



Summative Reasoning Tests

Guidance and mark scheme
Spring term
Year 4

Ready to assess?

How much time should I give children to complete the test?

We suggest you allow 40–45 minutes per test, after providing children with a short introduction.

How should I set up my classroom?

Try to keep the conditions the same each time children undertake a test, to achieve fair and consistent results. Use your professional judgement and your school assessment policy to decide how best to organise the classroom conditions for your children. If you have any questions, check with your headteacher or key stage coordinator before conducting the test.

What resources can I give the children?

A pencil, a rubber (optional), ruler showing centimetres and millimetres and a mirror. Children may use bilingual dictionaries and/or electronic translators, if this is usual classroom practice. Children are not allowed to use calculators, tracing paper or any other supporting equipment to help them answer any question in the test (e.g. dienes materials, number squares or number lines).

What help can I give the children?

You may help children read the questions but you should not explain their meaning. You can read words and numbers but **not** mathematical symbols. This is to ensure that children are not given an unfair advantage by having the function unintentionally explained by reading its name. You may paraphrase any words which children are unfamiliar with (e.g. shaded or shade), and if the context of a question is unfamiliar to a child, you may describe the related context to them or show them related objects or pictures to help them. You will notice some questions have words highlighted in **bold**. This is to emphasise an important part of the question to the children (e.g. Use **all four** cards to make this number sentence correct). You may feel it appropriate to repeat these words or accentuate your voice if reading a question out loud to a child.

If a child requests or requires it, you may read a question to them or point to parts of the test paper such as charts, diagrams and statements, but you must not help them by explaining or interpreting questions. Below is an example of what you could say in response to a question from a child.

Child's question: "How do I work out the number that Emma started with?"

Teacher's response: "I can't tell you now but read the question again carefully and have another think about it. If you are still not sure what to do, don't worry, leave this question and move straight on to the next one. We can talk about it after the test."

Always encourage children to move onto the next question if they are struggling or have spent too long working on one question.

Consideration should be given to children with special educational needs. You may find it appropriate to administer the test one-to-one, in small groups or over a few sessions for some children.

How should I introduce the test?

At the start of each test paper there is an instruction section. You may read this with the children or provide them with a little time to read it quietly to themselves. You may explain any included points in more detail if necessary. You can help children to understand the format of the test, what they should do and where they should write their answer. Encourage the children to use the method box to work out their answers as they may pick up some marks for doing so.

The script below tells you what to say to the children at the start of the test and can be read word for word. It follows statutory guidance provided by the Standards & Testing Agency for live testing in 2016.

- You may use a ruler and a mirror to help you answer a question.
- You may **not** use a calculator or tracing paper.
- You have 40 minutes to complete the test/quiz.
- Read each question carefully before working out the answer.
- If you need help with the reading, put your hand up and I will come and help you.
- Some questions have a special answer box and this is where you must write your answer.
- Other questions need you to write your answer on a picture or in a table.
- There is lots of white space on each page. You can use it to write things down or draw pictures to help you work out an answer.
- Some questions have a method box. Make sure you use this to make notes and show your working out. You may get a mark for doing so.
- If you make a mistake, you should change your answer by crossing or rubbing it out.
- If you cannot do one of the questions, go onto the next one because it might be easier.
- You can go back to the harder ones later.
- You might not be able to answer all of the questions but that's okay! Try to answer as many as you can. Give them your best try!
- Don't talk about the questions with anyone. You must work on your own.
- You can take as long as you need to answer the questions that you can do.
- We will do one practice question all together. Then you will go on to do the rest of the questions on your own.

How do I mark the tests?

A mark scheme is provided for each test which provides detailed guidance and examples of acceptable responses.

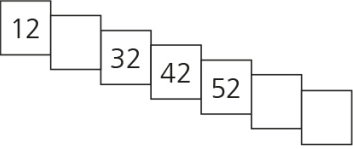

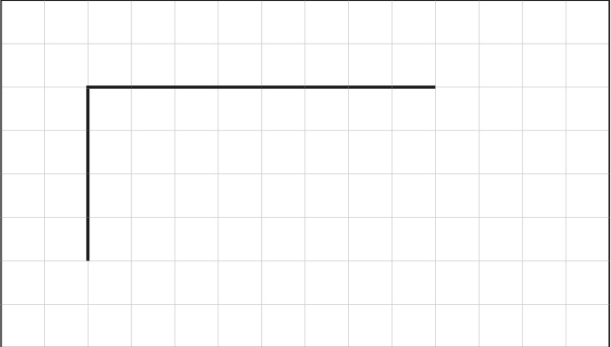

A table on the front page of each test allows you to record the child's total marks alongside the marks he/she has achieved in each year group section of the test. On each double-page spread, we have provided a 'Total out of _____' section, enabling you to easily tally up the child's total marks for the entire test.

Remember






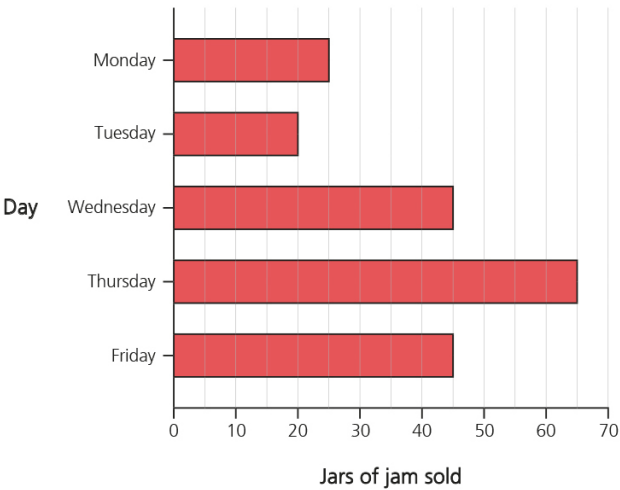
- For questions where a number response is expected, a mark/marks may be awarded if the child has provided the correct answer in words. Accept any reasonable attempt at spellings.
- Children may provide a response in any form as long as its meaning can be understood. Diagrams, symbols or words are acceptable when indicating a response. Use your professional judgement to decide if the child's response warrants a mark.
- For 2 mark questions, where a child misreads the information given and uses a different number to answer the question, 1 mark may still be awarded if a correct method is applied using the misread number. This only applies to questions worth 2 marks and the misread number used must be of comparable difficulty.
- If the child provides both correct and incorrect answers for a question, a mark can only be awarded if the child has clearly indicated the correct answer as their final choice.
- Do **not** give credit for a correct, crossed-out answer that has been replaced with an incorrect attempt.
- Do **not** give credit for a correct, crossed-out answer that has not been replaced.
- Give precedence to any answer written in the answer box over any other workings.

National curriculum content and mark allocation

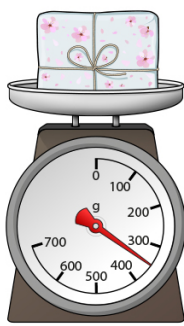

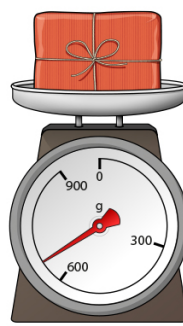
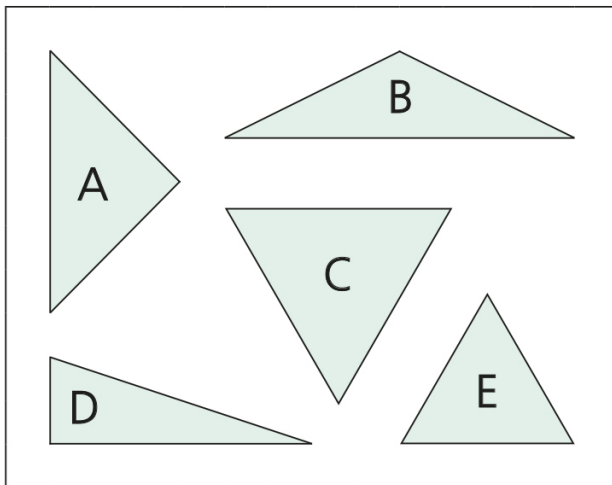

Paper 2 - Spring term - Reasoning test

	Question	Programme of study	Marks
Practice question	<p>Complete this sequence. Write the missing numbers in the boxes.</p> 	<p>Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward.</p>	0
1	<p>4 children share out 12 sweets.</p>  <p>How many sweets does each child get?</p>	<p>Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.</p>	1
2	<p>Look at the grid below. There are two lines drawn on the grid.</p> <p>Draw two more lines to make a rectangle.</p> 	<p>Identify and describe the properties of 2-D shapes, including the number of sides and symmetry in a vertical line.</p> <p>*Draw lines and shapes using a ruler.</p> <p>*Non-statutory but essential content.</p>	1
3	<p>Write the missing numbers in the boxes.</p> <p>1 hour = <input type="text"/> minutes</p> <p>1 day = <input type="text"/> hours</p> <p>1 week = <input type="text"/> days</p>	<p>Know the number of minutes in an hour and the number of hours in a day.</p>	1
4	<p>Write a digit in each box to make this sum correct.</p> <p><input type="text"/> 6 <input type="text"/> + <input type="text"/> = 75</p>	<p>Add and subtract numbers using concrete objects, pictorial representations, and mentally, including a two-digit number and ones.</p> <p>Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.</p>	1
5	<p>Emma and Malik share these coins between them so they both get the same amount of money.</p> <p>Draw around the coins that Emma could have.</p> 	<p>Find different combinations of coins that equal the same amounts of money.</p> <p>Combine amounts to make a particular value.</p>	1

Year 2

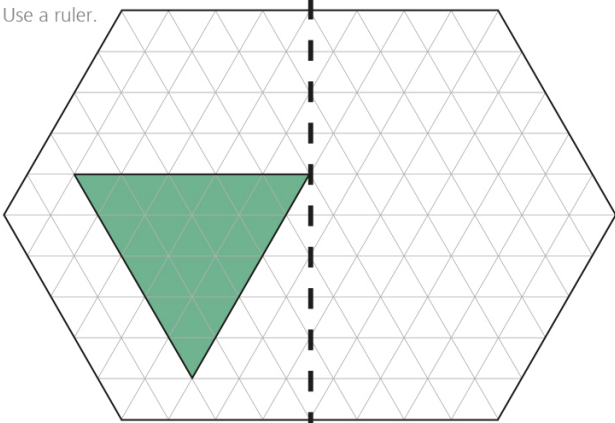

Question	Programme of study	Marks
<p>Look at the time on Jack's digital watch.</p>   <p>Draw the missing hands on Jack's other watch to show the same time.</p>	<p>Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks.</p>	2
<p>Look at the time on Malik's digital watch.</p>   <p>Draw the missing hands on Malik's other watch to show the same time.</p>		
<p>There are 26 cookies in a packet.</p>  <p>How many cookies would there be in 4 packets?</p>	<p>Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods.</p>	1
<p>This chart shows how many jars of jam a shop sold.</p>  <p>How many jars of jam did the shop sell on Friday? How many more jars of jam were sold on Thursday than Monday?</p>	<p>Interpret and present data using bar charts, pictograms and tables.</p> <p>Solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables.</p>	2
<p>Write the missing answers in the boxes.</p> <p>$\frac{1}{3}$ of 27 = <input type="text"/></p> <p>$\frac{2}{3}$ of 27 = <input type="text"/></p>	<p>Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators.</p>	2

Year 3

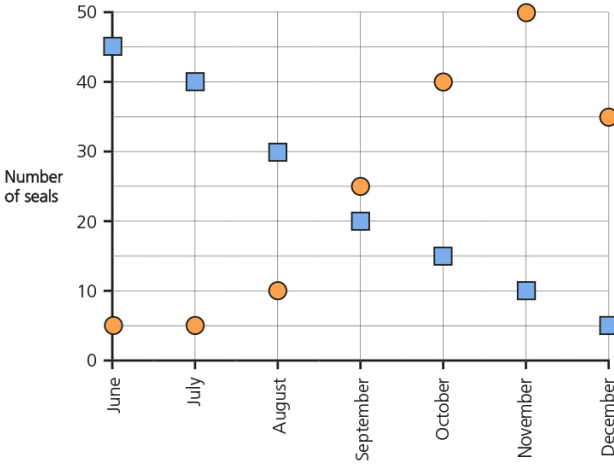














Question	Programme of study	Marks												
<p>10</p> <p>Look at the parcels on the weighing scales.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>Scale A</p>  </div> <div style="text-align: center;"> <p>Scale B</p>  </div> <div style="text-align: center;"> <p>Scale C</p>  </div> </div> <p>Order the scales from lightest to heaviest.</p>	<p>Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml).</p>	<p>1</p>												
<p>11</p> <p>Look at the five shapes on the grid.</p> <div style="border: 1px solid black; padding: 10px; width: fit-content; margin: 0 auto;">  </div> <p>Write the letters of all the triangles that are equilateral triangles.</p> <p>Write the letter of the triangle that has a right angle.</p>	<p>Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.</p>	<p>2</p>												
<p>12</p> <p>Circle one number in each of the boxes to make a total of 1000.</p> <div style="display: flex; flex-direction: column; align-items: center;"> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <table style="border-collapse: collapse;"> <tr><td style="padding: 5px 15px;">250</td><td style="padding: 5px 15px;">350</td></tr> <tr><td style="padding: 5px 15px;">450</td><td style="padding: 5px 15px;">550</td></tr> </table> </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <table style="border-collapse: collapse;"> <tr><td style="padding: 5px 15px;">100</td><td style="padding: 5px 15px;">300</td></tr> <tr><td style="padding: 5px 15px;">200</td><td style="padding: 5px 15px;">400</td></tr> </table> </div> <div style="border: 1px solid black; padding: 5px;"> <table style="border-collapse: collapse;"> <tr><td style="padding: 5px 15px;">150</td><td style="padding: 5px 15px;">250</td></tr> <tr><td style="padding: 5px 15px;">350</td><td style="padding: 5px 15px;">450</td></tr> </table> </div> </div>	250	350	450	550	100	300	200	400	150	250	350	450	<p>Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate.</p>	<p>1</p>
250	350													
450	550													
100	300													
200	400													
150	250													
350	450													
<p>13</p> <p>Malik and Emma shared a pizza. They ate all of the pizza.</p>  <p>Emma ate $\frac{3}{5}$ of the pizza.</p> <p>What fraction did Malik eat?</p>	<p>Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number.</p>	<p>1</p>												

Year 3

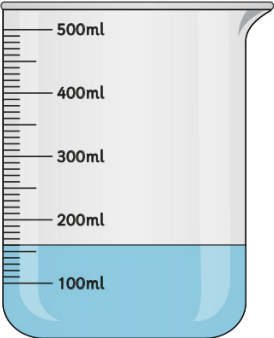
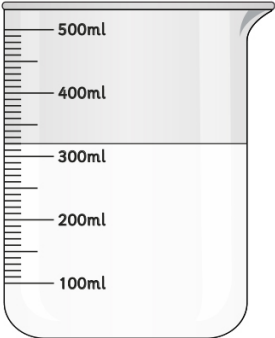
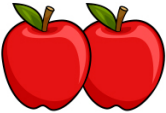
Year 4

	Question	Programme of study	Marks																					
14	Look at the number written in Roman numerals. LXI Write this number in digits.	Read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.	1																					
15	Complete the multiplication table. <table border="1" data-bbox="217 376 834 651"> <tr> <td>×</td> <td>7</td> <td></td> <td>2</td> </tr> <tr> <td>4</td> <td>28</td> <td>12</td> <td></td> </tr> <tr> <td>8</td> <td>56</td> <td></td> <td>16</td> </tr> <tr> <td>6</td> <td></td> <td>18</td> <td>12</td> </tr> </table>	×	7		2	4	28	12		8	56		16	6		18	12	Recall multiplication and division facts for multiplication tables up to 12×12 .	2					
×	7		2																					
4	28	12																						
8	56		16																					
6		18	12																					
16	Write these prices in order from smallest to largest. £6.24 64p £4.62 £0.62 £6.42	Estimate, compare and calculate different measures, including money in pounds and pence.	1																					
17	Draw a line to match each number sentence to the correct answer. One has been done for you. <table border="0" data-bbox="217 824 834 1323"> <tr> <td></td> <td></td> <td style="border: 1px solid black; border-radius: 10px; padding: 5px;">0.45</td> </tr> <tr> <td></td> <td></td> <td style="border: 1px solid black; border-radius: 10px; padding: 5px;">450</td> </tr> <tr> <td style="border: 1px solid black; border-radius: 10px; padding: 5px;">$45 \div 10 =$</td> <td style="border: 1px solid black; border-radius: 10px; padding: 5px;">—</td> <td style="border: 1px solid black; border-radius: 10px; padding: 5px;">0.045</td> </tr> <tr> <td style="border: 1px solid black; border-radius: 10px; padding: 5px;">$45 \div 100 =$</td> <td style="border: 1px solid black; border-radius: 10px; padding: 5px;">—</td> <td style="border: 1px solid black; border-radius: 10px; padding: 5px;">45</td> </tr> <tr> <td style="border: 1px solid black; border-radius: 10px; padding: 5px;">$4.5 \div 100 =$</td> <td style="border: 1px solid black; border-radius: 10px; padding: 5px;">—</td> <td style="border: 1px solid black; border-radius: 10px; padding: 5px;">4500</td> </tr> <tr> <td style="border: 1px solid black; border-radius: 10px; padding: 5px;">$450 \div 10 =$</td> <td style="border: 1px solid black; border-radius: 10px; padding: 5px;">—</td> <td style="border: 1px solid black; border-radius: 10px; padding: 5px;">4.5</td> </tr> <tr> <td></td> <td></td> <td style="border: 1px solid black; border-radius: 10px; padding: 5px;">1.45</td> </tr> </table>			0.45			450	$45 \div 10 =$	—	0.045	$45 \div 100 =$	—	45	$4.5 \div 100 =$	—	4500	$450 \div 10 =$	—	4.5			1.45	Find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths.	2
		0.45																						
		450																						
$45 \div 10 =$	—	0.045																						
$45 \div 100 =$	—	45																						
$4.5 \div 100 =$	—	4500																						
$450 \div 10 =$	—	4.5																						
		1.45																						
18	Draw the reflection of the shaded shape in the mirror line. Use a ruler. 	Complete a simple symmetric figure with respect to a specific line of symmetry.	1																					
19	A sheet has 150 stickers on it. 6 children take 3 stickers each. How many stickers are left on the sheet? 	Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.	2																					

Year 4

Question	Programme of study	Marks																								
<p>The graph below shows the number of harbour seals and grey seals at Seal Point between June and December.</p> <div data-bbox="215 271 395 398"> <p>Key</p> <ul style="list-style-type: none"> ■ = harbour seals ● = grey seals </div> <div data-bbox="215 434 831 994"> <p style="text-align: center;">Number of seals counted at Seal Point</p>  <table border="1" data-bbox="215 481 831 952"> <caption>Number of seals counted at Seal Point</caption> <thead> <tr> <th>Month</th> <th>Harbour seals</th> <th>Grey seals</th> </tr> </thead> <tbody> <tr> <td>June</td> <td>45</td> <td>5</td> </tr> <tr> <td>July</td> <td>40</td> <td>5</td> </tr> <tr> <td>August</td> <td>30</td> <td>10</td> </tr> <tr> <td>September</td> <td>20</td> <td>25</td> </tr> <tr> <td>October</td> <td>15</td> <td>40</td> </tr> <tr> <td>November</td> <td>10</td> <td>50</td> </tr> <tr> <td>December</td> <td>5</td> <td>35</td> </tr> </tbody> </table> <p>How many more harbour seals than grey seals were there in July?</p> </div>	Month	Harbour seals	Grey seals	June	45	5	July	40	5	August	30	10	September	20	25	October	15	40	November	10	50	December	5	35	<p>Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.</p> <p>Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.</p>	1
Month	Harbour seals	Grey seals																								
June	45	5																								
July	40	5																								
August	30	10																								
September	20	25																								
October	15	40																								
November	10	50																								
December	5	35																								
<p>A shop sells trainers.</p> <table border="1" data-bbox="215 1104 531 1563"> <tbody> <tr> <td></td> <td>£12.45</td> </tr> <tr> <td></td> <td>£20.65</td> </tr> <tr> <td></td> <td>£15.50</td> </tr> <tr> <td></td> <td>£10.85</td> </tr> </tbody> </table> <p>What is the difference between the most expensive and the least expensive pair of trainers?</p> <p>The shop also sells footballs for £6.30</p> <div data-bbox="215 1720 411 1816">  <p>Football £6.30</p> </div> <div data-bbox="215 1850 456 1928">  <p>Trainers £12.45</p> </div> <p>Malik buys the trainers that cost £12.45 and a football. How much change will he get from a £20 note?</p>		£12.45		£20.65		£15.50		£10.85	<p>Estimate, compare and calculate different measures, including money in pounds and pence.</p>	3																
	£12.45																									
	£20.65																									
	£15.50																									
	£10.85																									

Year 4

Question	Programme of study	Marks
<p>22</p> <p>Look at the measuring jugs below. Jug A has water in it. Jug B has milk in it.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>Jug A</p>  </div> <div style="text-align: center;"> <p>Jug B</p>  </div> </div> <p>How much more milk is there than water?</p>	<p>Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.</p>	1
<p>23</p> <p>Malik chooses a number. He adds 20 to the number. Then, he divides his answer by 4 and adds 2. His final answer is 10.</p> <p>What was the number he started with?</p>	<p>Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign.</p>	2
<p>24</p> <p>Malik buys 2 apples. The apples cost the same price. He pays with a £5 note and gets £3.80 change.</p> <p>What is the cost of 1 apple?</p> <div style="text-align: center; margin-top: 10px;">  </div>	<p>Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.</p> <p>Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign.</p>	2

Year 5

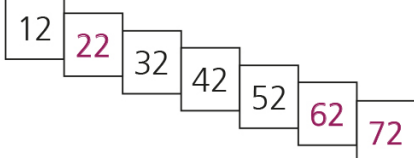
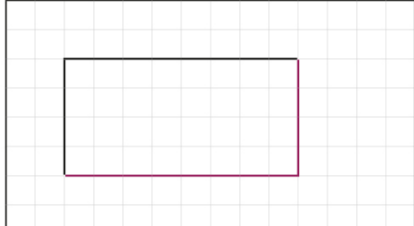
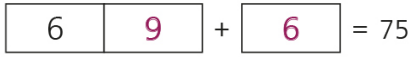
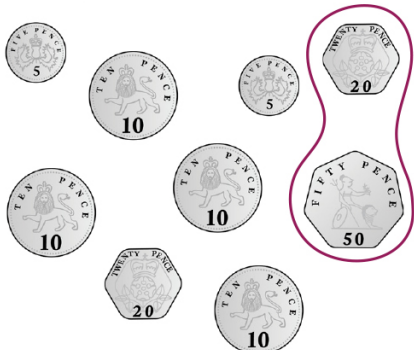
Mark allocation at a glance

Area of maths	Marks available
Number and calculation	16
Measurement	12
Geometry	4
Statistics	3



Year group	Marks available
Year 2	5
Year 3	8
Year 4	17
Year 5	5

Mark scheme

Paper 2 - Spring term - Reasoning test

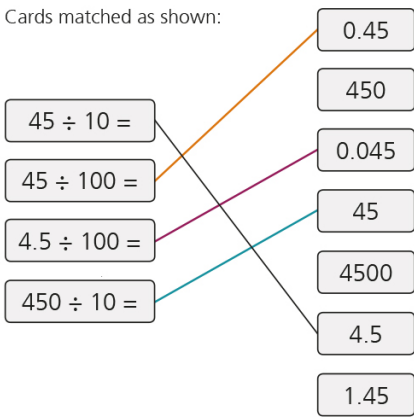
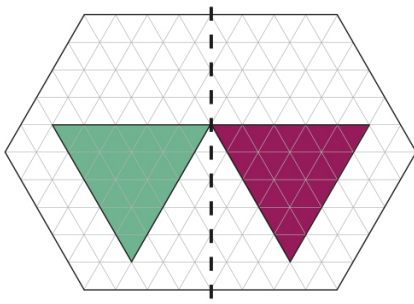
	Answer	Marking guidance	Marks
Practice question	<p>Answers provided as shown:</p> 	This is a practice question, no marks can be awarded.	0
1	3 sweets or three sweets	<p>Award one mark for each correct answer.</p> <p>If the child writes their answer in words, you may accept any reasonable attempt at the spelling.</p>	1
2	<p>Lines drawn as shown:</p> 	<p>You may accept slight inaccuracies in the child's drawing if their intention is clear.</p> <p>Do not penalise drawings done without a ruler, provided the child's intention is clear.</p>	1
3	<p>Numbers provided as shown:</p> <p>1 hour = <input type="text" value="60"/> minutes</p> <p>1 day = <input type="text" value="24"/> hours</p> <p>1 week = <input type="text" value="7"/> days</p>	<p>All three numbers must be provided, in the correct boxes, for one mark to be awarded.</p>	1
4	<p>A number of combinations are possible.</p> <p>For example:</p> 	<p>Award one mark for any correct combination of numbers which make a total of 75.</p> <p>Any of the following answers are acceptable:</p> <ul style="list-style-type: none"> • $66 + 9 = 75$ • $67 + 8 = 75$ • $68 + 7 = 75$ • $69 + 6 = 75$ 	1
5	<p>A number of combinations are possible.</p> <p>For example:</p> 	<p>Award one mark for any correct combination of coins which make a total of 70p.</p> <p>Any of the following combinations are acceptable:</p> <ul style="list-style-type: none"> • 50p, 20p • 50p, 10p, 10p • 50p, 10p, 5p, 5p • 20p, 20p, 10p, 10p, 10p • 20p, 20p, 10p, 10p, 5p, 5p • 20p, 10p, 10p, 10p, 10p, 5p, 5p 	1

Year 2

Answer	Marking guidance	Marks																	
6 Missing hands drawn as shown: 	Award one mark for the correct answer. You may accept slight inaccuracies in the positioning or length of the hand on the clock, if the child's intention is clear.	1																	
6 Missing hands drawn as shown: 	Award one mark for the correct answer. You may accept slight inaccuracies in the positioning or length of the hand on the clock, if the child's intention is clear.	1																	
7	104 cookies	Award one mark for the correct answer.	1																
8	45 jars of jam	Award one mark for the correct answer.	1																
	40 jars of jam	Award one mark for the correct answer.	1																
9	Answers provided as shown: $\frac{1}{3}$ of 27 = <input type="text" value="9"/> $\frac{2}{3}$ of 27 = <input type="text" value="18"/>	Both answers must be provided, in the correct boxes, for two marks to be awarded. Award one mark for each correct answer.	2																
10	Order provided as shown: Scale B Scale A Scale C or B A C	Award one mark for the correct answer. You may award the mark if the child has reasonably estimated the weights of the parcels and ordered these weights from lightest to heaviest (e.g. 150g, 350g, 650g). If the child has got muddled and accidentally written their answer from heaviest to lightest and changed the labels under the first and last box, to match their order, one mark may be awarded.	1																
11	C and E or C/E or C, E	Both letters must be provided, in any order, for one mark to be awarded. You may award the mark for an answer that has been written in either lower or upper case letters.	1																
	D	Award one mark for the correct answer. You may award the mark for an answer that has been written in either lower or upper case letters.	1																
12	A number of answers are possible. For example: 550 + 100 + 350.	You may accept any combination that makes a total of 1000. The child must choose a total of three numbers, one number from each box, for one mark to be awarded.	1																
13	$\frac{2}{5}$	Award one mark for any unambiguous indication of the correct answer (e.g. 2 fifths, two fifths).	1																
14	61	Award one mark for the correct answer.	1																
15	Table completed as shown: <table border="1" data-bbox="220 1883 632 2078"> <tr> <td>×</td> <td>7</td> <td>3</td> <td>2</td> </tr> <tr> <td>4</td> <td>28</td> <td>12</td> <td>8</td> </tr> <tr> <td>8</td> <td>56</td> <td>24</td> <td>16</td> </tr> <tr> <td>6</td> <td>42</td> <td>18</td> <td>12</td> </tr> </table>	×	7	3	2	4	28	12	8	8	56	24	16	6	42	18	12	All four numbers must be provided, in the correct boxes, for two marks to be awarded. You may award one mark for two or three correct answers.	2
×	7	3	2																
4	28	12	8																
8	56	24	16																
6	42	18	12																

Year 3

Year 4

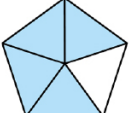
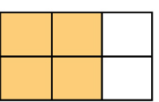

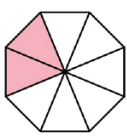
Answer	Marking guidance	Marks
16 Prices ordered as shown: £0.62 64p £4.62 £6.24 £6.42	Award one mark for the correct order. You may award one mark for any prices ordered correctly that have been converted into equivalent units (e.g. 62p, 64p, 462p, 624p and 642p/£0.62, £0.64, £4.62, £6.24, £6.42).	1
17 Cards matched as shown: 	Award two marks for all three calculations matched correctly to their corresponding answers. You may award one mark for two correct answers.	2
18 Shape drawn as shown: 	You may accept slight inaccuracies in the child's drawing if their intention is clear. Do not penalise drawings done without a ruler, provided the child's intention is clear.	1
19 132 stickers	Award two marks for the correct answer. If the child's answer is incorrect, you may award one mark for evidence of appropriate working out.	2
20 35 harbour seals	Award one mark for the correct answer.	1
21 £9.80 or £9.80p or 9.80	Award one mark for any unambiguous indication of the correct answer (e.g. £9-80, £9:80, £9,80, £9-80p, £9:80p, 980p, £9 80; with a clear space between the 9 and 80).	1
£1.25 or £1.25p or 1.25	Award two marks for any unambiguous indication of the correct answer (e.g. £1-25, £1:25, £1,25, £1-25p, £1:25p, 125p, £1 25; with a clear space between the 1 and 25). If the child's answer is incorrect, you may award one mark for evidence of appropriate working out.	2
22 160ml	Award one mark for the correct answer.	1
23 12	Award two marks for the correct answer. If the child's answer is incorrect, you may award one mark for evidence of appropriate working out. If the child's answer is incorrect, you may award the mark if they have demonstrated that they can work backwards using inverse operations (e.g. $10 - 2 = 8$ $8 \times 4 =$ wrong answer wrong answer $- 20 =$ child's incorrect answer).	2
24 60p	Award two marks for the correct answer. If the child's answer is incorrect, you may award one mark for evidence of appropriate working out.	2




Year 4

Year 5

National curriculum content and mark allocation

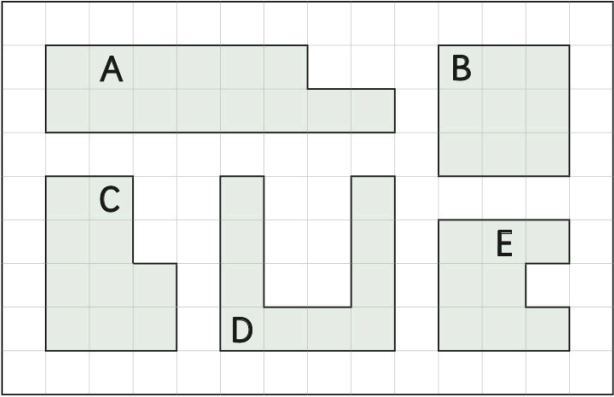

























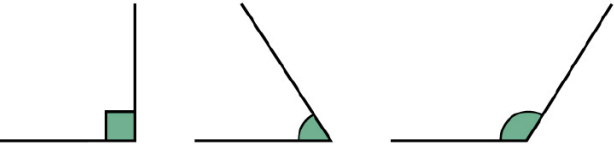

Paper 3 - Spring term - Reasoning test

	Question	Programme of study	Marks																		
Year 2	<p>Practice question</p> <p>Look at this number. 98</p> <p>Write the digit that is in the one's place. Write the digit that is in the ten's place.</p>	Recognise the place value of each digit in a two-digit number (tens, ones).	0																		
	<p>1</p> <p>Write the missing answers in the boxes.</p> <p>$\frac{1}{2}$ of 16 = <input type="text"/></p> <p>$\frac{1}{2}$ of 26 = <input type="text"/></p>	Write simple fractions for example, $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{3}{4}$ and $\frac{1}{2}$.	2																		
	<p>2</p> <p>Draw a line to match the addition to its inverse subtraction. One has been done for you.</p> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 5px; border-radius: 10px;">$10 + 8 = 18$</div> <div style="border: 1px solid black; padding: 5px; border-radius: 10px;">$23 - 9 = 14$</div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; padding: 5px; border-radius: 10px;">$9 + 14 = 23$</div> <div style="border: 1px solid black; padding: 5px; border-radius: 10px;">$26 - 12 = 14$</div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; padding: 5px; border-radius: 10px;">$12 + 14 = 26$</div> <div style="border: 1px solid black; padding: 5px; border-radius: 10px;">$26 - 13 = 13$</div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; padding: 5px; border-radius: 10px;">$13 + 13 = 26$</div> <div style="border: 1px solid black; padding: 5px; border-radius: 10px;">$18 - 10 = 8$</div> </div> <p><i>(A line connects the first addition box to the first subtraction box.)</i></p>	<p>Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.</p> <p>Add and subtract numbers using concrete objects, pictorial representations, and mentally, including:</p> <ul style="list-style-type: none"> - a two-digit number and ones - two two-digit numbers 	2																		
<p>3</p> <p>The boys and girls in Year 4 were asked to choose their favourite subject at school.</p> <p>The results were recorded in a table.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th>Boys</th> <th>Girls</th> </tr> </thead> <tbody> <tr> <td>Art</td> <td>26</td> <td>12</td> </tr> <tr> <td>Geography</td> <td>7</td> <td>3</td> </tr> <tr> <td>History</td> <td>3</td> <td>13</td> </tr> <tr> <td>Music</td> <td>6</td> <td>7</td> </tr> <tr> <td>Science</td> <td>18</td> <td>16</td> </tr> </tbody> </table> <p>Which subject was chosen by the least number of children? How many more boys chose art than girls?</p>		Boys	Girls	Art	26	12	Geography	7	3	History	3	13	Music	6	7	Science	18	16	<p>Interpret and construct simple pictograms, tally charts, block diagrams and simple tables.</p> <p>Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity.</p> <p>Ask and answer questions about totalling and comparing categorical data.</p>	2	
	Boys	Girls																			
Art	26	12																			
Geography	7	3																			
History	3	13																			
Music	6	7																			
Science	18	16																			
Year 3	<p>4</p> <p>What is $456 + 247$?</p>	Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction.	1																		
	<p>5</p> <p>Look at the shapes below. Parts of these shapes are shaded.</p> <p>Circle the shapes that have $\frac{1}{4}$ shaded.</p> <div style="display: flex; justify-content: space-around; align-items: center;">     </div>	Recognise and show, using diagrams, equivalent fractions with small denominators.	1																		

Question	Programme of study	Marks										
<p>6</p> <p>Complete the table below.</p> <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Digits</th> <th>Words</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">456</td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">four hundred and two</td> </tr> <tr> <td style="text-align: center;">980</td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">five hundred and twenty three</td> </tr> </tbody> </table>	Digits	Words	456			four hundred and two	980			five hundred and twenty three	<p>Read and write numbers up to 1000 in numerals and in words.</p>	2
Digits	Words											
456												
	four hundred and two											
980												
	five hundred and twenty three											
<p>7</p> <p>Write these numbers in order from smallest to largest.</p> <p>341 314 343 344 433</p>	<p>Compare and order numbers up to 1000.</p>	1										
<p>8</p> <p>Tick (✓) the correct answer. A glass holds approximately...</p> <p>30ml <input type="checkbox"/></p> <p>300ml <input type="checkbox"/></p> <p>3000ml <input type="checkbox"/></p> <p>300L <input type="checkbox"/></p> 	<p>Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml).</p>	1										
<p>8</p> <p>Tick (✓) the correct answer. An apple weighs approximately...</p> <p>10g <input type="checkbox"/></p> <p>100kg <input type="checkbox"/></p> <p>100g <input type="checkbox"/></p> <p>1g <input type="checkbox"/></p> 	<p>Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml).</p>	1										
<p>9</p> <p>Emma takes 35 minutes to walk to the park. She leaves her house at 9:45am.</p>  <p>What time will she arrive at the park?</p>	<p>Compare durations of events [for example to calculate the time taken by particular events or tasks].</p>	1										
<p>10</p> <p>Look at the numbers below. Round each number to the nearest 1000.</p> <p>4561 → <input style="width: 50px;" type="text"/></p> <p>2321 → <input style="width: 50px;" type="text"/></p>	<p>Round any number to the nearest 10, 100 or 1000.</p>	2										
<p>11</p> <p>Complete this sequence.</p> <p><input style="width: 50px;" type="text"/>, 18, 24, <input style="width: 50px;" type="text"/>, 36, 42</p>	<p>Count in multiples of 6, 7, 9, 25 and 1000.</p>	1										










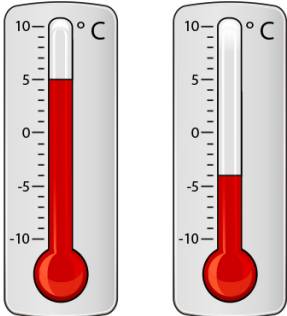
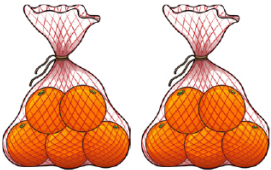
Year 3

Year 4

	Question	Programme of study	Marks												
12	<p>Look at the shapes on the 1cm square grid below.</p>  <p>What is the area of shape D? Which shape has the largest area?</p>	<p>Find the area of rectilinear shapes by counting squares.</p>	2												
13	<p>A shop sells bikes.</p> <p>The pictogram below shows how many bikes were sold in one day.</p> <table border="1" data-bbox="220 851 679 1115"> <tr> <td>Blue</td> <td></td> <td></td> </tr> <tr> <td>Green</td> <td></td> <td></td> </tr> <tr> <td>Red</td> <td></td> <td></td> </tr> <tr> <td>Yellow</td> <td></td> <td></td> </tr> </table> <p>Key:  = 10 bikes</p> <p>How many blue and green bikes were sold in total? How many more red than yellow bikes were sold?</p>	Blue			Green			Red			Yellow			<p>Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.</p>	2
Blue															
Green															
Red															
Yellow															
14	<p>Look at the angles below. One of the angles is acute.</p> <p>Put a tick next to acute angle.</p>  <p>Look at the trapezium below. It has two obtuse angles.</p>  <p>Write the letters of the obtuse angles.</p>	<p>Identify acute and obtuse angles and compare and order angles up to two right angles by size.</p>	2												
15	<p>Calculate</p> $\frac{2}{9} + \frac{3}{9} = \boxed{\quad}$	<p>Add and subtract fractions with the same denominator.</p>	1												

Year 4

Question	Programme of study	Marks																														
<p>Match each calculation to the correct answer.</p> <p>One has been done for you.</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>$\frac{1}{2}$ of 40</p> <p>$\frac{1}{5}$ of 50</p> <p>$\frac{1}{4}$ of 24</p> <p>$\frac{1}{8}$ of 32</p> </div> <div style="width: 45%;"> <p>6</p> <p>20</p> <p>4</p> <p>2</p> <p>12</p> <p>25</p> <p>10</p> </div> </div> <p>16</p>	<p>Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number.</p> <p>*Continue to find fractions and amounts, with unit fractions and non-unit fractions, applying knowledge of the appropriate multiplication tables.</p> <p>*Non-statutory but essential content.</p>	2																														
<p>Calculate</p> <div style="text-align: center;"> <table border="1" style="border-collapse: collapse; margin: auto;"> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr> <tr><td></td><td>6</td><td>4</td><td>5</td><td></td><td></td></tr> <tr><td>-</td><td>2</td><td>5</td><td>0</td><td></td><td></td></tr> <tr><td></td><td colspan="3" style="border-top: 1px solid black;"></td><td></td><td></td></tr> <tr><td></td><td colspan="3" style="border: 1px solid black; height: 20px;"></td><td></td><td></td></tr> </table> </div> <p>17</p>								6	4	5			-	2	5	0															<p>Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate.</p>	1
	6	4	5																													
-	2	5	0																													
<p>Fill in the missing digit.</p> <div style="text-align: center;"> <table border="1" style="border-collapse: collapse; margin: auto;"> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr> <tr><td></td><td>2</td><td>3</td><td style="border: 1px solid black; width: 20px; height: 20px;"></td><td></td><td></td></tr> <tr><td>x</td><td></td><td></td><td>4</td><td></td><td></td></tr> <tr><td></td><td colspan="3" style="border-top: 1px solid black;"></td><td></td><td></td></tr> <tr><td></td><td>9</td><td>4</td><td>0</td><td></td><td></td></tr> </table> </div> <p>18</p>								2	3				x			4										9	4	0			<p>Multiply two-digit and three-digit numbers by a one-digit number using formal written layout.</p>	1
	2	3																														
x			4																													
	9	4	0																													
<p>Look at the quadrilaterals on the grid below.</p> <div style="text-align: center;"> </div> <p>19</p> <p>Write the letter of the shape that is a parallelogram.</p> <p>Write the letter of the shape that has no parallel sides.</p>	<p>Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.</p>	2																														

Question	Programme of study	Marks									
<p>20</p> <p>A shop sells sweets.</p> <table border="1"> <tr> <th>Marshmallow</th> <th>Candy cane</th> <th>Lollipop</th> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td>25p</td> <td>50p</td> <td>65p</td> </tr> </table> <p>Emma buys 3 marshmallows and 2 lollipops. How much does she spend altogether?</p>	Marshmallow	Candy cane	Lollipop				25p	50p	65p	<p>Estimate, compare and calculate different measures, including money in pounds and pence.</p> <p>Solve problems involving multiplying and adding, including the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.</p>	1
Marshmallow	Candy cane	Lollipop									
											
25p	50p	65p									
<p>21</p> <p>Look at the thermometers below. They show the temperature in London and New York.</p> <p>London New York</p>  <p>How many degrees colder is it in New York?</p>	<p>Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers through zero.</p>	1									
<p>22</p> <p>Circle all of the numbers that are factors of 24.</p> <p>20 12 48 6 3 10</p>	<p>Identify multiples and factors, including finding all factor pairs of a number and common factors of two numbers.</p>	1									
<p>23</p> <p>Malik buys 2 bags of oranges. He pays with a £1 coin and £2 coin. He gets 60p change. How much is 1 bag of oranges?</p> 	<p>Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.</p> <p>Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.</p>	2									

Year 4

Year 5

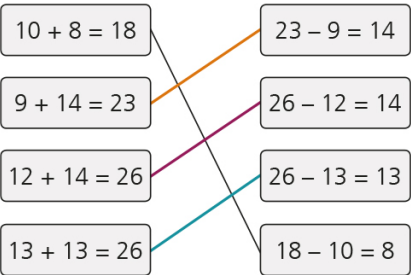
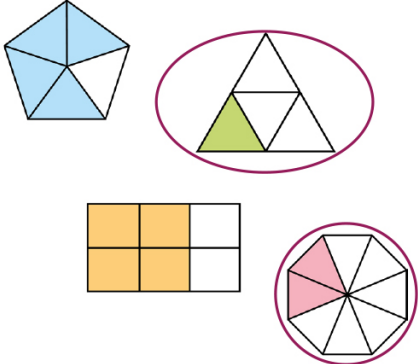
Mark allocation at a glance

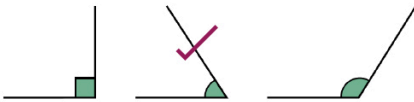
Area of maths	Marks available
Number and calculation	19
Measurement	8
Geometry	4
Statistics	4

Year group	Marks available
Year 2	6
Year 3	8
Year 4	17
Year 5	4

Mark scheme

Paper 3 - Spring term - Reasoning test

	Answer	Marking guidance	Marks										
Practice question	8 or 8 ones	This is a practice question, no marks can be awarded. You may accept an answer of 90 in response to the question: 'Write the digit that is in the ten's place'.	0	Year 2									
	9 or 90 or 9 tens												
1	Numbers provided as shown: $\frac{1}{2}$ of 16 = <input type="text" value="8"/> $\frac{1}{2}$ of 26 = <input type="text" value="13"/>	Both numbers must be provided, in the correct boxes, for two marks to be awarded. Award one mark for each correct answer.	2										
2	Number sentences matched as shown: 	All cards must be matched correctly for two marks to be awarded. You may award one mark for two correct matches	2										
3	Geography	Award one mark for the correct answer. You may accept any reasonable or phonetic attempt at the spelling.	1										
	14 boys	Award one mark for the correct answer.	1										
4	703	Award one mark for the correct answer.	1	Year 3									
5	Shapes circled as shown: 	Both shapes must be circled for one mark to be awarded. You may accept any other clear way that the child has indicated the correct shapes (e.g. a tick, a cross). Do not award the mark if extra shapes have been indicated, unless it is clear that the correct shapes are the child's final choice.	1										
6	Table completed as shown: <table border="1" data-bbox="220 1765 632 2045"> <thead> <tr> <th>Digits</th> <th>Words</th> </tr> </thead> <tbody> <tr> <td>456</td> <td>four hundred and fifty six</td> </tr> <tr> <td>402</td> <td>four hundred and two</td> </tr> <tr> <td>980</td> <td>nine hundred and eighty</td> </tr> <tr> <td>523</td> <td>five hundred and twenty three</td> </tr> </tbody> </table>	Digits	Words		456	four hundred and fifty six	402	four hundred and two	980	nine hundred and eighty	523	five hundred and twenty three	All four answers must be provided, in the correct boxes, for two marks to be awarded. You may award one mark for two or three correct answers.
Digits	Words												
456	four hundred and fifty six												
402	four hundred and two												
980	nine hundred and eighty												
523	five hundred and twenty three												

Answer	Marking guidance	Marks	
7 Numbers ordered as shown: 314 341 343 344 433	Award one mark for the correct order. If the child has got muddled and accidentally written the numbers from largest to smallest and changed the labels under the first and last box, to match their order, one mark may be awarded.	1	Year 3
8 Box ticked as shown: 30ml <input type="checkbox"/> 300ml <input checked="" type="checkbox"/> 3000ml <input type="checkbox"/> 300L <input type="checkbox"/>	Award one mark for the correct answer indicated. You may accept any other clear way that the child has indicated the correct answer (e.g. a cross, a dash). Do not award the mark if extra boxes have been indicated that are incorrect, unless it is clear that the correct one is the child's final choice.	1	
Box ticked as shown: 10g <input type="checkbox"/> 100kg <input type="checkbox"/> 100g <input checked="" type="checkbox"/> 1g <input type="checkbox"/>	Award one mark for the correct answer indicated. You may accept any other clear way that the child has indicated the correct answer (e.g. a cross, a dash). Do not award the mark if extra boxes have been indicated that are incorrect, unless it is clear that the correct one is the child's final choice.	1	
9 10:20am	Award one mark for any unambiguous indication of the correct answer (e.g. 20 twenty past 10, twenty past ten, 10:20, 10-20, 10,20, 10 20 with a clear space between 10 and 20).	1	
10 Numbers provided as shown: 4561 → <input type="text" value="5000"/> 2321 → <input type="text" value="2000"/>	Both numbers must be provided, in the correct boxes, for two marks to be awarded. Award one mark for each correct answer.	2	Year 4
11 Numbers provided as shown: <input type="text" value="12"/> , 18, 24, <input type="text" value="30"/> , 36, 42	Both numbers must be provided, in the correct boxes, for one mark to be awarded.	1	
12 10cm ²	Award one mark for the correct answer.	1	
A	Award one mark for the correct answer.	1	
13 75 bikes	Award one mark for the correct answer.	1	
35 red bikes	Award one mark for the correct answer.	1	
14 Angle indicated as shown: 	Award one mark for the correct angle indicated. You may accept any other clear way that the child has indicated the correct angle (e.g. a cross, angle circled). Do not award the mark if extra angles have been indicated that are incorrect, unless it is clear that the correct one is the child's final choice.	1	
A and B	Both letters must be provided, in any order, for one mark to be awarded. You may award the mark for an answer that has been written in either lower or upper case letters. You may award one mark if the child has circled angle A and B on the diagram of the trapezium.	1	
15 Answer provided as shown: $\frac{2}{9} + \frac{3}{9} = \frac{5}{9}$	Award one mark for the correct answer.	1	

Answer	Marking guidance	Marks
<p>16</p> <p>Cards matched as shown:</p>	<p>All cards must be matched correctly for two marks to be awarded.</p> <p>You may award one mark for two correct matches.</p>	2
<p>17</p> <p>Number provided as shown:</p>	<p>Award one mark for the correct answer.</p> <p>You may award the mark if the child has written 395 in the answer box without annotating the numbers which they have carried and exchanged.</p>	1
<p>18</p> <p>Number provided as shown:</p>	<p>Award one mark for the correct answer.</p>	1
<p>19</p> <p>E</p>	<p>Award one mark for the correct answer.</p> <p>You may award the mark for an answer that has been written in either lower or upper case letters.</p> <p>The child must write E to gain the mark. You may also award the mark for an answer of E, B and C.</p>	1
<p>A</p>	<p>Award one mark for the correct answer.</p> <p>You may award the mark for an answer that has been written in either lower or upper case letters.</p>	1
<p>20</p> <p>£2.05 or £2.05p or 2.05</p>	<p>Award one mark for any unambiguous indication of the correct answer (e.g. £2,05, £2-05, £2:05, £2 05; with a clear space between the 2 and the 05).</p>	1

Year 4

<p>21</p> <p>9°C</p>	<p>Award one mark for the correct answer.</p> <p>You may award the mark if the child has used the thermometer as a number line and written an answer of 9 next to the thermometer.</p>	1
<p>22</p> <p>Numbers circled as shown:</p> <p>20 12 48 6 3 10</p>	<p>All three numbers must be circled for one mark to be awarded.</p> <p>You may accept any other clear way that the child has indicated the correct numbers (e.g. numbers ticked, numbers crossed).</p> <p>Do not award the mark if extra numbers have been indicated that are incorrect, unless it is clear that the correct ones are the child's final choice.</p>	1
<p>23</p> <p>£1.20 or £1.20p or 1.20</p>	<p>Award two marks for any unambiguous indication of the correct answer (e.g. £1,20, £1-20, £1:20, £1 20; with a clear space between 1 and 20).</p> <p>If the child's answer is incorrect, you may award one mark for evidence of appropriate working out.</p>	2

Year 5



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