

2016 national curriculum tests

Key stage 2

Mathematics

Paper 3: reasoning

First name						
Middle name						
Last name						
Date of birth	Day		Month		Year	
School name						
DfE number						



[BLANK PAGE]

Please do not write on this page.



Instructions

You **may not** use a calculator to answer any questions in this test.

Questions and answers

You have **40 minutes** to complete this test.

Follow the instructions for each question.

Work as quickly and as carefully as you can.

If you need to do working out, you can use the space around the question.

Do not write over any barcodes.

Some questions have a method box like this:

Show your method

For these questions, you may get a mark for showing your method.

If you cannot do a question, **go on to the next one**.

You can come back to it later, if you have time.

If you finish before the end, **go back and check your work**.

Marks

The number under each line at the side of the page tells you the maximum number of marks for each question.



1

The numbers in this sequence increase by 14 each time.

Write the missing numbers.

82

96

124

138

2 marks



2

This table shows the temperature at 9am on three days in January.

1st January	8th January	15th January
+ 5°C	- 4°C	+ 1°C

What is the difference between the temperature on 1st January and the temperature on 8th January?

 °C

1 mark

On 22nd January the temperature was 7 degrees lower than on 15th January.

What was the temperature on 22nd January?

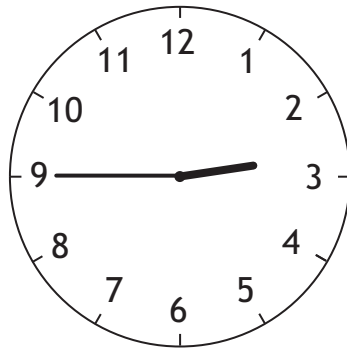
 °C

1 mark

E 0 0 0 8 0 A 0 5 2 4

3

A clock shows this time twice a day.



Tick the two digital clocks that show this time.

03:45

02:45

09:45

21:45

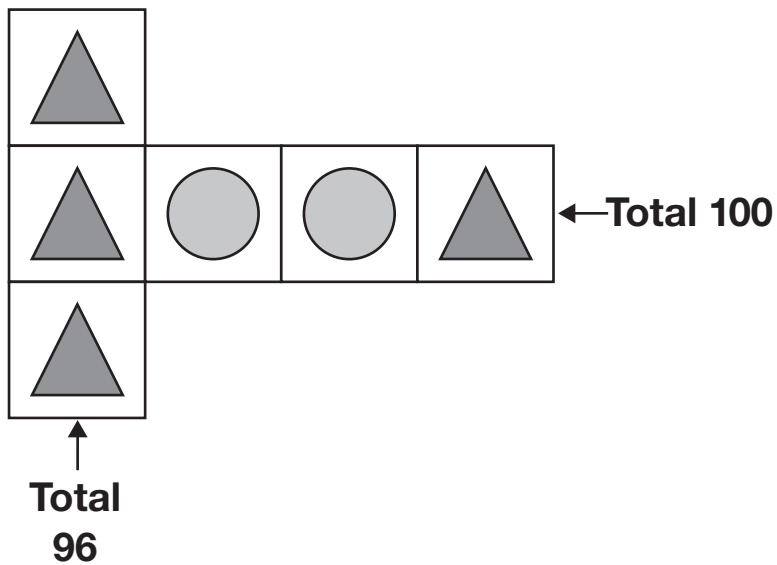
14:45

1 mark




4

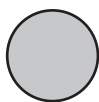
Each shape stands for a number.



Work out the **value** of each shape.

 = _____

_____ 1 mark

 = _____

_____ 1 mark



5

Write these numbers in order, starting with the **smallest**.

0.78

0.607

5.6

0.098

4.003

smallest

1 mark



6

Jacob cuts **4** metres of ribbon into **three** pieces.

The length of the first piece is **1.28** metres.

The length of the second piece is **1.65** metres.

Work out the length of the third piece.

Show
your
method

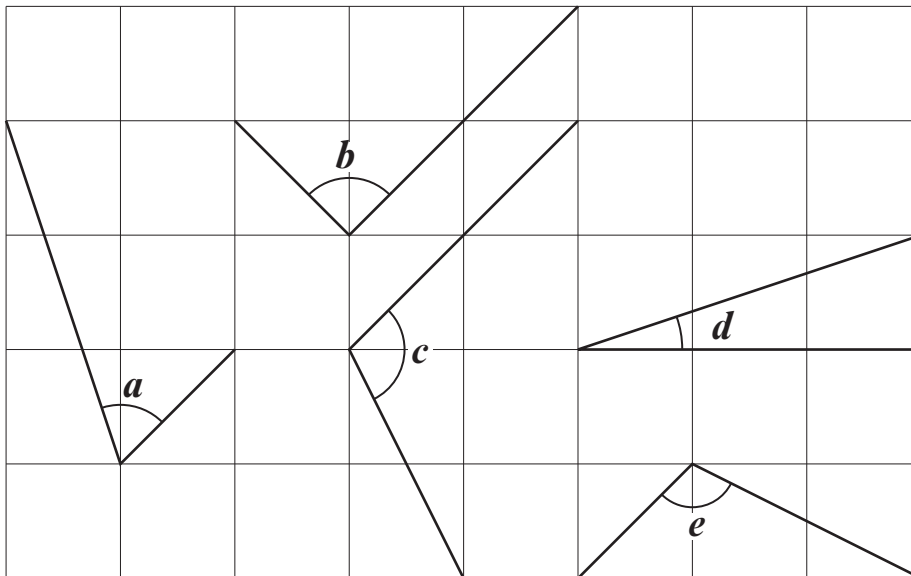
A large grid for showing the method. A small box labeled "metres" is positioned on the right side of the grid.

2 marks



7

Here are five angles marked on a grid of squares.



Write the letters of the angles that are **obtuse**.

1 mark

Write the letters of the angles that are **acute**.

1 mark



8

Olivia buys three packets of nuts.



She pays with a £2 coin.

This is her change.



What is the cost of **one** packet of nuts?

Show your method

A large grid for showing the method. The grid is 10 units wide and 10 units high. On the right side of the grid, there is a smaller, empty rectangular box that is 4 units wide and 2 units high.

2 marks



9

Here is part of the bus timetable from Riverdale to Mott Haven.

Riverdale	10:02	10:12	10:31	10:48
Kingsbridge	10:11	10:21	10:38	10:55
Fordham	10:28	10:38	10:54	11:11
Tremont	10:36	10:44	11:00	11:17
Mott Haven	10:53	11:01	11:17	11:34

How many minutes does it take the 10:31 bus from Riverdale to reach Mott Haven?

1 mark

Mr Evans is at Fordham at 10:30

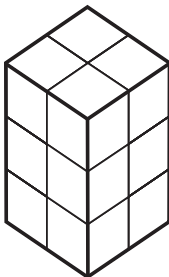
What is the **earliest** time he can reach Tremont on the bus?

1 mark

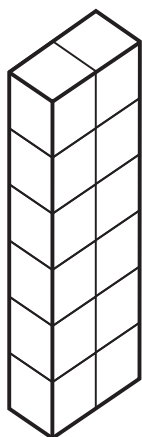


10

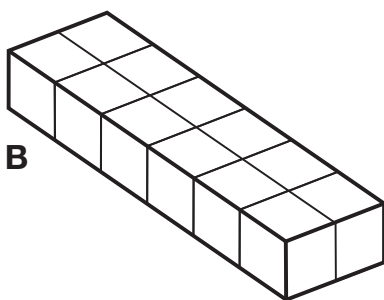
Emma makes a cuboid using 12 cubes.



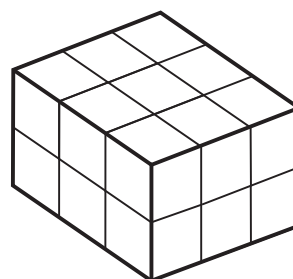
Write the letter of the cuboid that has a **different** volume from Emma's cuboid.



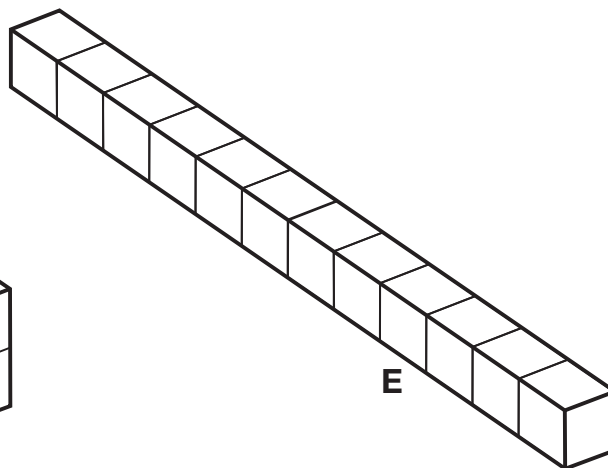
A



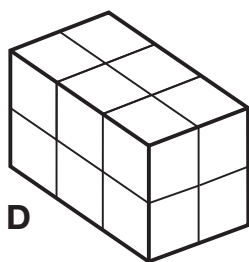
B



C



E



D

1 mark

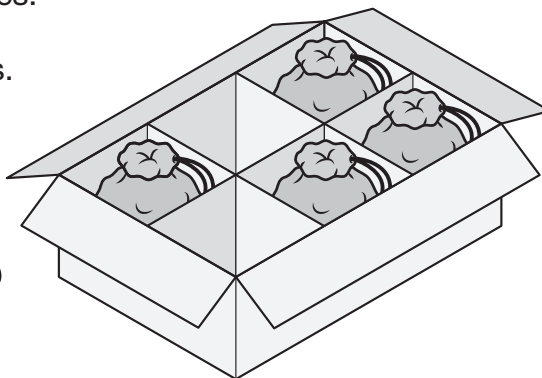
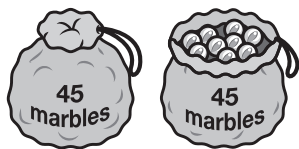


11

A toy shop orders 11 boxes of marbles.

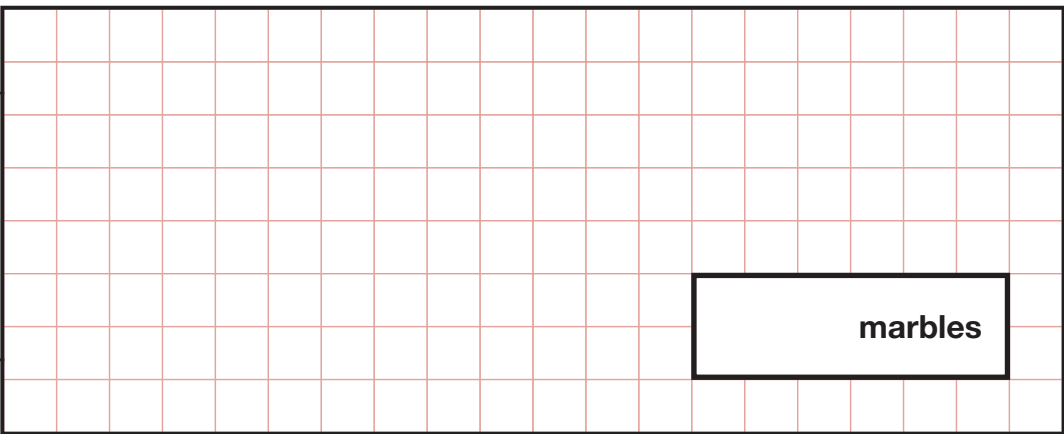
Each box contains 6 bags of marbles.

Each bag contains 45 marbles.



How many **marbles** does the shop order in total?

Show your method

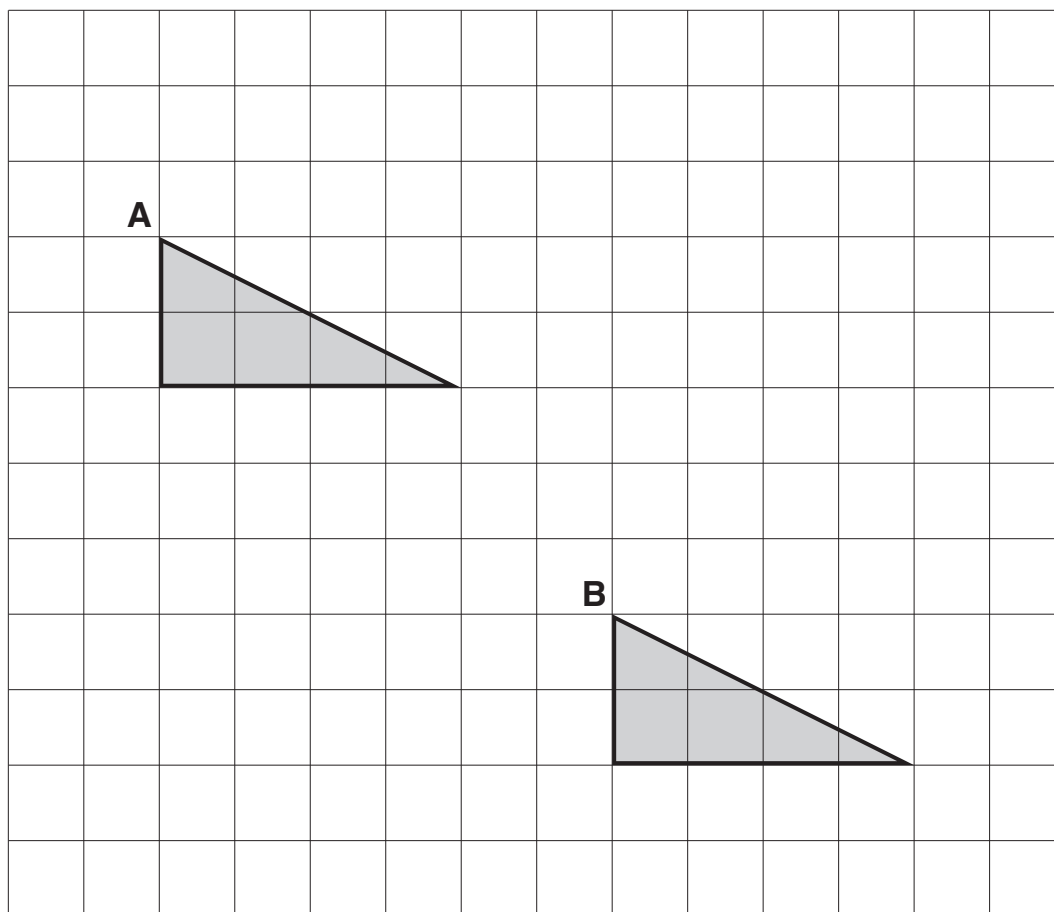


marbles

2 marks



12

A triangle is translated from position **A** to position **B**.

Complete the sentence.

The triangle has moved squares to the rightand squares down.

1 mark

13

Lara chooses a number less than 20

She divides it by 2 and then adds 6

She then divides this result by 3

Her answer is 4.5

What was the number she started with?

Show
your
method

The grid is 20 units wide and 10 units high. A small empty rectangular box is located in the lower right quadrant of the grid, approximately between the 15th and 18th vertical lines and the 3rd and 5th horizontal lines from the bottom.

2 marks



14

Complete each sentence using a number **from the list below**.

120 240 600 1,440 3,600 6,000

There are seconds in an hour.

1 mark

There are minutes in a day.

1 mark

15

Complete this table by rounding the numbers to the **nearest hundred**.

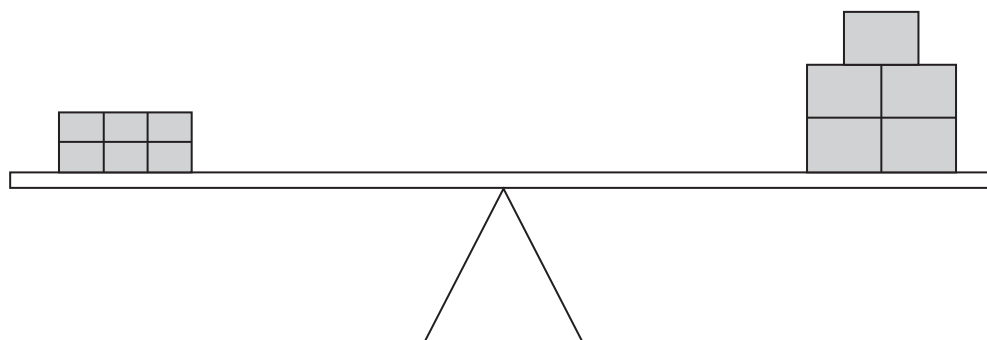
	Rounded to the nearest hundred
20,906	
2,090.6	
209.06	

2 marks



16

6 small bricks have the same mass as 5 large bricks.



The mass of one small brick is 2.5 kg.

What is the mass of one large brick?

Show
your
method

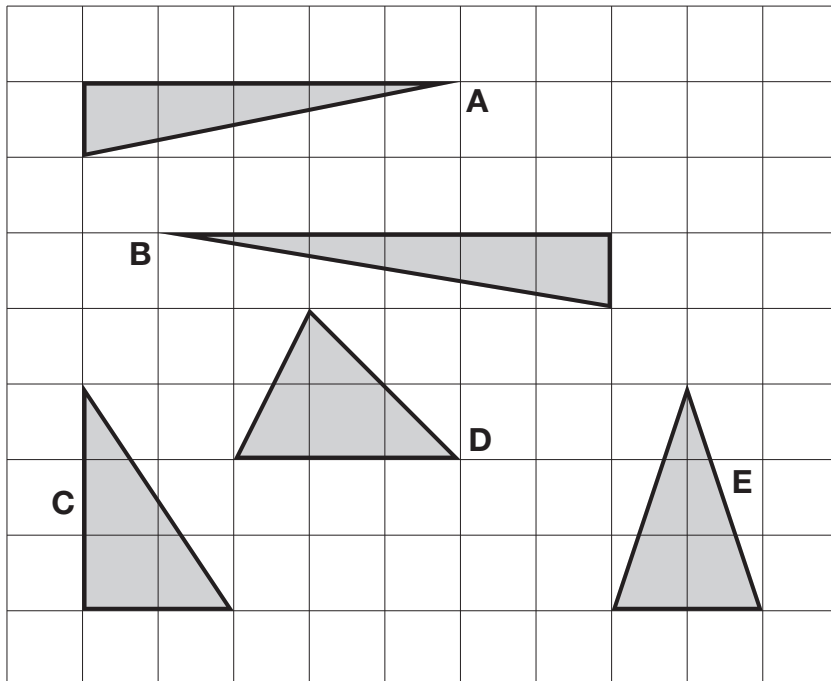
A large rectangular grid for showing the method. The grid is 10 units wide and 10 units high. A box is drawn on the grid, spanning from the 6th vertical line to the 8th vertical line and from the 4th horizontal line to the 5th horizontal line. The box contains the text "kg".

2 marks



17

Here are five triangles on a square grid.



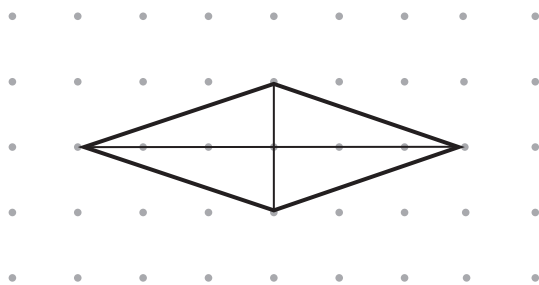
Four of the triangles have the same area.

Which triangle has a **different** area?

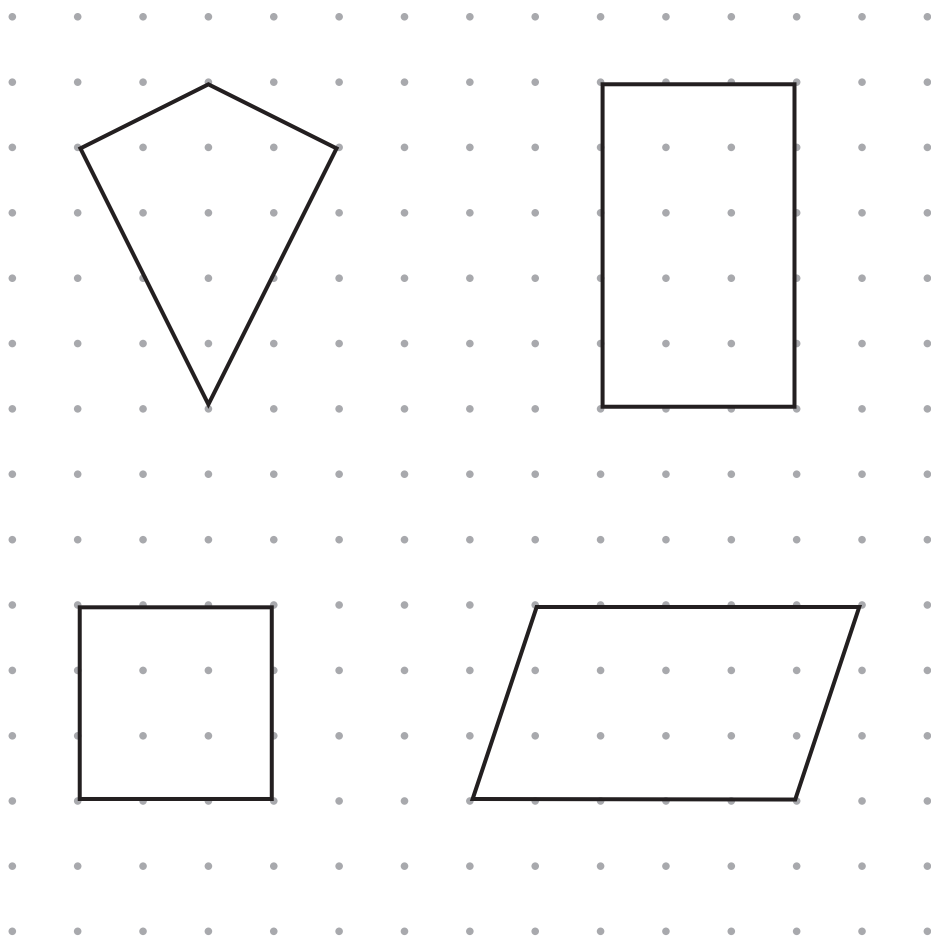
 1 mark


18

The diagonals of this quadrilateral cross at right angles.



Tick **all** the quadrilaterals that have diagonals which cross at right angles.



2 marks



19

Circle two numbers that multiply together to equal **1 million**.

200

2,000

5,000

50,000

1 mark

20

Lara had some money.

She spent £1.25 on a drink.

She spent £1.60 on a sandwich.

She has **three-quarters** of her money left.

How much money did Lara have to **start with**?

Show your method

A large grid for showing the method. A small box on the right side of the grid contains the symbol '£'.

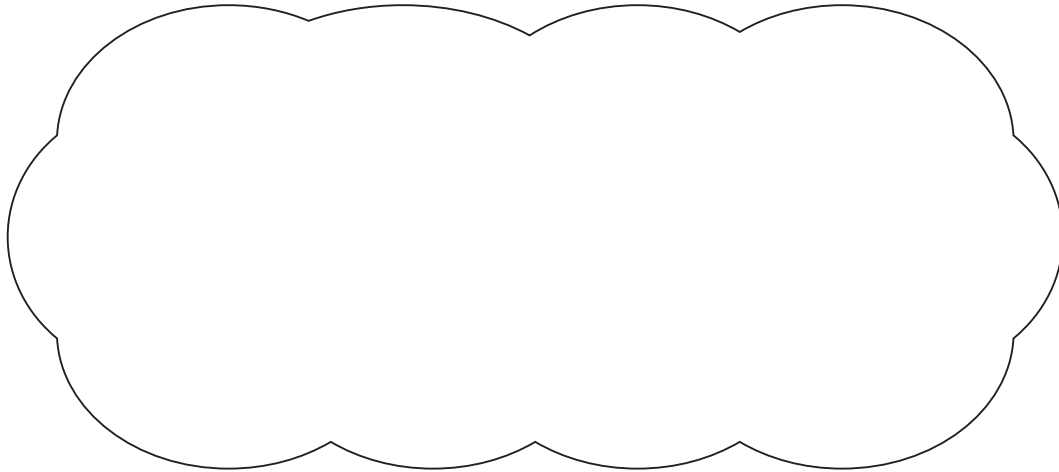
2 marks



21

$$5,542 \div 17 = 326$$

Explain how you can use this fact to find the answer to 18×326



1 mark



[END OF TEST]

Please do not write on this page.



2016 key stage 2 mathematics

Paper 3: reasoning

Print version product code: STA/16/7377/p ISBN: 978-1-78315-935-2

Electronic PDF version product code: STA/16/7377/e ISBN: 978-1-78315-936-9

For more copies

Additional printed copies of this booklet are not available. It can be downloaded from www.gov.uk/government/publications.

© Crown copyright and Crown information 2016

Re-use of Crown copyright and Crown information in test materials

Subject to the exceptions listed below, the test materials on this website are Crown copyright or Crown information and you may re-use them (not including logos) free of charge in any format or medium in accordance with the terms of the Open Government Licence v3.0 which can be found on the National Archives website and accessed via the following link: www.nationalarchives.gov.uk/doc/open-government-licence.

When you use this information under the Open Government Licence v3.0, you should include the following attribution: 'Contains public sector information licensed under the Open Government Licence v3.0' and where possible provide a link to the licence.



Exceptions – third-party copyright content in test materials

You must obtain permission from the relevant copyright owners, as listed in the '2016 key stage 2 tests copyright report', for re-use of any third-party copyright content which we have identified in the test materials, as listed below. Alternatively you should remove the unlicensed third-party copyright content and/or replace it with appropriately licensed material.

Third-party content

These materials contain no third-party copyright content.

If you have any queries regarding these test materials contact the national curriculum assessments helpline on 0300 303 3013 or email assessments@education.gov.uk.

