

## Year 4

### Using and applying mathematics

- Solve one-step and two-step problems involving numbers, money or measures, including time; choose and carry out appropriate calculations, using calculator methods where appropriate

I pay three pounds sixty pence for a rail ticket. How much change should I get from a five pound note?

**Y5 optional test 2003 Mental test level 3**

There are 219 boys and 187 girls in a school. What is the total number of children?

**Y4 Optional test 1999 Paper B level 3**

Boat Hire	
Motor boats £1.50 for 15 minutes	Rowing boats £2.50 for 1 hour

How much does it cost to hire a rowing boat for three hours?

Sasha pays £3.00 to hire a motor boat. She goes out at 3:20 pm. By what time must she return?

**KS2 2001 Paper B level 3**

One length of the swimming pool is 25 metres. Jane swims 5 lengths of the pool. How far does Jane swim altogether?

Kiz swims 225 metres in the pool. How many lengths does he swim?

**KS1 2005 level 3**

A shop sells greetings cards. Each card has a price code on it. These are the codes.

code	price
AA	75p
BB	£1.15
CC	£1.55
DD	£1.70
EE	£1.99

Tina buys two cards. One card has code AA on it. The other card has code DD on it. How much does Tina pay?

Omar buys a card. He pays with a £2 coin. He gets 45p change. What is the code on his card?

**KS2 2002 Paper A level 3**

A square playground has a perimeter of 100 metres. How long is one of its sides?

**KS2 1999 Mental test level 3**

These are the prices of coconuts and bananas.



coconuts  
78p each



bananas  
£1.20 for 1kg

Josh buys one coconut and half a kilogram of bananas. How much does he spend altogether?

Oranges cost 25p each. How many oranges can Josh buy for £1.50?

**KS2 2005 Paper B level 3**

A shop sells candles.



plain candles  
35p each

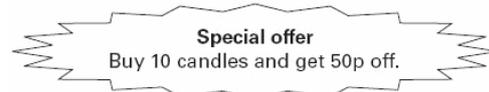


star candles  
60p each



stripe candles  
85p each

Sapna buys 4 star candles and 2 stripe candles. How much does she pay altogether?



Josh buys 10 plain candles in the special offer. How much does he pay for the 10 candles?

**KS2 2005 Paper A level 3**

This table shows the numbers of children who went walking, sailing or climbing at an outdoor centre.

	May	June	July
walking	25	80	75
sailing	15	42	50
climbing	18	27	23

How many children went sailing in May, June and July altogether?

How many more children went walking in June than climbing in June?

**KS2 2000 Paper A level 3**

Framework review

- Represent a puzzle or problem using number sentences, statements or diagrams; use these to solve the problem; present and interpret the solution in the context of the problem

Work out the difference between 147 and 205.



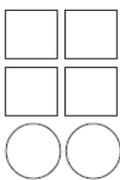
**KS1 2005 level 3**

Jan is 9 years old.  
Her mother is 31 years old.  
How many years older is Jan's mother?  
Circle which of these you could use to work out the answer.

$40 - 31$        $31 + 9$        $31 \times 9$   
 $31 - 9$        $40 - 9$

**Y3 optional test 1998 Paper B level 3**

What colour is each shape? Write it on the shape.



**Clues**

- Red is not next to grey.
- Blue is between white and grey.
- Green is not a square.
- Blue is on the right of pink.

Harry worked out the correct answer to  $70 \div 5$ .  
His answer was 14.  
Show how he could have worked out his answer

**KS1 2003 level 3**

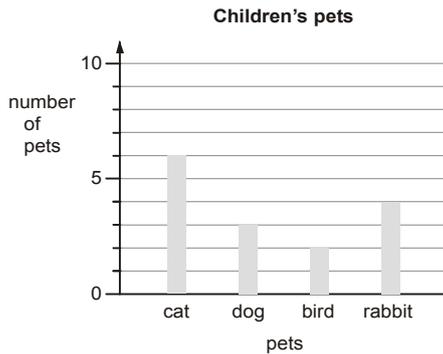
Framework review

- Suggest a line of enquiry and the strategy needed to follow it; collect, organise and interpret selected information to find answers

Here is a table of the pets owned by six children.

Name of child	Cat	Dog	Bird	Rabbit
David	3	1	0	0
Julie	0	0	1	2
Carl	2	0	0	1
Terry	0	1	0	1
Mary	0	2	0	0
Hawa	1	0	1	1

Here is a graph of the pets of five of the children.

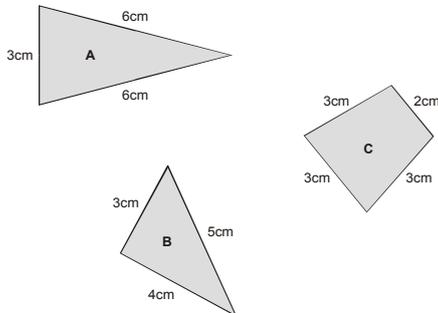


The pets of one of the children are not on the graph. Whose pets are not on the graph?

Explain how you know.

**KS2 1998 Paper A level 3**

Here are some shapes.



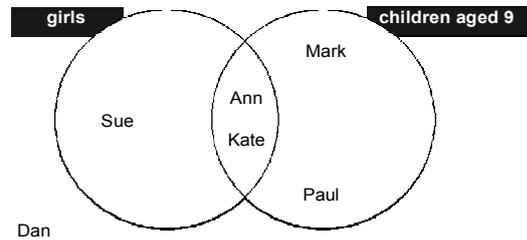
Write the letters B and C in the sorting diagram below to show where shapes B and C should go.

Shape A is done for you.

shapes	no sides equal	only 2 sides equal	more than 2 sides equal
3 sides		A	
more than 3 sides			

**KS2 1998 Paper B level 3**

A group of 6 children sorted themselves into these sets.



Complete the table for the group.

Boys		Girls	
Name	Age	Name	Age
Mark	9		9
	8	Ann	
	9		8

**Y4 optional test 1998 Paper B level 3**

These are the times letters are collected from a post box.

Monday to Friday	Saturday	Sunday
8 am		
2 pm	11:30 am	no collection
6:30 pm		

What is the latest time letters are collected on Wednesday?

Carla posts a letter at 9 am on Monday. How long will it be before it is collected?

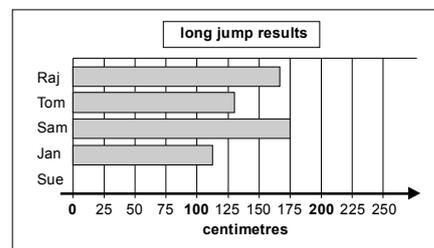
Gareth posts a letter on Saturday at 3 pm. When is it collected from the post box?

**KS2 1999 Paper B level 3**

Here are some children's long jump results.

Sue jumped 212 cm.

Draw Sue's long jump result on the graph.



Use the graph to estimate how much further Sam jumped than Jan.

**KS2 1996 Paper A level 3**

- Identify and use patterns, relationships and properties of numbers or shapes; investigate a statement involving numbers and test it with examples

Write in the missing numbers in this sequence.

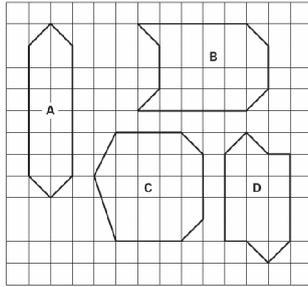
480 240  60  15

**Y5 Optional test 1998 Paper B level 3**

John says, 'Every multiple of 5 ends in 5.'  
Is he correct? Circle Yes or No.  
Explain how you know.

**KS2 2004 Paper B level 3**

Here are four shapes on a square grid.



Complete the table.

	property of shape	
	is an octagon	has at least 1 right angle
shape A	x	✓
shape B	✓	x
shape C		
shape D		✓

**Y4 optional test 2003 Paper A level 3**

Here is a row of numbers.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

Find three numbers next to each other which add up to 39. Draw a ring round them.

**KS2 1995 Paper A level 3**

Here are four digit cards.

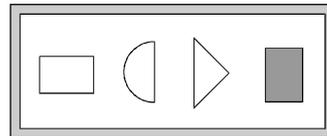


Use each of the digits once to make a total that is a multiple of 5

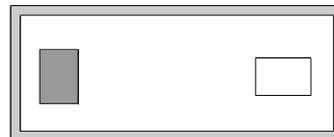


**Y5 optional test 2003 Paper A level 3**

Here is a pattern on a window.



Draw how the pattern would look from the other side of the window.



**KS2 1997 Paper B level 3**

- Report solutions to puzzles and problems, giving explanations and reasoning orally and in writing, using diagrams and symbols

Josie has these coins.



Circle all the amounts she can make using only two coins each time.

61p    52p    20p    £1.05    80p

**Y3 optional test 1998 Paper B level 3**

Peter and Stella compare colours they like and do not like. Here is a sorting diagram that shows their results.

	Peter likes	Peter does not like
Stella likes	red black	orange white
Stella does not like	purple green	yellow

Write the colours that Stella likes but Peter does **not** like.

Peter likes the colour blue but Stella does not. Write **blue** in the correct place on the sorting diagram above.

**Y4 optional test 2003 Paper A level 3**

Sita worked out the correct answer to  $16 \times 5$ . Her answer was 80. Show how she could have worked out her answer.

**KS1 2004 level 3**

Here are some signs.



Write a sign in each box to make this correct.

$$20 \square 4 \square = \square$$

**KS1 2003 level 3**

Here is part of a number square.

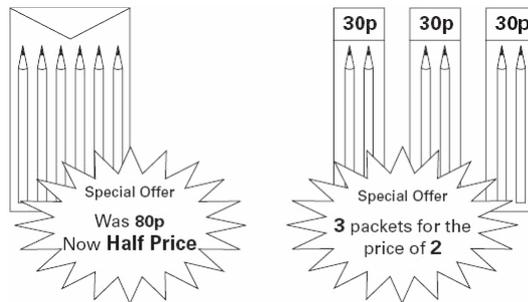
The shaded numbers are part of a sequence.

113	114	115	116
123	124	125	126
133	134	135	136
143	144	145	146

Explain the rule for the sequence.

**Y5 Optional test 2003 Paper B level 3**

A shop has these special offers.



Joe wants to buy 6 pencils.

Which is the cheaper offer?

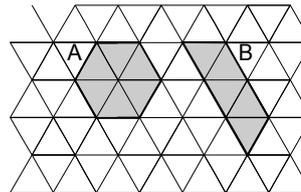
Tick (✓) one box.

Half price     3 for 2

Explain how you know.

**Y4 optional test 2003 Paper A level 3**

Leon's grid has two shaded shapes.



Leon says, 'Shape A has a larger area than shape B.' Explain how he could have worked this out.

**KS2 1996 Paper B level 3**

Write the missing number in the box.

$$456 + \square = 710$$

Explain how you worked out the answer.

**KS1 2003 level 3 [adapted]**

## Counting and understanding number

- Recognise and continue number sequences formed by counting on or back in steps of constant size

Continue the number sequence in both directions.



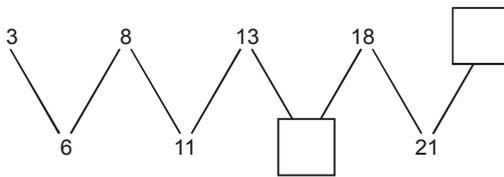
**Y4 optional test 1998 level 3**

Write in the missing number.

$$731 \rightarrow 831 \rightarrow 931 \rightarrow \square$$

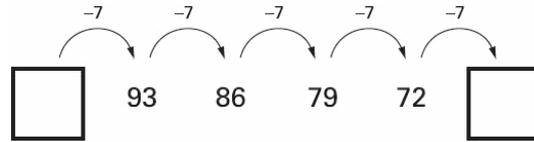
**Y5 optional test 2003 level 3**

Here is a number sequence.  
Write in the missing numbers.



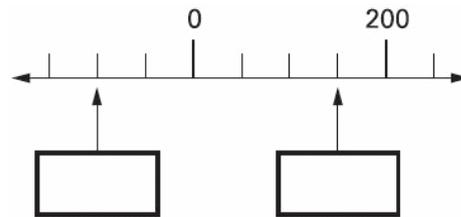
**KS2 1998 Paper A level 3**

Write the two missing numbers in this sequence.



**Y3 optional test 2003 level 3**

Here is part of a number line. Write the missing numbers in the boxes.



**Y5 optional test 2003 level 4**

Framework review

- Partition, round and order four-digit whole numbers; use positive and negative numbers in context and position them on a number line; state inequalities using the symbols  $<$  and  $>$ , e.g.  $-3 > -5$ ,  $-1 < +1$

Write in figures the number one thousand and twenty.

**KS2 2003 Mental test level 3**

Write in figures the number six thousand and fifty-eight.

**KS2 2002 Mental test level 3**

Kiz has these numbers.

1330 1303 1033 1003 1030

He writes them in order from smallest to largest. What is the fourth number he writes?

**KS1 2005 level 3**

Circle the number nearest to 1000.

1060 1049 1100 960 899

**KS2 2001 Paper A level 3**

Write these temperatures in order from hottest to coldest.

92°C		_____ hottest
37°C		_____
-12°C		_____
73°C		_____
12°C		_____
-2°C		_____ coldest

**Y3 optional test 1998 Paper B level 3**

The temperature in York is 4°C. Rome is 7 degrees colder than York. What is the temperature in Rome?

**KS2 2000 Paper A level 3**

Here are two signs.



Use the signs to make these correct.

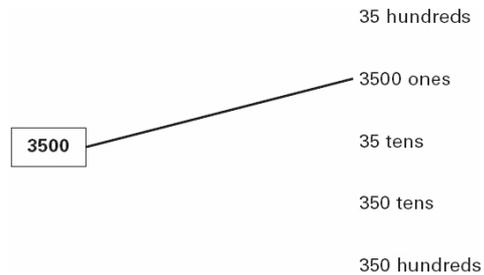
52  17

18  91

50  34

**Y4 optional test 2003 Paper A level 3**

Draw two more lines to match 3500 to numbers with the same value.



**Y4 optional test 2003 Paper B level 4**

The temperature inside an aeroplane is 20°C. The temperature outside the aeroplane is -30°C.

What is the difference between these temperatures?

**KS2 2003 Paper B level 4**

Use these signs.

= < >

Write the correct signs in the boxes.

4 × 4  2 × 8

8 × 7  9 × 6

5 × 7  5 × 5

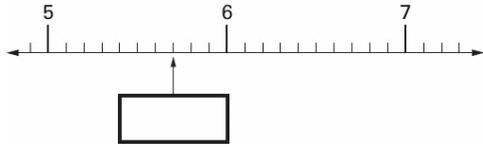
10 × 6  6 × 10

**Y4 Optional test 1999 Paper B level 3**

Framework review

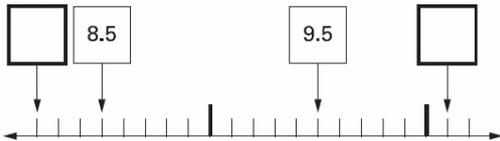
- Use decimal notation for tenths and hundredths and partition decimals; relate the notation to money and measurement; position one-place and two-place decimals on a number line

Here is part of a number line.  
Write the missing number in the box.



**Y5 optional test 2003 Paper B level 3**

Here is part of a number line. Write in the numbers missing from the two empty boxes.



**Y3 optional test 2003 Paper B level 3**

Arrange these decimals in order of size, with the smallest first.

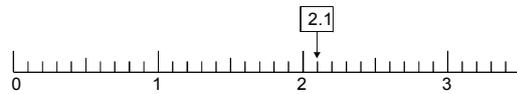
4.7    14.9    2.4    4.2    0.5

smallest

**Y3 Optional test 1998 Paper B level 3**

2.1 is marked on the number line.  
Mark 0.65 on the number line.



**Y4 Optional test 1998 Paper B level 3**

Look at these amounts.

£70.07    £70.70    £7.70    £7.07

Write the amounts in order in the boxes.

£	£	£	£
least			most

**KS1 2003 level 3**

- Recognise the equivalence between decimal and fraction forms of one half, quarters, tenths and hundredths

Write four tenths as a decimal number.

**KS2 1998 Mental test level 4**

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Circle the fraction that is the same as nought point five.

$$- \quad \frac{1}{3} \quad \frac{1}{4} \quad \frac{3}{4}$$

**Y3 optional test 1998 Mental test level 4**

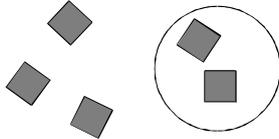
Put a ring around the fraction which is equal to nought point four.

$$\frac{1}{4} \quad \frac{1}{40} \quad \frac{1}{400} \quad \frac{4}{10} \quad \frac{4}{100}$$

**KS2 2002 Mental test level 4**

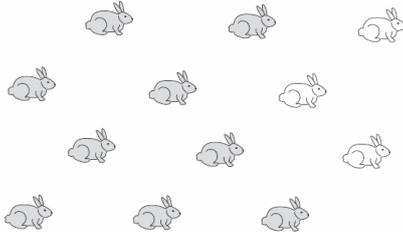
- Use diagrams to identify equivalent fractions, e.g.  $\frac{6}{10}$  and  $\frac{3}{5}$ , or  $\frac{70}{100}$  and  $\frac{7}{10}$ ; interpret mixed numbers and position them on a number line, e.g.  $3\frac{1}{2}$

What fraction of these tiles is circled?



**Y5 Optional test 1998 Paper B level 3**

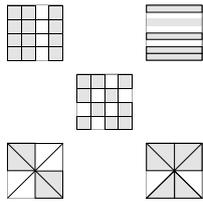
What fraction of these rabbits is grey?



Write the fraction.

**KS1 2005 level 3**

Tick (✓) the two shapes that have three-quarters shaded.



**Y4 Optional test 1998 Paper B level 3**

Circle the two fractions that have the same value.

$$\frac{2}{10}, \frac{5}{10}, \frac{1}{3}, \frac{1}{2}, \frac{1}{4}$$

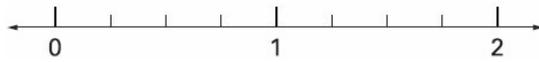
**Y3 optional test 2003 Paper A level 3**

Circle the two fractions that are greater than  $\frac{1}{2}$ .

$$\frac{1}{8}, \frac{6}{10}, \frac{5}{8}, \frac{3}{10}$$

**Y4 optional test 2003 Paper A level 3**

Draw an arrow (↓) on the number line to show  $1\frac{3}{4}$



**Y4 optional test 2003 Paper A level 3**

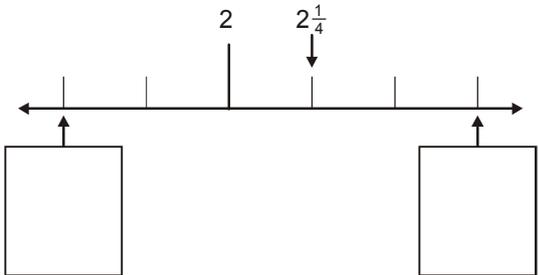
Write the two missing numbers in this sequence.

$$\frac{1}{4}, \frac{1}{2}, \frac{3}{4}, 1, \square, 1\frac{1}{2}, 1\frac{3}{4}, \square$$

**Y5 optional test 2003 Paper A level 3**

Here is part of a number line.

Write in the two missing numbers.



**KS2 2004 Paper B level 4**

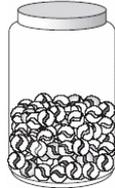
Framework review

- Use the vocabulary of ratio and proportion to describe the relationship between two quantities (e.g. there are 2 red beads to every 3 blue beads, or 2 beads in every 5 beads are red); estimate a proportion (e.g. 'about one quarter of the apples in the box are green')

Jenny can walk 103 metres in 1 minute.  
How far can she walk in 2 minutes?

**Y4 optional test 1998 Paper B level 3**

Mina has 76 marbles in a jar. The jar is about half full.

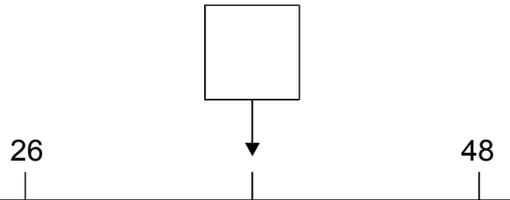


Estimate how many marbles Mina will have when the jar is full. Circle the best estimate.

75    100    125    150    175

**Y3 optional test 2003 Paper A level 3**

Work out the number halfway between 26 and 48.  
Write it in the box.



**Y3 Optional test 1998 Paper B level 3**

**Knowing and using number facts**

- Use knowledge of addition and subtraction facts and place value to derive sums and differences of pairs of multiples of 10, 100 or 1000

Subtract forty from one hundred and twenty.

**KS2 1999 Mental test level 3**

Jan buys a newspaper for eighty pence and pays with a five pound note. How much change does she get?

**KS2 1999 Mental test level 3**

What is the total of one hundred and twenty and seventy?

**Y4 optional test 2003 Mental test level 3**

How much must I add to four pounds ninety to make six pounds?

**KS2 2003 Mental test level 3**

What is one thousand minus one hundred and ten?

**KS2 2004 Mental test level 3**

Calculate the difference between five hundred and two hundred and thirty.

**KS2 2000 level 4**

Write the answer.

$$200 - 90 - 80 = \square$$

**KS1 2000 level 3**

Write the missing numbers.

4000 is one thousand less than

2000 is one hundred more than

**Y4 optional test 1999 Paper B level 3**

Circle three numbers which add to make 190.

10    30    50    70    90

**KS2 2001 Paper B level 3**

Framework review

- Identify the doubles of two-digit numbers; use these to calculate doubles of multiples of 10 and 100 and derive the corresponding halves

<p>What is double thirty-four? <b>KS2 2005 Mental test level 3</b></p> <hr/> <p>What is double forty-five? <b>KS2 2000 Mental test level 3</b></p> <hr/> <p>What is double sixty-seven? <b>Y5 optional test 2003 Mental test level 3</b></p> <hr/> <p>Complete the number pattern.</p> <p>96 <math>\xrightarrow{\text{half}}</math> 48 <math>\xrightarrow{\text{half}}</math> <math>\square</math> <math>\xrightarrow{\text{half}}</math> <math>\square</math> <math>\xrightarrow{\text{half}}</math> <math>\square</math></p> <p><b>KS1 1996 level 3</b></p>	<p>What is half of eight hundred and sixty? <b>KS2 2001 Mental test level 3</b></p> <hr/> <p>What is twice five hundred and forty? <b>KS2 1999 Mental test level 3</b></p> <hr/> <p>Continue the sequence.</p> <p>17 <math>\xrightarrow{\text{double}}</math> 34 <math>\xrightarrow{\text{double}}</math> <math>\square</math> <math>\xrightarrow{\text{double}}</math> 126 <math>\xrightarrow{\text{double}}</math> <math>\square</math></p> <p><b>Y4 optional test 1998 Paper B level 3</b></p>
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- Derive and recall multiplication facts up to  $10 \times 10$ , the corresponding division facts and multiples of numbers to 10 up to the tenth multiple

<p>What is four multiplied by nine? <b>KS2 2005 Mental test level 4</b></p> <hr/> <p>Multiply seven by six. <b>KS2 2003 Mental test level 4</b></p> <hr/> <p>Multiply eight by seven. <b>KS2 2002 Mental test level 4</b></p> <hr/> <p>What is eight multiplied by six? <b>Y3 optional test 2003 Mental test level 3</b></p> <hr/> <p>Multiply seven by nine. <b>KS2 1999 Mental test level 4</b></p> <hr/> <p>Leila puts 4 seeds in each of her pots. She uses 6 pots and has 1 seed left over. How many seeds did she start with? <b>KS2 2004 Paper A level 3</b></p>	<p>Divide forty-eight by eight. <b>KS2 2004 Mental test level 4</b></p> <hr/> <p>Divide forty-two by six. <b>Y4 optional test 1998 Mental test level 4</b></p> <hr/> <p>What is twenty-seven divided by nine? <b>Y4 optional test 1999 Mental test level 4</b></p> <hr/> <p>Nineteen marbles are shared between some children. Each child receives six marbles and there is one marble left over. How many children share the marbles? <b>Y5 optional test 2003 Mental test level 3</b></p> <hr/> <p>Circle all the multiples of 8 in this list of numbers. 18 32 56 68 72 <b>KS2 2002 Paper A level 4</b></p> <hr/> <p>Circle three numbers that add to make a multiple of 10. 11 12 13 14 15 16 17 18 19 <b>KS2 2005 Paper A level 3</b></p>
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- Use knowledge of rounding, number operations and inverses to estimate and check calculations

<p>Here is a multiplication. <math>6 \times 10 = 60</math> Write a division which uses these same 3 numbers. <b>Y4 optional test 2003 Paper A level 3</b></p> <hr/> <p>Circle the number that is about the same as the correct answer to <math>49 + 48</math>. 10 50 40 100 70 200 <b>Y4 Optional test level 3</b></p>	<p>Write a calculation that you could do to check that the answer to <math>53 \times 4</math> is 212.</p> <hr/>
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- Identify pairs of fractions that total 1

<p>What is one and a half added to four and a half?  <b>KS2 2000 Mental test level 3</b></p> <hr/> <p>Tick (✓) two cards that give a total of 5.</p> <div style="display: flex; flex-wrap: wrap; justify-content: space-around;"> <div style="border: 1px solid black; border-radius: 10px; padding: 10px; margin: 5px;">1 <math>\frac{1}{4}</math></div> <div style="border: 1px solid black; border-radius: 10px; padding: 10px; margin: 5px;">1 <math>\frac{1}{2}</math></div> <div style="border: 1px solid black; border-radius: 10px; padding: 10px; margin: 5px;">1 <math>\frac{1}{4}</math></div> <div style="border: 1px solid black; border-radius: 10px; padding: 10px; margin: 5px;">1 <math>\frac{1}{2}</math></div> <div style="border: 1px solid black; border-radius: 10px; padding: 10px; margin: 5px;">3 <math>\frac{3}{4}</math></div> <div style="border: 1px solid black; border-radius: 10px; padding: 10px; margin: 5px;">1 <math>\frac{1}{4}</math></div> </div> <p><b>KS2 2002 Paper A level 3</b></p>	<p><math>\frac{3}{8}</math> of a class are boys.</p> <p>What fraction are girls?  <b>Y5 Optional test Paper B level 3</b></p> <hr/> <p>About <math>\frac{4}{5}</math> of this vegetable patch is for potatoes. Draw a straight line to show how much of the patch is for potatoes. Shade in the area for potatoes.</p> <div style="border: 1px solid black; width: 150px; height: 30px; margin: 10px auto;"></div> <p>The rest of the patch is for turnips. About what fraction of the patch is for turnips?  <b>KS3 1996 Paper A level 4</b></p>
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## Calculating

- Add or subtract mentally pairs of two-digit whole numbers (e.g. 47 + 58, 91 – 35)

<p>Add seventeen and fourteen.  <b>Y3 optional test 1998 Mental test level 3</b></p> <hr/> <p>How many less than forty-one is seventeen?  <b>Y4 optional test 2003 Mental test level 3</b></p> <hr/> <p>Add together twenty-three and forty-eight.  <b>KS2 2005 Mental test level 3</b></p> <hr/> <p>What number is thirty-four more than fifty-eight?  <b>KS2 2003 Mental test level 3</b></p> <hr/> <p>How many less than forty-one is seventeen?  <b>Y4 optional test 2003 Mental test level 3</b></p> <hr/> <p>An apple costs eighteen pence, and an orange costs nineteen pence. How much are they altogether?  <b>KS2 1998 Mental test level 3</b></p> <hr/> <p>In a bag there are eighty-one red counters and thirty-seven yellow counters. How many counters are there altogether?  <b>Y5 optional test 1998 Mental test level 3</b></p> <hr/> <p>Emma is 21 years old today. Her father is 24 years older. How old is Emma's father?  <b>KS1 2005 level 3 [oral]</b></p>	<p>Jenny thought of a number. She doubled it and then added four. The answer was eighty-eight. Which number did she think of?  <b>KS2 2002 Mental test level 4</b></p> <hr/> <p>Add together thirteen, forty-seven and twenty-one.  <b>Y5 optional test 2003 Mental test level 3</b></p> <hr/> <p>Add together twenty-three, thirty-three and forty-three.  <b>KS2 2004 Mental test level 3</b></p> <hr/> <p>Add together fifty-three, fifty-five and fifty-seven.  <b>KS2 2002 Mental test level 3</b></p> <hr/> <p>Add together fourteen, twenty-three and forty-one.  <b>KS2 2001 Mental test level 3</b></p> <hr/> <p>Add together thirty-eight, twenty-three and forty-four.  <b>KS2 1999 Mental test level 3</b></p> <hr/> <p>Subtract one hundred and five from two hundred.  <b>KS2 2004 Mental test level 3</b></p> <hr/> <p>Calculate the difference between five hundred and two hundred and thirty.  <b>KS2 2000 Mental test level 4</b></p>
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Framework review

- Refine and use efficient written methods to add and subtract two-digit and three-digit whole numbers and £.p

Calculate  $584 + 79$ .

**Y5 optional test 2003 Paper A level 3**

Calculate  $137 - 65$ .

**Y5 optional test 2003 Paper A level 3**

Calculate  $369 + 251$ .

**KS2 2000 Paper A level 3**

Calculate  $309 - 198$ .

**KS2 2003 Paper A level 3**

Calculate  $438 - 296$ .

**KS2 1999 Paper A level 4**

Calculate  $808 - 512$ .

**KS2 1998 Paper A level 4**

A shop sells three types of sunglasses.



What is the difference in price between the most expensive and least expensive sunglasses?

These are the prices of sandwiches, drinks and fruit.

Sandwiches		Drinks		Fruit	
ham	£1.45	milk	55p	apple	15p
tuna	£1.70	cola	45p	pear	20p
salad	£1.20	juice	65p	melon	25p

Shereen buys a tuna sandwich, milk and a pear. How much does she pay?

Mike has 80p to spend on a fruit and a drink. What two things can he buy for exactly 80p?

**KS2 2004 Paper A level 3**

Write in the missing digits.

$$1 \square 7 + 6 \square = 200$$

**Y4 optional test 2003 Paper A level 3**

Write what the two missing digits could be.

$$\square 62 + \square 95 = 757$$

**KS2 1997 Paper A level 4**

- Multiply and divide numbers to 1000 by 10 and then 100 (whole number answers), understanding the effect; relate to scaling up or down

What is fifty-six multiplied by ten?

**KS2 1997 Mental test level 3**

If one hundred and seventy children are put into groups of ten children, how many groups will there be?

**Y4 optional test 1998 Mental test level 3**

Divide three hundred and ninety by ten.

**KS2 2001 Mental test level 4**

Write in the missing number.

$$\square \div 10 = 20$$

**KS2 1996 Paper A level 3**

Circle all the multiples of 10.

640    500    404  
170       26       195  
30             531

**Y3 optional test Paper B level 3**

Write in the missing number.

$$56 \times 100 = \square$$

**Y4 Optional test 1998 Paper A level 4**

What is sixty-five multiplied by one hundred?

**Y4 optional test 2003 Mental test level 4**

How many hundreds are there altogether in two thousand four hundred?

**Y5 optional test 2003 Mental test level 4**

- **Develop and use written methods to record, support and explain multiplication and division of two-digit numbers by a one-digit number, including division with remainders (e.g.  $15 \times 9$ ,  $98 \div 6$ )**

Write in the missing number.

$$5 \times 70 = \square$$

**KS2 2002 Paper A level 3**

What is thirty multiplied by seven?

**KS2 2004 Mental test level 3**

Divide ninety by three.

**KS2 2003 Mental test level 3**

Calculate  $58 \times 6$ .

**KS2 1998 Paper A level 4**

Circle each number which has a remainder of 2 when divided by 5.

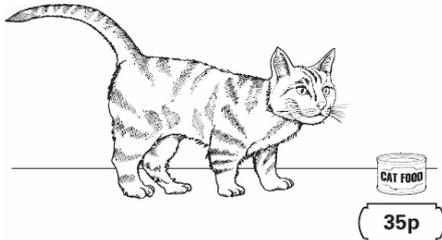
27 15 26 45 32 24

**Y5 Optional test 1998 Paper A level 3**

Calculate  $56 \div 4$ .

**KS2 2005 Paper A level 3**

Sarah's cat eats one tin of this cat food each day.



How much does it cost to feed Sarah's cat for 7 days?

**Y4 optional test 2003 Paper A level 3**

Write the answer.

$$84 \div 7 =$$

**Y4 optional test Paper A level 4**

What is the remainder when you divide 53 by 8?

**Y4 optional test 2003 Paper A level 3**

Write in the missing numbers.

$$4 \times \square = 200$$

**KS2 2002 Paper A level 3**

Write in the missing number.

$$\square \div 5 = 22$$

**KS2 1995 Paper A level 4**

Write in the missing digit.

$$\square 7 \times 9 = 333$$

**KS2 1996 Paper A level 4**

Write in the missing digit.

$$\begin{array}{r} 5\square \\ \times 8 \\ \hline 456 \end{array}$$

**KS2 1995 Paper A level 4**

Write in the missing digit.

The answer does not have a remainder.

$$\begin{array}{r} 26 \\ 3\square 8 \end{array}$$

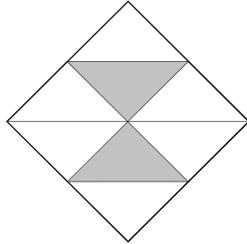
**KS2 1995 Paper B level 4 (no calculator)**

Parveen buys 3 small bags of peanuts. She gives the shopkeeper £2 and gets 80p change. What is the cost in pence of one bag of peanuts?

**KS2 1999 Paper A level 4**

- Find fractions of numbers, quantities or shapes (e.g.  $\frac{1}{2}$ )

Here is a square.



What fraction of the square is shaded?

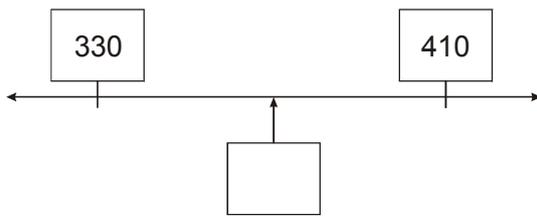
**KS2 2004 Paper A level 3**

Write the missing number to make this correct.

$$\frac{1}{4} \text{ of } 24 = \frac{1}{2} \text{ of } \square$$

**KS1 2004 level 3**

Which number comes halfway between 330 and 410? Write it in the box.



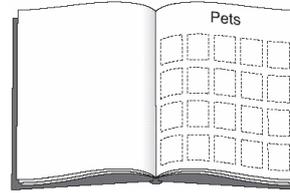
**KS1 2004 level 3**

of 30 plums,  $\frac{3}{8}$  of a 6 by 4 rectangle)

What is three-quarters of two hundred?

**KS2 2000 Mental test level 4**

Meg has 20 pet stickers to go on this page.



$\frac{1}{4}$  of them are dog stickers.

$\frac{1}{2}$  of them are cat stickers.

The rest are rabbit stickers.

How many rabbit stickers does she have?

**Y4 optional test 2003 Paper A level 3**

Match each box to the correct number. One has been done for you.

$\frac{1}{2}$  of 30

$\frac{1}{3}$  of 75

$\frac{1}{5}$  of 150

45

40

35

30

25

20

15

**KS2 2001 level 4**

Framework review

- Use a calculator to carry out one-step and two-step calculations involving all four operations; recognise negative numbers in the display, correct mistaken entries and interpret the display correctly in the context of money

Write in the missing number.

$$225 - \square = 150$$

**KS2 2003 Paper B level 3**

Write in the missing number.

$$60 + 99 + \square = 340$$

**KS2 2000 Paper B level 3**

Write the missing number.

$$48 \div \square = 4$$

**Y3 Optional test 1998 Paper B level 3**

Apples are sold in packets of 4 at the supermarket.  
How many apples are in 72 packs?

**Y5 Optional test 1998 Paper B level 3**

Plants are sold in trays of 20.  
Ivana buys 7 trays of plants.  
How many plants is this?

David wants 240 plants.  
How many trays does he need to buy?

**KS2 2001 Paper B level 3**

Pam has £1.37. She wants to buy a box of crayons which cost £2.75.  
How much more money does she need?

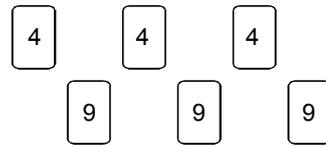
**Y4 optional test 1998 Paper B level 3**

A box of four tennis balls costs £2.96.  
How much does each ball cost?

Dean and Alex buy 3 boxes of balls between them.  
Dean pays £4.50.  
How much must Alex pay?

**KS2 2002 Paper B level 3**

Here are some number cards.



Use five of the number cards to make this correct.

$$\begin{array}{r} \square \quad \square \quad \square \\ + \quad \square \quad \square \\ \hline 5 \quad 4 \quad 8 \end{array}$$

**KS2 2001 Paper B level 3**

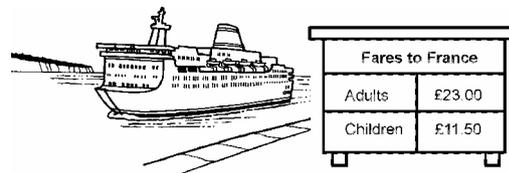
Complete this two digit number so that it is a multiple of 6.



**Y4 Optional test 1998 Paper B level 3**

Mrs Patel buys 4 milkshakes costing 65p each and 3 sandwiches costing £1.70 each.  
Work out the total cost.

**Y5 optional test 1998 Paper B level 3**



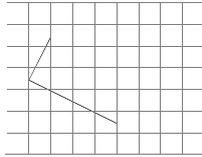
There are 2 adults and 3 children in a family. How much does it cost the family to go on the ferry?

**KS2 1996 Paper B level 3**

## Understanding shape

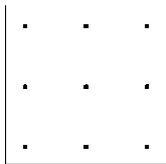
- Draw polygons and classify them by identifying their properties, including their line symmetry

Draw two more straight lines to make a rectangle.  
Use a ruler.



**KS2 2001 Paper A level 3**

On the grid join dots to make a triangle which does not have a right angle. Use a ruler.



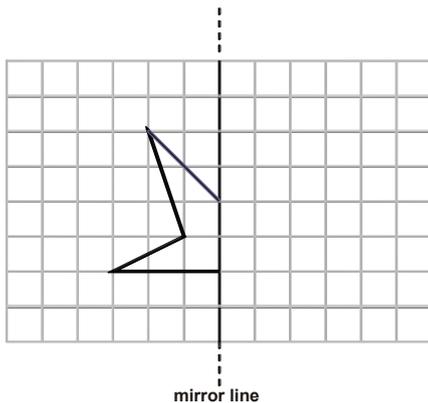
**KS2 2002 Paper B level 3**

Complete the table.

shape	property of shape		
	4 sides only	one or more right angles	two pairs of parallel sides
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

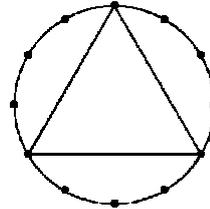
**KS2 1996 Paper A level 3**

Complete the diagram below to make a shape that is symmetrical about the mirror line. Use a ruler.

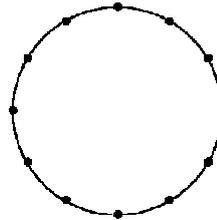


**KS2 2004 Paper B level 3**

Here is an equilateral triangle drawn on a circle.



Use a ruler to draw a regular hexagon on this circle.



**KS2 1996 Paper B level 3**

Complete this sentence.

All equilateral triangles have ...

**Y5 Optional test Paper B level 3**

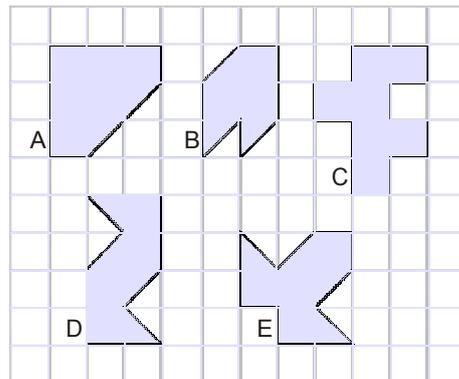
A shape has 4 right angles.

It has 4 sides which are not all the same length.

Write the name of this shape.

**Y4 Optional test Paper B level 3**

Here are five shapes on a square grid.



Write the letters of the two shapes which have a line of symmetry.

**KS2 2004 Paper A level 4**

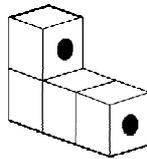
- Visualise 3-D objects from 2-D drawings; make nets of common solids

This table shows information about four solid shapes. Complete the table. One has been done for you.

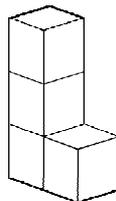
	number of flat surfaces	number of curved surfaces
sphere	0	1
cone		
cuboid		
cylinder		

**KS2 2005 Paper B level 3**

Tom makes this shape from four cubes stuck together. Two circles are drawn on the shape.

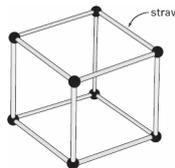


Tom moves the shape. Draw the circles on the shape in its new position.



**KS2 2001 Paper B level 3**

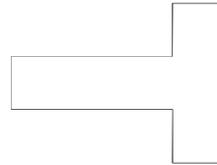
Anna makes a cube using straws.



First she joins 4 straws to make a square. Then she joins more straws to make a cube. Altogether, how many straws does she use?

**Y7 progress test 2005 Paper A level 3**

Draw in lines where you would fold this shape to make a cube. Use a ruler to measure where they would go.



**Y3 optional test 1998 Paper B level 3**

These nets will fold to make 3-D shapes. Match each net to the name of its shape.

**Y4 optional test 1998 Paper B level 3**

I am thinking of a 3-D shape. It has a square base. It has 4 other faces, which are triangles. What is the name of the 3-D shape?

**Y5 optional test 1998 Paper B level 3**

How many sides has a quadrilateral?

**Y3 optional test 2003 Mental test level 4**

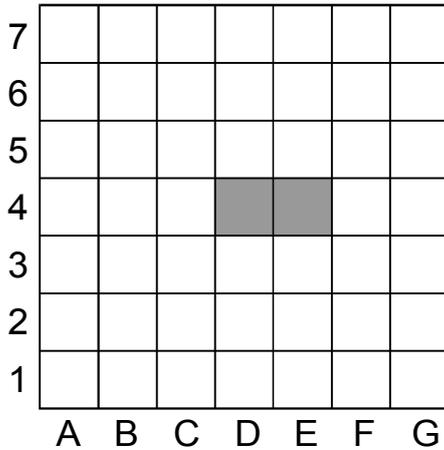
How many vertices has a cuboid?

**Y4 optional test 2003 Mental test level 4**

Framework review

- Recognise horizontal and vertical lines; use the eight compass points to describe direction; describe and identify the position of a square on a grid of squares

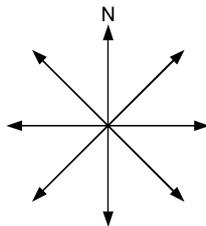
The shaded rectangle covers squares (D, 4) and (E, 4).



Draw and shade the rectangle that covers (B, 5) and (B, 6).

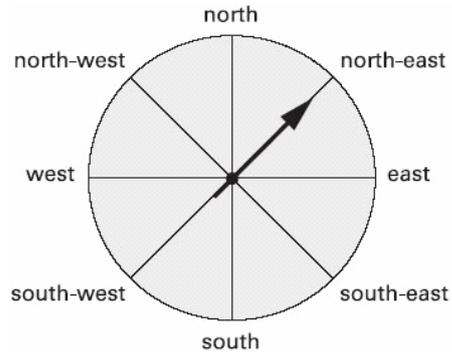
**Y3 Optional test Paper B level 2**

The arrow labelled N is pointing north. Which arrow is pointing south-east? Put a ring round the correct arrow.



**Y7 progress test 2004 Mental test level 3**

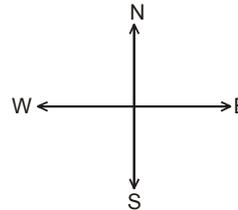
The arrow is pointing north-east.



The arrow is moved a quarter turn clockwise. In which direction is the arrow pointing after it is moved?

**Y4 optional test 2003 Paper A level 3**

Kelly is facing North. She turns clockwise through 2 right angles. Which direction is she facing now?



Aled is facing West. He turns clockwise through 3 right angles. Which direction is he facing now?

**KS3 1998 Paper A level 3**

I face west, then I turn through two right angles. What direction am I facing now?

**KS3 2005 Mental test level 3**

- Know that angles are measured in degrees and that one whole turn is  $360^\circ$ ; compare and order angles less than  $180^\circ$

Here is an arrow.



The arrow is rotated  $90^\circ$  clockwise. In which direction does the arrow now point? Put a tick ( $\checkmark$ ) by the correct answer.

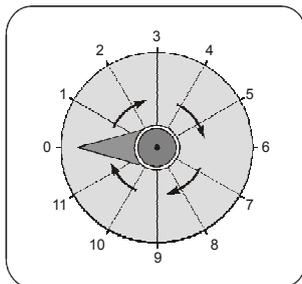


**Y5 optional test 2003 Paper A level 3**

A robot is facing West. It turns one hundred and eighty degrees clockwise. In what direction is the robot now facing?

**Y5 optional test 1998 Mental test level 4**

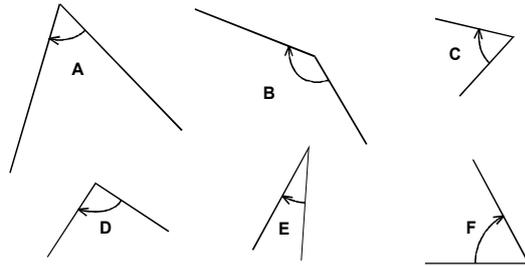
Here is a dial.



The pointer on this dial turns in a clockwise direction. The pointer is at 0. Which number does it point to after a turn of  $270^\circ$ ?

**KS2 1998 Paper A level 5**

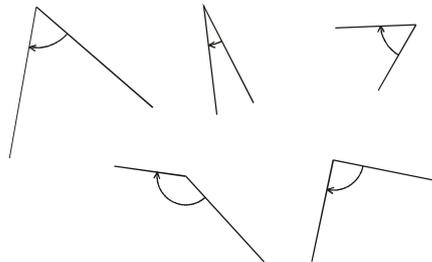
Look at these six angles.



- Which is the smallest angle?
- One of the angles is a right angle. Which is a right angle?
- One of the angles is an obtuse angle. Which is an obtuse angle?

**KS3 1999 Paper A level 3**

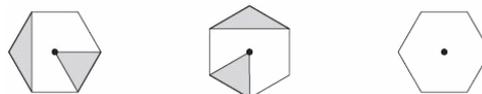
Two of these angles are the same size. Put rings around the two angles which are the same size.



Draw an angle which is bigger than a right angle.

**KS3 1998 Paper A level 3**

This pattern is made by turning a shape clockwise through  $90^\circ$  each time. Draw the two missing triangles on the last shape.



**KS2 2005 Paper B level 4**

## Measuring

- Choose and use standard metric units and their abbreviations when estimating, measuring and recording length, weight and capacity; know the meaning of 'kilo', 'centi' and 'milli' and, where appropriate, use decimal notation to record measurements (e.g. 1.3 m or 0.6 kg)

How many millimetres are in one centimetre?

**Y7 progress test 2005 Mental test level 3**

How many centimetres are there in two and a half metres?

**Y5 Optional test Mental test level 3**

How many metres are there in four and a half kilometres?

**KS2 2004 Mental test level 4**

Which value completes each sentence? Tick (✓) the correct box.

The length of a banana is about ...

- 2 cm  
 20 cm  
 200 cm  
 2000 cm

**Y7 progress test 2003 Paper B level 3**

Two of these sentences could be true. Tick (✓) the two sentences that could be true.

- Adam's pencil is 12 centimetres long.  
 Leah is 12 metres tall.  
 Jake's glass holds 12 litres of milk.  
 Kate's younger sister weighs 12 kilograms.

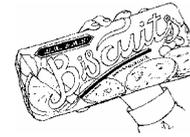
**Y4 optional test 2003 Paper A level 3**

Steve says there are 1000 centimetres in one metre. Is he correct?

Tick Yes  or No . Explain your answer.

**Y7 progress test 2005 Paper B level 3**

Robin has bought this packet of biscuits.



Tick (✓) the amount the biscuits are most likely to weigh.

- 10 kg   
 250 kg   
 5 g   
 250 g   
 10 g   
 5 kg

**Y4 Optional test 1998 Paper B level 3**

Sarah is cooking.

Tick (✓) the most likely capacity of the pan.



- 2.5 millilitres   
 25 millilitres   
 250 millilitres   
 2.5 litres   
 25 litres   
 250 litres

**Y4 optional test 1999 Paper B level 3**

Which value completes each sentence? Tick (✓) the correct box.

A can of drink holds about ...

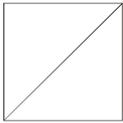
- 0.3 litres  
 3 litres  
 30 litres  
 300 litres

**Y7 progress test 2003 Paper B level 3**

Framework review

- Interpret intervals and divisions on partially numbered scales and record readings accurately, where appropriate to the nearest tenth of a unit

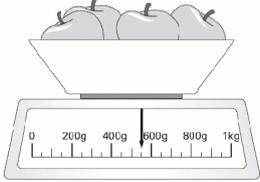
Measure accurately the length of the diagonal of this square.



Give your answer in centimetres.

**KS2 2004 Paper A level 3**

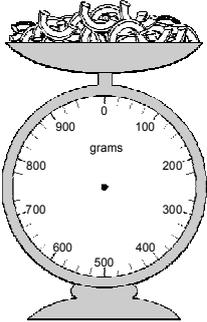
Here are some apples.



What is the total weight of these apples?

**Y5 optional test 2003 Paper A level 4**

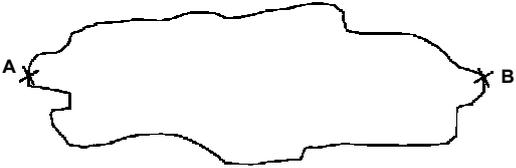
Jamie is cooking pasta. He weighs 350 grams of pasta. Draw an arrow on the scale to show 350 grams.



**KS2 2003 Paper A level 3**

This is a scale drawing of a pond.

Scale: 1 cm to 2 m

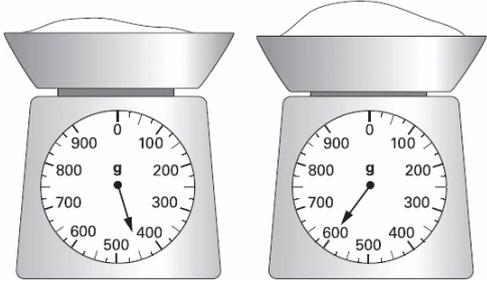


a. Use a ruler to measure the distance across the drawing from A to B.

b. Use the scale to work out the actual distance across the pond from A to B.

**Y5 Optional test 1998 Paper B level 3**

Emily is making a cake. She puts flour on the scales. She then adds sugar to the flour.



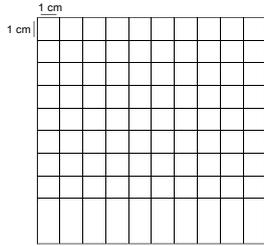
How much sugar does she add?

**Y5 optional test 2003 Paper B level 3**

Framework review

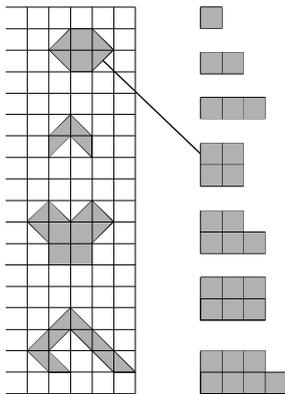
- Draw rectangles and measure and calculate their perimeters; find the area of a rectilinear shape drawn on a square grid by counting squares

Draw a rectangle whose perimeter is 18 centimetres. You must use the lines of the grid.



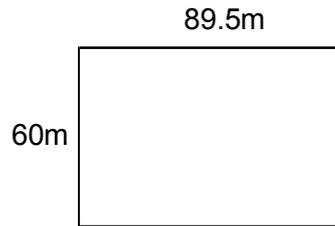
**Y4 Optional test 1998 Paper B level 3**

Match each shape on the left to one with equal area on the right. One has been done for you.



**KS2 2002 Paper A level 3**

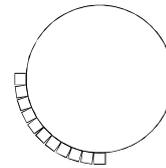
A field measures 89.5m by 60m.



What is the perimeter of the field?

**Y3 Optional test 1998 Paper B level 3**

The outside of this circle has 11 squares fitted around part of it.



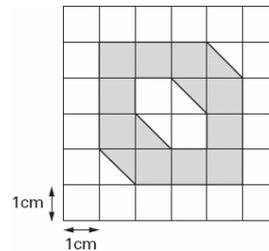
About how many squares could be fitted around the whole circle?

Tick (✓) the answer.

- 80   40   25   100   65

**Y3 Optional test 1998 Paper B level 3**

Here is a 1cm square grid. Some of the grid is shaded.



What is the area that is shaded?

**KS2 2005 Paper B level 4**

- Read time to the nearest minute; use am, pm and 12-hour clock notation; choose units of time to measure time intervals; calculate time intervals from clocks and timetables

How many hours are there in two days?

**KS2 2004 Mental test level 3**

How many minutes are there in two and a half hours?

**KS2 1998 Mental test level 3**

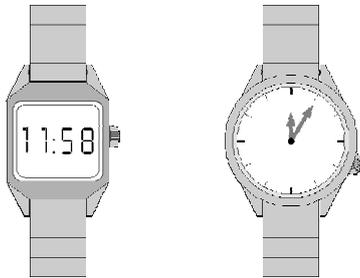
The time now is:



I woke up half an hour ago.  
What time was it when I woke up?

**2003 Y7 progress test Paper A level 3**

One of these watches is 3 minutes fast. The other watch is 4 minutes slow.



What is the correct time?

**KS2 2003 Paper B level 4**

My watch shows two-fifty p.m.  
What time will it show in thirty minutes?

**KS2 2001 Mental test level 3**

A film starts at 6:45 pm. It lasts 2 hours and 35 minutes. What time will the film finish?

**KS2 2004 Paper A level 4**

If the time is ten am, what time will it be in four hours? Write your answer using am or pm.

**Y7 progress test 2004 Mental test level 3**

A film lasts for 1 hour and 30 minutes and is shown twice. Complete the timetable for showing the film.

Starts	Ends
1:10	2:40
4:40	

**Y4 optional test 1998 Paper B level 3**

These are the opening times at a swimming pool.

	opening times	
	am	pm
Monday	Pool closed	
Tuesday		
Wednesday	10:30	to 5:30
Thursday	10:30	to 8:30
Friday	10:30	to 9:00
Saturday	8:00	to 6:00
Sunday	7:00	to 4:00

How many hours is the pool open on a Sunday?

Which day has the latest closing time?

Roy arrives at the pool at 5:20pm on Saturday. How many minutes is it before the pool closes?

**KS2 2000 Paper B level 3**

These are the radio programmes one morning.

7:00	Music show
7:55	Weather report
8:00	News
8:15	Travel news
8:25	Sport
8:45	Holiday programme

Josh turns the radio on at 7:25 am. How many minutes does he wait for the Weather report?

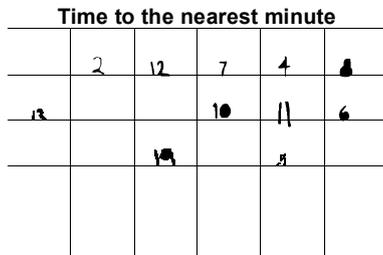
The Holiday programme lasts for 40 minutes. At what time does the Holiday programme finish?

**KS2 2005 Paper A level 3**

## Handling data

- Answer a question by identifying what data to collect; organise, present, analyse and interpret the data in tables, diagrams, tally charts, pictograms and bar charts, using ICT where appropriate

28 children timed their journey to school. They have written their journey times on this chart.

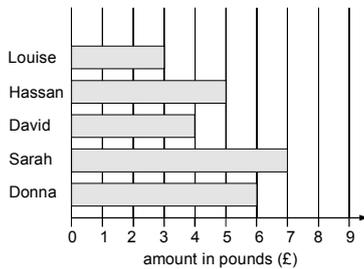


Use the chart to complete the table below.

Time in minutes	Tally	Total
15		7
6 10		
		4
		2
21 25		1

### Y4 Optional test 1998 Paper B level 3

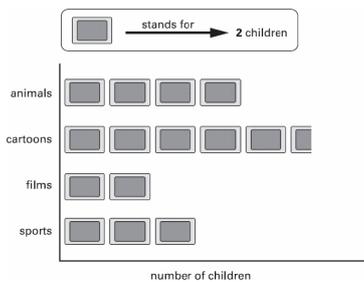
Five children collect money to plant trees. Here is a bar chart of the amounts they have raised so far.



Their target is £40 altogether. How much more money do they need to reach the target?

### KS2 1999 Paper A level 4

Kiz asked each child in his class, 'What kind of television programme do you prefer to watch?' Here are his results.



How many more children prefer to watch cartoons than films?

### Y5 optional test 2003 Paper B level 3

Chris did a survey of the number of people who went into shops in one hour.

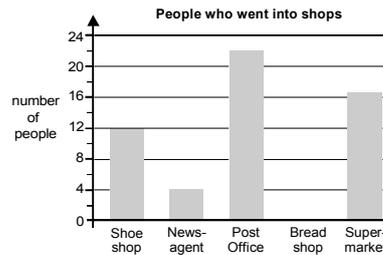
**Number of people who went into a shop**  
+++ stands for 5 people

Shoe shop	+++ +++
Newsagent	
Post Office	+++ +++ +++ +++
Bread shop	+++ +++
Supermarket	+++ +++ +++

How many people went into the Supermarket in the hour?

How many more people went into the Post Office than the Shoe shop?

Here is part of a bar chart of the information. Draw in the missing bar.

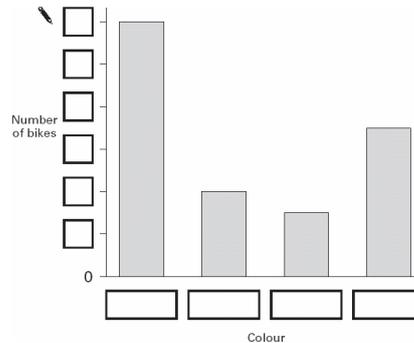


### KS2 1997 Paper B level 3

Robbie collected information about the colours of some bikes. Here are his results.

Colour	Number of bikes
green	4
red	7
blue	12
pink	3

This bar graph shows the information from the table. Fill in all the missing labels.

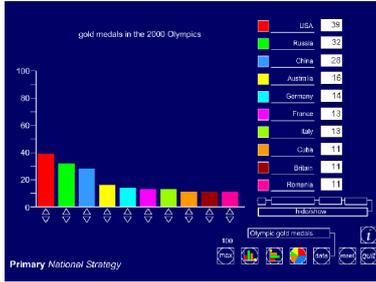


### KS2 2005 Paper A level 3

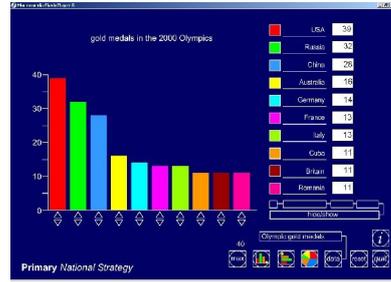
Framework review

- Compare the impact of representations where scales have intervals of differing step size

Number of gold medals in the 2000 Olympics shown on a bar chart with the vertical axis numbered in 20s from 0 to 100.



Number of gold medals in the 2000 Olympics shown on a bar chart with the vertical axis numbered in 10s from 0 to 40.



ITP Data handling: <http://www.standards.dfes.gov.uk/primary/teachingresources/>

Framework review

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