	122	121	121	121	121	121	120	120	120	120
69	123	123	122	122	122	122	122	121	121	121	121	120
70	124	123	123	123	123	123	122	122	122	122	122	121
71	124	124	124	124	124	123	123	123	123	123	122	122
72	125	125	125	125	124	124	124	124	124	123	123	123
73	126	126	125	125	125	125	125	125	124	124	124	124
74	127	126	126	126	126	126	126	125	125	125	125	125
75	127	127	127	127	127	127	126	126	126	126	126	125
76	128	128	128	128	127	127	127	127	127	127	126	126
77	129	129	129	128	128	128	128	128	128	128	127	127
78	130	130	129	129	129	129	129	129	129	128	128	128
79	130	130	130	130	130	130	130	130	129	129	129	129
80	131	131	131	131	131	131	130	130	130	130	130	130
81	132	132	132	132	132	131	131	131	131	131	131	131
82	133	133	133	133	132	132	132	132	132	132	132	132
83	134	134	133	133	133	133	133	133	133	133	133	133
84	134	134	134	134	134	134	134	134	134	134	134	133
85	135	135	135	135	135	135	135	135	135	135	135	134
86	136	136	136	136	136	136	136	136	136	136	135	135
87	137	137	137	137	137	137	137	137	136	136	136	136
88	138	138	138	138	138	137	137	137	137	137	137	137
89	138	138	138	138	138	138	138	138	138	138	138	138
90	139	139	139	139	139	139	139	139	139	139	139	139

Age standardised scores for pupils taking the year 5 tests – continued

Total mark	Age in years and (completed) months											
	10.05	10.06	10.07	10.08	10.09	10.10	10.11	11.00	11.01	11.02	11.03	11.04
45	102	102	102	101	101	101	100	100	100	100	99	99
46	103	103	102	102	102	101	101	101	101	100	100	100
47	104	103	103	103	102	102	102	102	101	101	101	100
48	104	104	104	103	103	103	103	102	102	102	101	101
49	105	105	104	104	104	104	103	103	103	102	102	102
50	106	105	105	105	105	104	104	104	103	103	103	103
51	106	106	106	106	105	105	105	104	104	104	104	103
52	107	107	107	106	106	106	106	105	105	105	104	104
53	108	108	107	107	107	107	106	106	106	105	105	105
54	109	108	108	108	108	107	107	107	106	106	106	106
55	109	109	109	109	108	108	108	107	107	107	107	106
56	110	110	110	109	109	109	109	108	108	108	107	107
57	111	111	110	110	110	110	109	109	109	108	108	108
58	112	111	111	111	111	110	110	110	109	109	109	109
59	112	112	112	112	111	111	111	111	110	110	110	109
60	113	113	113	112	112	112	112	111	111	111	111	110
61	114	114	113	113	113	113	112	112	112	112	111	111
62	115	114	114	114	114	113	113	113	113	112	112	112
63	115	115	115	115	114	114	114	114	113	113	113	113
64	116	116	116	116	115	115	115	114	114	114	114	113
65	117	117	117	116	116	116	116	115	115	115	115	114
66	118	118	117	117	117	117	116	116	116	116	115	115
67	119	118	118	118	118	117	117	117	117	116	116	116
68	119	119	119	119	119	118	118	118	118	117	117	117
69	120	120	120	120	119	119	119	119	118	118	118	118
70	121	121	121	120	120	120	120	119	119	119	119	119
71	122	122	121	121	121	121	121	120	120	120	120	119
72	123	123	122	122	122	122	121	121	121	121	121	120
73	124	123	123	123	123	123	122	122	122	122	121	121
74	124	124	124	124	124	123	123	123	123	123	122	122
75	125	125	125	125	125	124	124	124	124	124	123	123
76	126	126	126	126	125	125	125	125	125	124	124	124
77	127	127	127	127	126	126	126	126	126	125	125	125
78	128	128	128	127	127	127	127	127	127	126	126	126
79	129	129	128	128	128	128	128	128	128	127	127	127
80	130	130	129	129	129	129	129	129	129	128	128	128
81	131	130	130	130	130	130	130	130	130	129	129	129
82	132	131	131	131	131	131	131	131	131	130	130	130
83	132	132	132	132	132	132	132	132	132	131	131	131
84	133	133	133	133	133	133	133	133	133	133	132	132
85	134	134	134	134	134	134	134	134	134	134	134	133
86	135	135	135	135	135	135	135	135	135	135	135	135
87	136	136	136	136	136	136	136	136	136	136	136	136
88	137	137	137	137	137	137	137	137	137	137	137	137
89	138	138	138	138	138	138	138	138	138	138	138	138
90	139	139	139	139	139	139	139	139	139	139	139	139

Guidance for teaching assistants

This guidance is for teaching assistants or other adults assisting in the administration of the year 5 optional mathematics tests. If a teaching assistant is to administer any part of the tests independently to a group of pupils, they will need to follow the administration instructions found in the main part of the Teacher's guide.

Please read this guidance carefully as it gives information about the different tests and specifies what help may or may not be given to pupils taking the tests. **If pupils are given too much help, the test results may be invalid.**

Each pupil will sit three tests: two written mathematics tests and a mental mathematics test. It is not recommended that all three tests are administered on the same day.

The written tests

There are two written tests, Test 5A (calculator not allowed) and Test 5B (calculator allowed). Calculators must be available for Test 5B. The tests contain mainly level 3 and level 4 questions but approximately one-fifth of the questions assess level 5. Each written test contains 35 marks and has a recommended time limit of 45 minutes.

Guidance for assisting pupils

You may:

- read the names of the three children on page 2 of the test booklet and explain that they will feature in some of the questions
- read through with them the instructions on page 3
- give help with reading words or sentences in the test questions
- give help with reading calculations, including numerals and symbols within them
- explain or rephrase general instruction words in the test, such as *complete* in question 27 in Test 5B
- explain or rephrase words used in everyday contexts, such as *percussion* in question 5 in Test 5B
- encourage pupils not to give up at the first difficult question because there may be easier questions further on
- indicate any omitted questions when pupils have finished that they should go back and try to answer.

You should not:

- give any help with the mathematics as this will invalidate the assessment
- suggest to the pupils the mathematical operation to use
- gives clues as to the meaning of mathematical terms, such as *symmetry* in question 6 in Test 5A
- rephrase the wording of the questions (except as indicated on page 64)
- prompt the pupils to confirm or change answers by pointing, frowning, smiling, head shaking or nodding, offering rubbers, or asking leading questions.

The mental mathematics test

The mental mathematics test is a recorded test consisting of a practice question and 20 timed questions. The test should be administered using the CD, although a transcript is provided on pages 16–19 in case of an equipment malfunction on the day of the test. It has an administration time of approximately 20 minutes.

The test starts with instructions to the pupils followed by the questions. There will be two opportunities for you to pause the recording. These will be indicated by a bleep. The first pause comes near the beginning of the recording, once the instructions have been given. This will allow clarification of any of the instructions not understood by the pupils. The second pause is after the practice question. After this second pause, the recording should be allowed to play without interruption.

You may:

- answer any questions pupils have after the first and second pause of the recording.

You should not:

- stop the recording after it has been restarted following the practice question.

Photocopiable pupil answer sheet

Year 5 mental mathematics test

Name Class

School

Total
marks

Practice question

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Time: 5 seconds

1	
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1

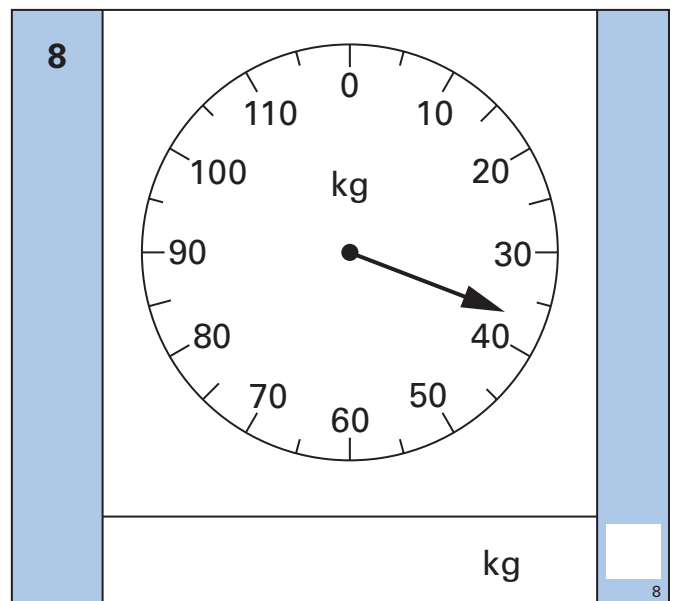
7	p	19p	5	7
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2		15	20	25	2
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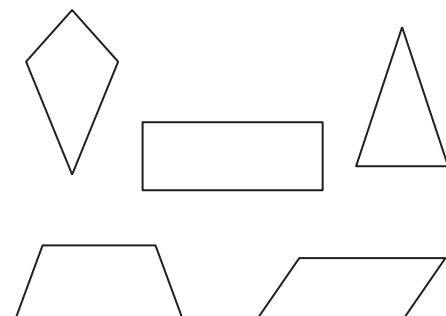
3		3
---	--	---

4		1.5	1.6	4
---	--	-----	-----	---

5		340	5
---	--	-----	---



Time: 10 seconds

6		6
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9	Egg sandwich £1.65 Bananas 20p each	9

10	pm	2:30pm	10
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Photocopiable pupil answer sheet

Time: 10 seconds continued

11		1999	18th	<div></div> <div>11</div>
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12	$\frac{3}{6}$	$\frac{1}{30}$	$\frac{10}{30}$	<div></div> <div>12</div>
	$\frac{3}{12}$	$\frac{3}{4}$		

13		°C	<div></div> <div>13</div>
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14	cm	50cm	<div></div> <div>14</div>
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15		75	<div></div> <div>15</div>
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Time: 15 seconds


16		1450	<div></div> <div>16</div>
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17		395	501	<div></div> <div>17</div>
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18	5g	56g	<div></div> <div>18</div>
	560g		
	5 600g	56 000g	

19		250	<div></div> <div>19</div>
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20		80p	<div></div> <div>20</div>
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 Curriculum and Standards	
Audience	Year 5 teachers
Circulation lists	
Type	Assessment materials
Description	
Cross ref	Key stage 1 ARA QCA/05/1636 Key stage 2 ARA QCA/05/1637
Action required	Teachers of year 5 should read before using optional tests to assess pupils
Timing	
Contact	
For school use	

For more information contact:

QCA, 83 Piccadilly, London, W1J 8QA

For more copies contact:QCA Orderline, PO Box 29, Norwich NR3 1GN
(telephone 08700 606015; fax 08700 606017)**Order ref:** QCA/06/1716 (mark schemes pack)

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