

# Year 5

## Using and applying mathematics

- Solve one and two-step problems involving whole numbers and decimals and all four operations, choosing and using appropriate calculation strategies, including calculator use

A fruit pie costs fifty-five pence.  
What is the cost of three fruit pies?

### KS2 2004 Mental test level 3

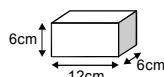
The table shows the number of shirts in a shop.

	white	not white
cotton	27	56
not cotton	74	90

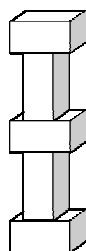
How many shirts are white?  
How many shirts are there altogether?

### Y5 Optional test 1998 Paper B level 3

Martin has some bricks. They are 12 cm long, 6 cm high and 6 cm deep.

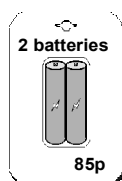
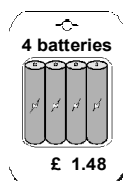


He builds this tower with five bricks. How tall is the tower?



### KS2 2003 Paper A level 4

A shop sells batteries in packs of 4 and packs of 2.



Simon and Nick want two batteries each.  
They buy a pack of four and share the cost equally.  
How much does each pay?

Mary buys 2 packs of two batteries.  
Hamid buys 1 pack of four.  
How much more does Mary pay than Hamid?

### KS2 2000 Paper A level 3

This table shows the distances in kilometres between five towns.

	Birmingham	Cardiff	London	Manchester	Newcastle
Birmingham		179	188	127	334
Cardiff	179		269	278	489
London	188	269		298	441
Manchester	127	278	298		212
Newcastle	334	489	441	212	

Use the table to find the distance from London to Manchester.

James goes from Newcastle to Birmingham, and then on to Cardiff. How many kilometres does he travel?

### KS2 1997 Paper B level 4

The table shows the cost of coach tickets to different cities.

		Hull	York	Leeds
Adult	single	£12.50	£15.60	£10.25
	return	£23.75	£28.50	£19.30
Child	single	£8.50	£10.80	£8.25
	return	£14.90	£17.90	£14.75

What is the total cost for a return journey to York for one adult and two children?

How much more does it cost for two adults to make a single journey to Hull than to Leeds?

### KS2 2002 Paper B level 4

Write in the missing digit.

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

### KS2 1995 Paper A level 4

- Represent a puzzle or problem by identifying and recording the information or calculations needed to solve it; find possible solutions and confirm them in the context of the problem

Tim has saved £86 for an electronic player costing £119. Which number sentence could Tim use to find how much more he needs to save?

- A  $119 + 86 = \square$   
 B  $\square - 86 = 119$   
 C  $119 \div 86 = \square$  D  
 $119 - 86 = \square$  E  
 $86 - \square = 119$

The dots on opposite faces of a dice add up to 7.  
 Imagine rolling one dice.



The score is the total number of dots you can see.  
 You score 17. Which number is face down?  
 How did you work out your answer?

Imagine rolling two dice.



The score is the total number of dots you can see.  
 Which numbers are face down to score 30?  
 How did you work out your answer?

Some children go camping.  
 It costs £2.20 for each child to camp each night.  
 They go for 6 nights.  
 How much will each child have to pay for the 6 nights?

There are 70 children.  
 Each tent takes up to 6 children.  
 What is the least number of tents they will need?  
 Show your method.

#### KS2 1998 Paper A level 4

Tilly's parcel cost 55p to post. She stuck on 8 stamps. Each stamp was either 10p or 5p.



How many of each stamp did Tilly stick on her parcel?

Show how you worked out your answer.

You need 6 drinking straws each the same length.  
 Cut two of them in half. You now have 8 straws, 4 long and 4 short.

You can make 2 squares from the 8 straws like this.



Arrange your 8 straws to make 3 squares, all the same size.





Draw a diagram to show your solution.

- Plan and pursue an enquiry; present evidence by collecting, organising and interpreting information; suggest extensions to the enquiry

Class survey of favourite fruit drinks

flavour	number of children
pineapple	2
orange	10
blackcurrant	8
grapefruit	6
apple	9

Complete the pictogram for the class.

flavour	number of children
blackcurrant	
apple	
	
orange	
pineapple	

How many children altogether chose the three most popular flavours?

Write another question you can ask someone about the results of the class survey.

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

This chart shows the musical instruments some children play.

	Lena	John	Rashid	Nicola	Yin
drums	✓	✓		✓	
keyboard			✓		
trumpet	✓				✓
recorder			✓	✓	✓
piano	✓	✓	✓		

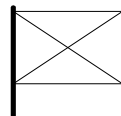
Who plays both recorder and drums?

How many children play more than two musical instruments?

Write another question you can ask someone about the information in the table.

#### KS2 2001 Paper B level 3 [adapted]

A flag has four triangular sections.

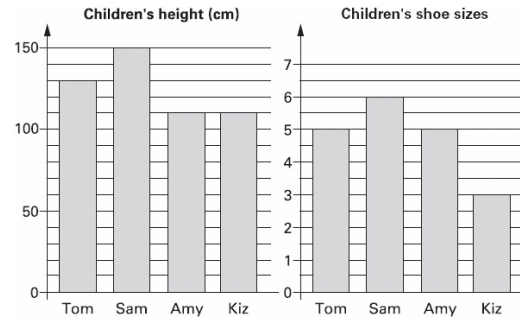


One triangle is red, one triangle is yellow, one triangle is blue and one triangle is green.

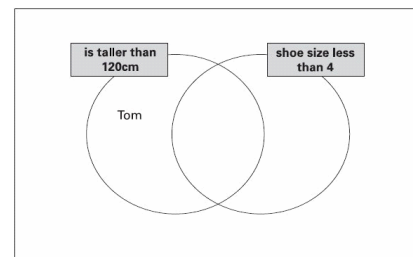
How many different flags can be made like this?

What if two of the triangles are the same colour?

These graphs show data about Tom, Sam, Amy and Kiz.



Use this data to write each child's name in the correct region on the Venn diagram. One has been done for you.



#### Y5 optional test 2003 Paper B level 4

60 children visit the zoo.

They each vote for their favourite big cat.

Complete the table.

favourite big cat	number of children
cheetah	7
lion	22
tiger	13
panther	
leopard	10
<b>total</b>	<b>60</b>

Now look at each sentence below. Put a tick (✓) if it is true. Put a cross (✗) if it is not true.

- ☐ Nine more children voted for the lion than for the leopard.
- ☐ The lion was more popular than the tiger.
- ☐  $\frac{1}{4}$  of the children voted for the tiger.

#### Y3 optional test 2003 paper A level 3

What is the smallest number that leaves:

- a remainder of 1 when divided by 2; a remainder of 2 when divided by 3; a remainder of 3 when divided by 4; a remainder of 5 when divided by 6?

A teacher collects exactly £85 for concert tickets. Tickets for the stalls cost £7. Tickets for the balcony cost £9. How many tickets has the teacher sold?

- Explore patterns, properties and relationships and propose a general statement involving numbers or shapes; identify examples for which the statement is true or false

Write what the missing numbers could be.

is an **odd** number, and is **greater than 15**.

is a number **greater than 100** and can be **divided by 4**, with **no remainder**.

### KS2 1997 Paper B level 3

This number square is torn.

6	12	18	24
30	36	42	48
54	60		
78			

What was the largest number on the square before it was torn?

### Y4 optional test 1999 Paper B level 3

Here are five digit cards.

0	1	4	5	8
---	---	---	---	---

Use all five digit cards to make this correct.

$$\square\square \times 2 = \square\square\square$$

### KS2 2004 Paper B level 3

This relationship connects the number of pencils and the number of boxes.

$$\text{number of pencils} = \text{number of boxes} \times 12$$

How many pencils are in 18 boxes?

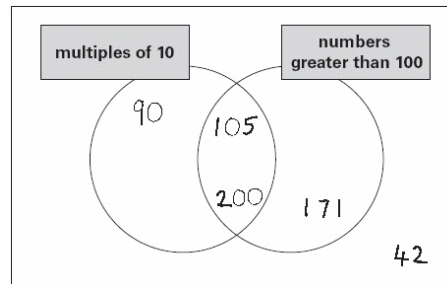
### Y5 optional test 1998 Paper B level 4

Use the digits 2, 3 and 4 once to make the multiplication which has the greatest product.

$$\square\square \times \square$$

### KS2 2004 Paper B level 4

One number is in the wrong place on the sorting diagram. Put a cross (✖) on it.



### Y3 optional test 2003 Paper B level 4

Here is a sorting diagram for numbers. Write a number less than 100 in each space.

	even	not even
a square number		
not a square number		

### KS2 2004 Paper A level 4

Here are four digit cards.

7	5	2	1
---	---	---	---

Choose two cards each time to make the following two-digit numbers. The first one is done for you.

an even number 52

a multiple of 9  $\square\square$

a square number  $\square\square$

a factor of 96  $\square\square$

### KS2 2003 Paper A level 4

The rule for this number sequence is 'double and subtract 1'. Write in the missing number.

2 3 5 9  $\square$

Here is part of another sequence with the same rule. Write in the missing number.

$\square$  13 25 49

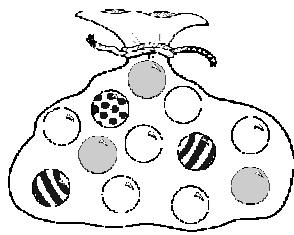
### KS2 1996 Paper B level 3

John says: 'Multiples of 4 always end in 2, 4, 6 or 8.'

Is he correct? Write YES or NO.

Explain how you know.

- Explain reasoning using diagrams, graphs and text; refine ways of recording using images and symbols



Key	
	striped
	spotty
	white
	grey

These marbles are hidden in a bag.  
The bag is shaken.  
Pete pulls out one marble without looking.  
Which kind of marble is Pete most likely to pull out?

Explain how you know.

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

Explain why 16 is a square number.

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

On sports day children get points for how far they jump.

Standing Long Jump		
Over	80cm	1 point
Over	100cm	2 points
Over	120cm	3 points
Over	140cm	4 points
Over	160cm	5 points
Over	180cm	6 points

Joe jumped 138cm. How many points does he get?  
Sam said, 'I jumped 1.5 metres. I get 4 points'.  
Give a reason why Sam is correct.

#### KS2 1995 Paper B level 4

$\square$  represents the number of times Sammi goes swimming each month. Which of these represents the total number of times Sammi goes swimming over the year?

- A  $12 + \square$   
B  $12 - \square$   
C  $12 \times \square$   
D  $\square \div 12$   
E  $12 \div \square$

Asim and Mike both buy 12 cans of lemonade.  
Asim buys 3 packs of 4 cans at £1.20 for each pack.  
Mike buys 2 packs of 6 cans at £1.70 for each pack.  
Mike says to Asim, 'You paid 50p more than me.'  
Is Mike correct? Circle Yes or No.  
Explain how you know.

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

Sapna makes up a game using seven cards. Here are the cards.



Josh picks a card without looking.  
If Josh picks an odd number then Sapna scores a point.  
If Josh picks an even number then Josh scores a point.  
Is this a fair game?  
Circle Yes or No. Explain how you know.

#### KS2 2005 Paper A level 4

Here is a number sequence. Write the missing number.

1 3 6 10  $\square$

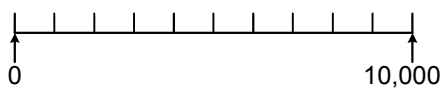
Explain how you worked it out.

#### KS2 1997 Paper A level 4

## Counting and understanding number

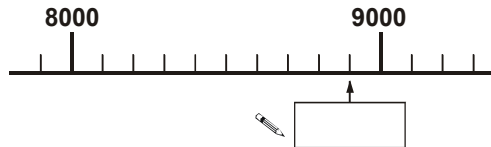
- Count from any given number in whole-number and decimal steps, extending beyond zero when counting backwards; relate the numbers to their position on a number line

Draw an arrow ( $\uparrow$ ) to show the position for 7,500.



**Y4 Optional test level 3**

Here is part of a number line. Write in the number indicated by the arrow.

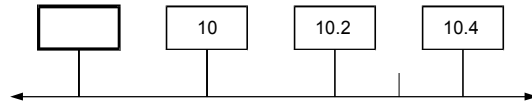


**KS2 1998 Paper B level 4**

Write the next number in this counting sequence.  
Eight point seven, eight point eight, eight point nine,  
....

**Y7 progress test 2003 level 4**

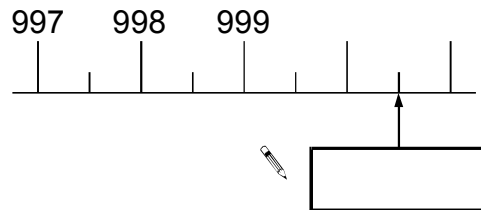
Write in the missing number on this number line.



**KS2 2001 Paper B level 4**

Here is part of a number line.

Write the number shown by the arrow.



**KS2 2000 Paper B level 4**

- Explain what each digit represents in whole numbers and decimals with up to two places, and partition, round and order these numbers

What number equals 8 ones + 7 tens + 5 hundreds + 30 thousands?

- A 3 578
- B 30 578
- C 35 780
- D 875 030
- E 305 780

Look at these digits.

5 0 8 2

Make the largest number possible with the digits.  
Write your number in words.

#### Y5 optional test 1998 Paper B level 4

Here are four digit cards.



Write in three of the digits to make the total nearest to 1000.

$$650 + \square\square\square =$$

#### Y5 optional test 2003 Paper B level 4

A car costs more than £8600 but less than £9100.  
Tick (✓) the prices that the car could cost.

- £8569 ☐
- £9090 ☐
- £9130 ☐
- £8999 ☐

#### Y5 optional test 2003 Paper B level 4

Round each of these numbers to the nearest 100.

- 1070 → ☐
- 8225 → ☐
- 3680 → ☐

#### Y4 optional test 1999 Paper B level 4 [adapted]

What is four thousand seven hundred and seventy-three rounded to the nearest hundred?

#### Y4 optional test 2003 Mental test level 4

Write the number twenty thousand and sixty-nine in figures.

#### KS2 1998 Mental test level 4

In the number 73 4061, what does the 3 represent?

- A tens of thousands
- B thousands
- C hundreds
- D tens
- E ones

Write the total as a decimal.

$$4 + \frac{6}{10} + \frac{2}{100} =$$

Write a number in the box to make this correct.

$$6.45 = 6 + 0.4 + \square$$

Write the same number in each box to make this correct.

$$\square + \square + \square = 10.5$$

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

Children run a 100 metres race on Sports Day.  
Here are their times.

Name	Time taken
Sue	15.97 secs
Jan	16.39 secs
Sam	14.83 secs
Tom	17.00 secs
Raj	15.89 secs

What is the winner's time?

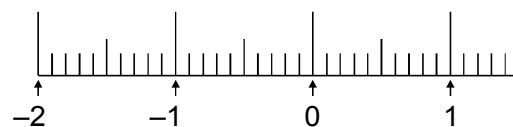
Who has the time nearest to 16 seconds?

#### KS2 1996 Paper A level 3

On the number line, which of these numbers would be closest to 2?

1.35      1.92      2.02      2.92

Mark with arrows the points **-1.5** and **0.45** on the number line.



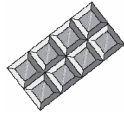
#### Y5 optional test 1998 Paper B level 4

Write a number that is bigger than nought point three but smaller than nought point four.

#### KS3 2003 Mental test level 4

- Express a smaller whole number as a fraction of a larger one, e.g. recognise that 5 out of 8 is  $\frac{5}{8}$ ; find equivalent fractions, e.g.  $\frac{7}{10} = \frac{14}{20}$ , or  $\frac{19}{10} = 1\frac{9}{10}$ ; relate fractions to their decimal representations

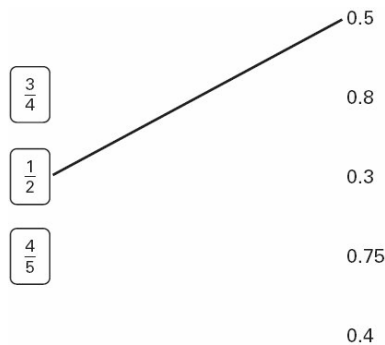
Here is a chocolate bar.



William eats 3 pieces and Amber eats 2 pieces.  
What fraction of the chocolate bar remains?

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

Match each box to the number which has the same value. One has been done for you.



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

Write four tenths as a decimal number.

**KS2 1998 Mental test level 4**

What is three quarters as a decimal?

**KS2 2001 Mental test level 4**

Which of these means  $\frac{7}{10}$ ?

- A 7    B 10    C 10.7    D 0.7    E 0.07?

Write 0.23 as a fraction.

Which number represents the shaded part of the large rectangle?

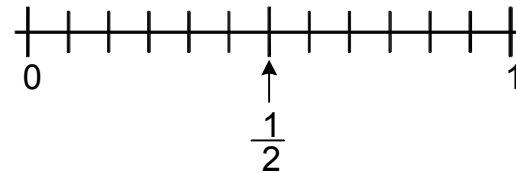


- A. 2.8    B. 0.8    C. 8.2    E. 0.2    D. 0.02

Look at these fractions.

$$\frac{1}{2} \quad \frac{1}{3} \quad \frac{5}{6}$$

Mark each fraction on the number line. The first one is done for you.



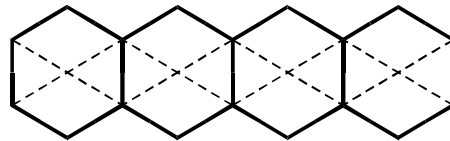
**KS3 2001 Paper A level 4**

Fill in the missing numbers in the boxes.

$$\frac{2}{12} = \frac{\square}{6} \quad \frac{1}{2} = \frac{12}{\square} \quad \frac{1}{\square} = \frac{6}{24}$$

**KS3 2001 Paper A level 4**

This diagram shows four regular hexagons. Shade in one third of the diagram.



**KS2 2003 Paper B level 5**

Put a tick (✓) in each row to complete this table. One has been done for you.

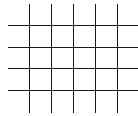
	greater than $\frac{1}{2}$	less than $\frac{1}{2}$
0.9	✓	
0.06		
$\frac{11}{20}$		
0.21		

**KS2 2001 Paper A level 4**



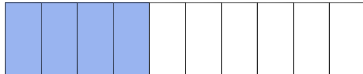
- Understand percentage as the number of parts in every 100 and express tenths and hundredths as percentages

Here is a grid made of squares.  
Shade 10% of this grid.



**KS2 1998 Paper A level 4**

What percentage of the bar is shaded?



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

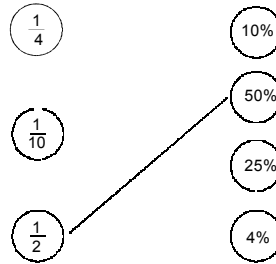
What is seven-tenths as a percentage?

**KS2 2005 Mental test level 4**

What is thirty out of one hundred as a percentage?

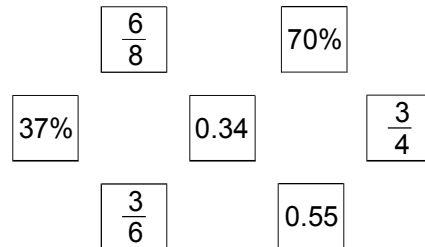
**KS2 2004 Mental test level 4 [adapted]**

Draw a line to join each fraction to a percentage of the same value.



**Y4 Optional test Paper B level 3**

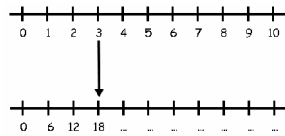
Tick each of the cards that shows more than a half.



**Y4 optional test 1998 Paper B level 4**

- Use sequences to scale numbers up or down; solve problems involving proportions of quantities, e.g. decrease quantities in a recipe designed to feed six people

18 is 6 times as many as 3.



What number is 6 times as many as 9?

A school has exactly twice as many boys as girls. There are one hundred and thirty-two girls. How many boys are there?

**KS2 1998 Mental test level 4**

One orange costs nineteen pence. How much will three oranges cost?

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

One orange costs fifteen pence. How much would five oranges cost?

**Y4 optional test 1998 Mental test level 4**

An apple costs seventeen pence. How much will three cost?

**Y4 optional test 1999 Mental test level 4**

A fruit pie costs fifty-five pence. What is the cost of three fruit pies?

**KS2 2004 Mental test level 4**

4 pineapples cost £3.40. Calculate the cost of 1 pineapple.

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

A packer boxes 10 computers every quarter hour. It takes her  $1\frac{3}{4}$  hours to box all the computers. How many computers did she box?

Sal uses 12 oranges to make half a litre of juice. How much juice will Sal make from 36 oranges?

- A One and a half litres
- B Two litres
- C Two and a half litres
- D Three litres
- E More than 3 litres

There are 42 counters, and they are put into 7 containers, so that the same number of counters is in each container. How many counters would 3 containers contain?

- A 126 counters
- B 21 counters
- C 18 counters
- D 12 counters
- E 6 counters

## Knowing and using number facts

- Use knowledge of place value and addition and subtraction of two-digit numbers to derive sums and differences, doubles and halves of decimals, e.g.  $6.5 \pm 2.7$ , half of 5.6, double 0.34

What is three point one plus one point two?

**Y4 optional test 1999 Mental test level 4**

Add three point five to four point eight.

**KS2 2000 Mental test level 4**

Subtract one point nine from two point seven.

**KS2 2003 Mental test level 4**

What is double fifteen point five?

**KS2 2001 Mental test level 4**

What is half of three point six?

**KS2 1998 Mental test level 4**

How much is half of nine pounds fifty?

**KS3 2003 Mental test level 4**

- Recall quickly multiplication facts up to  $10 \times 10$ , use them to multiply pairs of multiples of 10 and 100; derive quickly corresponding division facts

How many nines are there in fifty-four?

**KS3 2003 Mental test level 4**

Divide ninety by three.

**KS2 2003 Mental test level 3**

What is thirty multiplied by seven?

**KS2 2004 Mental test level 3**

Multiply sixty by fifty.

**KS2 1998 Mental test level 4**

Write in the missing numbers.

$$5 \times 70 = \square$$

$$4 \times \square = 200$$

**KS2 2002 Paper A level 3**

Write in the missing number.

$$600 \times 4 = \square$$

**Y3 optional test Paper A level 3**

How many sevens are there in two hundred and ten?

**KS2 2000 Mental test level 4**

Five times a number is two hundred. What is the number?

**KS2 2004 Mental test level 4**

How many forties are there in eight hundred?

**KS2 2003 Mental test level 4**

Write in the missing number.

$$8 \times \square = 400$$

**KS2 2001 Paper A level 4**

- Identify pairs of factors of two-digit whole numbers and find common multiples, e.g. for 6 and 9

Here are four number cards.



Which two number cards are factors of 42?

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

Write the missing numbers.

Factors of 20 = {1, ..., ..., ..., ..., 20}

**Y4 optional test 1999 Paper B level 4**

Put a ring around the numbers which are factors of thirty.

4 5 6 20 60 90


**KS2 2000 Mental test level 4**

Put a ring around the number which is not a factor of three hundred.

60 75 90 100 150

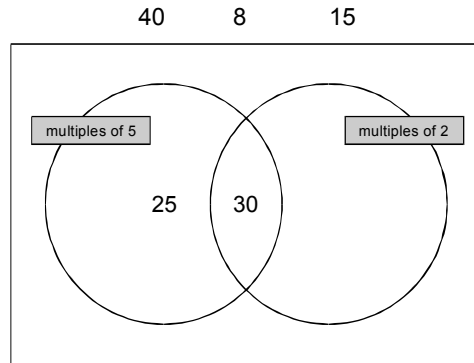
**KS2 2002 Mental test level 4**

Write in the missing numbers in this multiplication grid.

	<b>x</b>	5	<input type="text"/>	<input type="text"/>
4		20	36	32
<input type="text"/>		35	63	56
<input type="text"/>		30	54	48

**KS2 2000 Paper A level 4**

Write each of these numbers in its correct place on the sorting diagram.



**KS2 2000 Paper A level 3**

What is the smallest whole number that is divisible by five and by three?

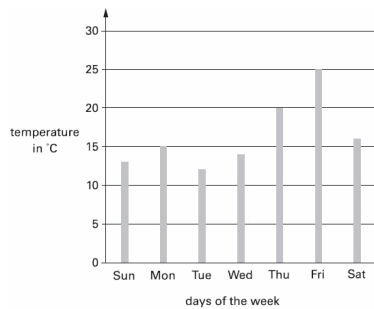
**KS3 2004 Mental test level 4**

Write down a number that is both a multiple of four and a multiple of six.

**KS3 2002 Mental test level 4**

- Use knowledge of rounding, place value, number facts and inverse operations to estimate and check calculations

This graph shows the temperature at midday each day for a week.



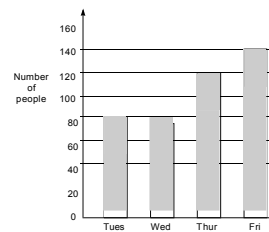
Estimate how much higher the temperature was on Friday than on Saturday.

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

$33 \times 16$  is more than  $32 \times 16$ . How much more?

- A 1
- B 16
- C 32
- D 33

This bar chart shows how many people went to a school play.

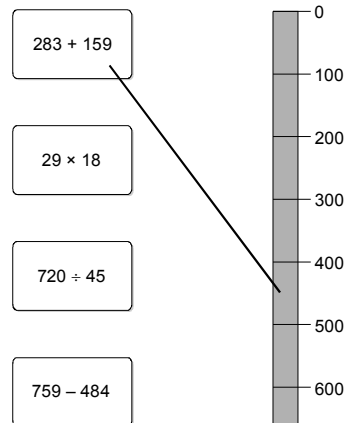


Estimate the number of people who went there on Thursday and Friday altogether.

Each person paid £2.25 for a ticket to get in. How much ticket money was collected on Wednesday?

**KS2 2000 Paper B level 4**

Draw a line from each card to the correct part of the number line. One has been done for you. You may use a calculator.



**KS2 2002 Paper B level 3**

## Calculating

- Extend mental methods for whole-number calculations, for example to multiply a two-digit by one-digit number (e.g.  $12 \times 9$ ), to multiply by 25 (e.g.  $16 \times 25$ ), to subtract one near-multiple of 1000 from another (e.g.  $6070 - 4097$ )

What number is two less than nine hundred and one?

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

What number is one hundred and ninety-nine more than four hundred and twenty-eight?

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

One orange costs nineteen pence. How much will three oranges cost?

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

One orange costs fifteen pence. How much would five oranges cost?

**Y4 optional test 1998 Mental test level 4**

An apple costs seventeen pence. How much will three cost?

**Y4 optional test 1999 Mental test level 4**

A fruit pie costs fifty-five pence. What is the cost of three fruit pies?

**KS2 2004 Mental test level 4**

4 pineapples cost £3.40.  
Calculate the cost of 1 pineapple.

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

What is twenty-one multiplied by nine?

**KS2 2000 Mental test level 4**

What is one thousand minus one hundred and ten?

**KS2 2004 Mental test level 3**

What is three thousand subtract ten?

**Y5 optional test 1998 Mental test level 3**

What is the difference between one thousand nine hundred and ninety-four and four thousand and three?

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

What is one thousand, two hundred and ninety-nine add one?

**Y5 optional test 1999 Mental test level 4**

What is twenty-five multiplied by eight?

**Y4 optional test 1998 Mental test level 4**

What is twelve multiplied by twenty-five?

**KS2 2001 Mental test level 4**

- Use efficient written methods to add and subtract whole numbers and decimals with up to two places

Calculate  $1025 - 336$ .

**KS2 2001 Paper A level 4**

Calculate  $1202 + 45 + 367$ .

**KS2 2005 Paper A level 4**

Calculate  $6247 - 2752$ .

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

Here is the cost of pizzas.

PIZZAS		
	Small	Medium
Ham	£4.20	£5.50
Salami	£4.40	£5.75
Mushroom	£4.50	£6.00
Cheese	£3.80	£4.95
Tuna	£4.25	£5.40
Extra tomato	50p	
Extra cheese	60p	

Jill orders one small cheese pizza with extra tomato. What is the total cost?

Ben buys one small pizza and one medium pizza. They cost him £10. Which two could they be?

**KS2 1996 Paper A level 3**

Write what the two missing digits could be.

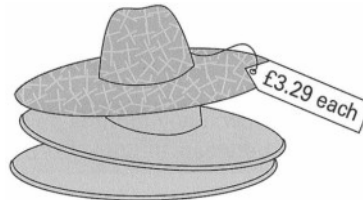
$$\square 62 + \square 95 = 757$$

**KS2 1997 Paper A level 4**

Calculate  $13.6 - 2.8$

**KS2 2004 Paper A level 4**

A shop sells sun hats.

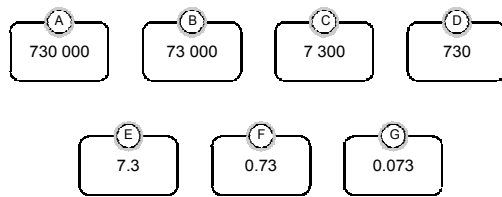


Ryan buys some sunglasses for £4.69 and a sun hat. How much change does he get from £10?

**KS2 2004 Paper A level 4**

- Use understanding of place value to multiply and divide whole numbers and decimals by 10, 100 or 1000

Look at these number cards.



Write the letter of the card that is

ten times as big as 73 ...

one thousand times as big as 73 ...

one hundredth of 73 ...

**Y7 optional test Paper A level 4**

Multiply thirty-one by ten.

**KS3 2003 Mental test level 4**

What is four hundred divided by one hundred?

**Y7 progress test 2005 level 4**

What is two thousand divided by ten?

**Y7 optional test Mental test level 4**

How many hundreds are there in one thousand?

**Y7 progress test 2004 level 4**

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

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

Divide nine thousand three hundred by one hundred.

**KS3 2005 Mental test level 4**

- Refine and use efficient written methods to multiply and divide  $\text{HTU} \times \text{U}$ ,  $\text{TU} \times \text{TU}$ ,  $\text{U.t} \times \text{U}$ , and  $\text{HTU} \div \text{U}$

Calculate  $549 \times 6$ .

**KS2 1998 Paper A level 4**

Work out  $32 \times 21$ .

**Y7 progress test 2003 Paper A level 4**

Calculate  $47 \times 32$ .

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

There are 12 pencils in a box. A school buys 24 boxes. How many pencils does the school buy?

**KS2 1997 Paper A level 4**

Write in the missing number.

$$32.62 \div 10 =$$

**Y5 optional test Paper A level 4**

Write in the missing number.

$$3400 \div \square = 100$$

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

Write what the four missing digits could be.

$$\square\square\square \div 10 = 3\square$$

**KS2 1997 Paper A level 4**

Divide thirty-one point five by ten.

**Y5 optional test 2003 Mental test level 5**

What is seven point five divided by one hundred?

**KS2 2004 Mental test level 5**

Ten times a number is eighty-six. What is the number?

**KS2 2002 Mental test level 5**

What is six point two multiplied by one thousand?

**KS3 2005 Mental test level 5**

Calculate  $847 \div 7$ .

**KS2 2001 Paper A level 4**

Calculate  $942 \div 6$ .

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

Write in the missing digits to make this correct.

$$\begin{array}{r} \square \quad 4 \quad \square \\ \times \quad \quad \quad 6 \\ \hline 2 \quad 0 \quad 5 \quad 2 \end{array}$$

**KS2 2001 Paper A level 4**



- Find fractions using division, e.g.  $\frac{1}{100}$  of 5 kg, and percentages of numbers and quantities, e.g. 10%, 5% and 15% of £80

What is one-fifth of twenty-five?

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

What is fifty per cent of ten?

**KS3 2004 Mental test level 4**

What is ten per cent of ninety metres?

**Y4 optional test 1998 Mental test level 4**

What is fifty per cent of twenty pounds?

**KS3 2003 Mental test level 4**

What is fifty percent of forty?

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

- Use a calculator to solve problems, including those involving decimals or fractions, e.g. find  $\frac{3}{4}$  of 150 g; interpret the display correctly in the context of measurement

Write in the missing numbers.

$$37 \times \square = 111$$

$$\square \div 4 = 21$$

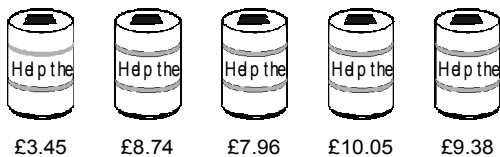
**KS2 2003 Paper B level 3**

Write in the missing number.

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

**KS2 2000 Paper B level 3**

These tins show the amounts collected for a charity.



What was the total amount collected?

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

Cinema tickets cost £3.25 for an adult and £2.00 for a child. How much will it cost for 2 adults and 3 children to go to the cinema?

How much will it cost for 2 adults and 3 children to go to the cinema?

Grandma buys three drinks and spends £2.70. She pays with 50p and 20p coins. How many of each coin does she need?

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



A spoonful is 5 ml. How many spoonfuls can you get from this bottle?

**Y5 optional test 1998 Paper B level 4**

Write in the missing number.

$$22 \times \square = 660$$

**KS2 2002 Paper B level 3**

Write in the missing number.

$$8 \times \square = 400$$

**KS2 2001 Paper B level 3**

102 people came to the sale and paid 15p each to go in. How much money was collected at the entrance?

Each car had to pay £7 to be at the sale. The school collected £399 from the cars. How many cars were there?

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

You save £1.50 per week.



How many weeks before you can buy this book?

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

Write in the missing digits.

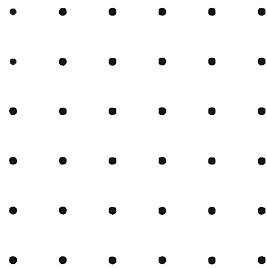
$$\begin{array}{r} 2 \square 8 \\ + 29 \square \\ \hline 555 \end{array}$$

**KS2 1995 Paper B level 4**

## Understanding shape

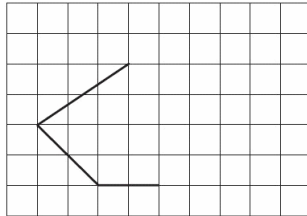
- Identify, visualise and describe properties of rectangles, triangles, regular polygons and 3-D solids; use knowledge of properties to draw 2-D shapes and to identify and draw nets of 3-D shapes

Use the dots to draw a shape that has 4 straight sides and no right angles.



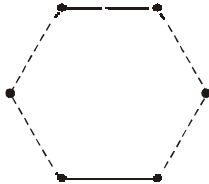
### Y5 optional test 1998 Paper B level 3

Here is part of a shape on a square grid. Draw two more lines to make a shape which has a line of symmetry. Use a ruler.

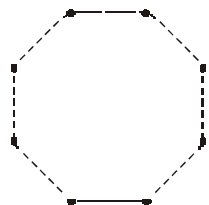


### KS2 2005 Paper A level 4

Here is a regular hexagon. Join three of the dots to make an equilateral triangle. Use a ruler.



Here is a regular octagon. Join three of the dots to make an isosceles triangle. Use a ruler.



### KS2 2004 Paper B level 4

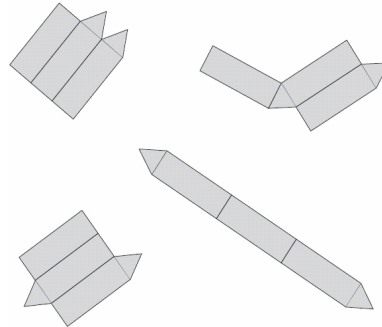
What is the size of each angle in an equilateral triangle?

### KS2 1998 Mental test level 4

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

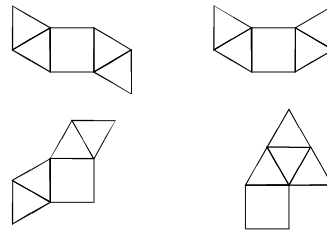
### Y5 optional test Mental test level 3

Two of these diagrams are nets for a triangular prism. Put a tick (✓) in them.



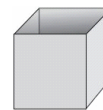
### Y4 optional test 2003 Paper A level 3

Look at each of these diagrams. Put a tick (✓) if it is the net of a square based pyramid. Put a cross (✗) if it is not.

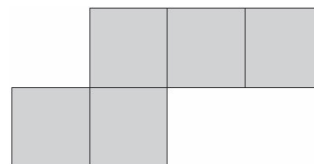


### KS2 2000 Paper B level 4

Here is an open top cube.

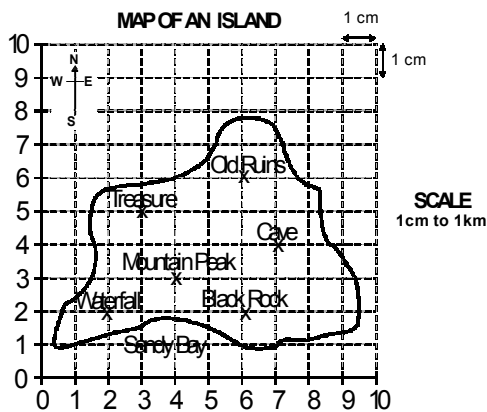


Here is the net from which it is made. Put a tick (✓) on the square which is its base.



### Y5 optional test 2003 Paper A level 4

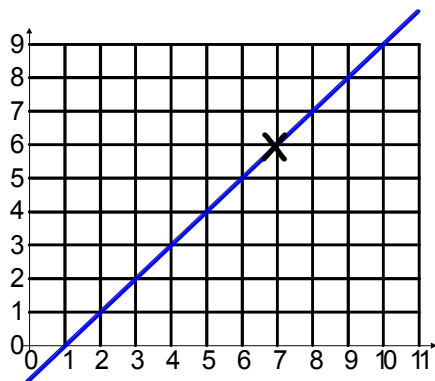
- Read and plot co-ordinates in the first quadrant; recognise parallel and perpendicular lines in grids and shapes; use a set-square and ruler to draw shapes with perpendicular or parallel sides



The Cave has co-ordinates (7,4). What are the co-ordinates of the Treasure?

#### Y5 optional test 1998 Paper B level 4

(7, 6) are coordinates of a point on the line.

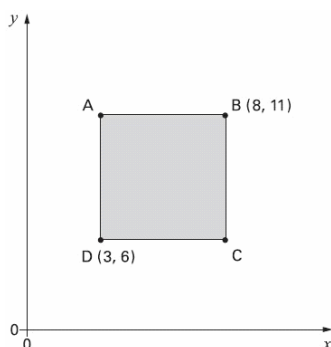


Tick (✓) which of these are coordinates of other points on the line.

- (3,2) ☐ (9,10) ☐ (5,4) ☐  
(4,2) ☐ (10,9) ☐ (7,9) ☐

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

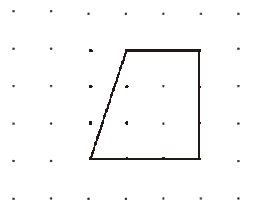
Here is a shaded square.



Write the coordinates for point A.

#### Y5 optional test 2003 Paper B level 4

Look at the shape drawn on the square grid. For each statement below, tick (✓) True or False.

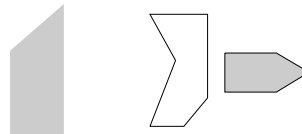


True False

- The shape has exactly 2 right angles. ☐ ☐  
The shape has 2 pairs of parallel lines. ☐ ☐  
The shape has one line of symmetry. ☐ ☐  
The shape is a quadrilateral. ☐ ☐

#### Y7 progress test 2004 Paper A level 3

Here are 4 shapes.

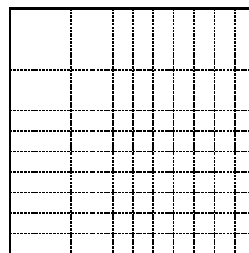


Each shape has two parallel sides.

Write TWO other things which are the same about ALL the 4 shapes.

#### KS2 1995 Paper A level 4

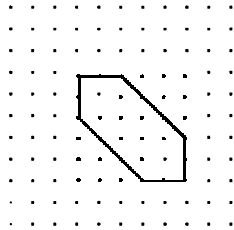
Here is a grid of centimetre squares. On the grid draw a quadrilateral. It must have only one pair of parallel sides.



#### KS2 1995 Paper A level 4

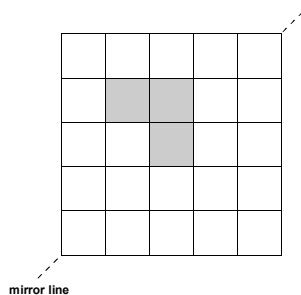
- Complete patterns with up to two lines of symmetry; draw the position of a shape after a reflection or translation

Draw the 2 lines of symmetry on this shape. You may use a mirror.



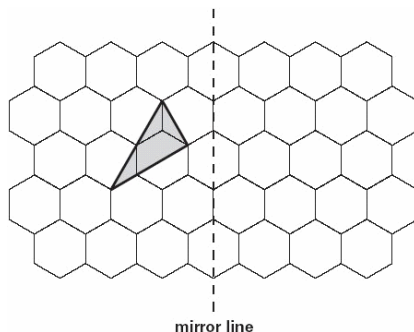
**KS1 2001 level 3**

Shade in two more squares to make this design symmetrical about the mirror line. You may use a mirror or tracing paper.



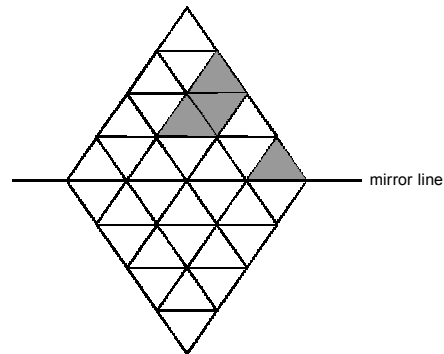
**KS2 2001 Paper B level 3**

This grid is made of hexagons. Draw the reflection of the shaded shape on the grid.



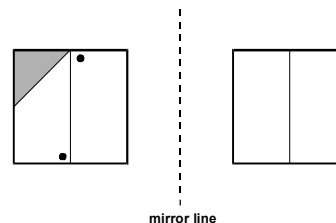
**KS2 2005 Paper B level 3**

Shade in the reflection of this shape. You may use a mirror.



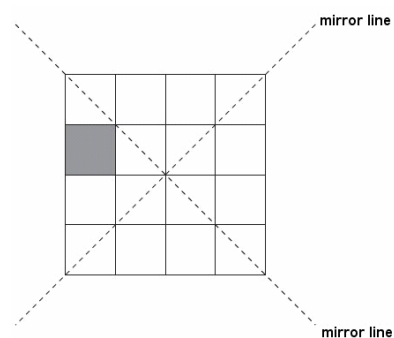
**Y4 optional test 1999 Paper B level 3**

Here is a square with a design on it. The square is reflected in the mirror line. Draw the missing triangle and dots on the reflected square. You may use a mirror or tracing paper.



**KS2 2002 Paper A level 3**

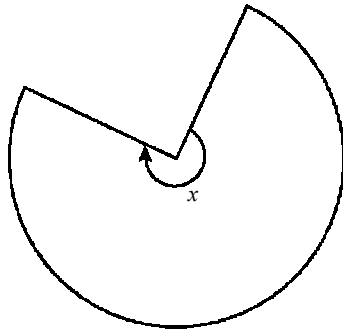
Here is a shaded square on a grid. Shade in 3 more squares so that the design is symmetrical in both mirror lines.



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

- Estimate, draw and measure acute and obtuse angles using an angle measurer or protractor to a suitable degree of accuracy; calculate angles in a straight line

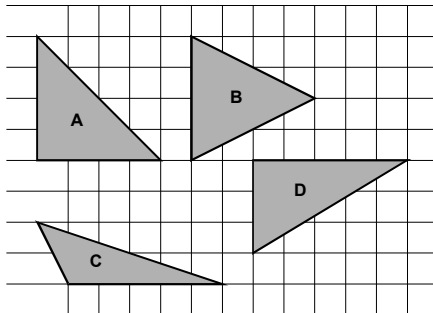
This shape is three-quarters of a circle.



How many degrees is angle  $x$ ?

**KS2 2001 Paper A level 4**

Here are four triangles drawn on a square grid.



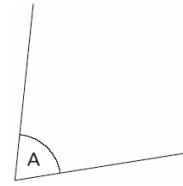
Write the letter for each triangle in the correct region of the sorting diagram. One has been done for you.

	has a right angle	has an obtuse angle	has an acute angle
is isosceles	A		
is not isosceles			

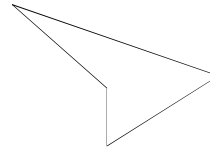
**KS2 2002 Paper B level 4**

Measure angle A accurately.

Use a protractor (angle measurer).



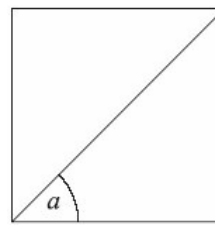
**Y5 optional test 2003 Paper A level 4**



Measure accurately the smallest angle in the shape. Use a protractor (angle measurer).

**KS2 2001 Paper A level 4**

The diagram shows a square.

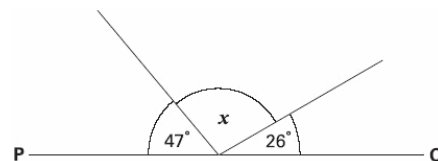


How many degrees is angle  $a$ ?

**Y7 Progress test Paper A level 4**

PQ is a straight line.

Not drawn accurately



Calculate the size of angle  $x$ .

Do not use a protractor (angle measurer).

**Y5 optional test 2003 Paper B level 5**

## Measuring


- Read, choose, use and record standard metric units to estimate and measure length, weight and capacity to a suitable degree of accuracy e.g. the nearest whole centimetre; convert larger to smaller units using decimals to one place, e.g. change 2.6 kg to 2600 g

What is two hundred and seventy-six centimetres to the nearest metre?

**KS2 2001 Mental test level 4**

Write these lengths in order, starting with the shortest.

$\frac{1}{2}$  m    3.5 cm    25 mm    20 cm



shortest

**KS2 2003 Paper B level 4**

The jug holds  $\frac{1}{2}$  litre. The bucket holds 5 litres.



How many full jugs of water are needed to fill the bucket?

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

A tin of baked beans weighs four hundred grams. How many grams less than one kilogram is this?

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

Max jumped 2.25 metres on his second try at the long jump.

This was 75 centimetres longer than on his first try. How far in metres did he jump on his first try?

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

Circle one amount each time to make these sentences correct.

The distance from London to Manchester is about:

320 cm    320 m    320 km

A tea cup is likely to hold about:

15 ml    150 ml    1500 ml

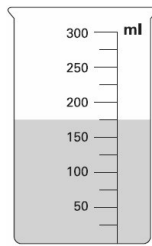
A hen's egg is likely to weigh about:

6 g    60 g    600 g

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

- Interpret a reading that lies between two unnumbered divisions on a scale

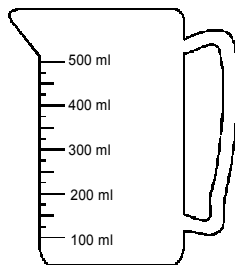
David puts this amount of water in a container.



Then he pours 50 millilitres of the water out. How much water is left in the container?

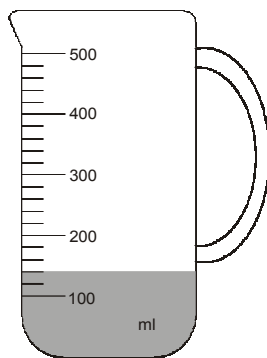
**Y4 optional test 2003 Paper B level 4**

Mina has two cartons of juice. Each carton contains 220 ml. She empties them both into this jug. Draw an arrow (→) to show the level of the mixture in the jug.



**KS2 2002 Paper B level 4**

Mr Khan makes a blackcurrant drink for a party. He pours blackcurrant squash into a jug.



How much water must he add to make 500 millilitres of drink?

**KS2 2004 Paper A level 4**

Put a ring round the approximate mass of an eating apple.

1g 5g 10g 150g 1000g

**KS2 1998 Mental test level 4**

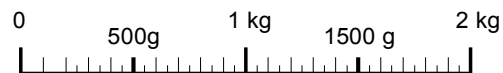
Katie's glass holds a quarter of a litre when it is full. She nearly fills it to the top with juice.

Tick (✓) the approximate amount of juice she puts in the glass.

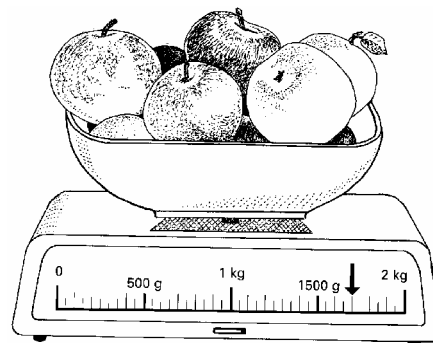
- |                 |                          |
|-----------------|--------------------------|
| 4 millilitres   | <input type="checkbox"/> |
| 20 millilitres  | <input type="checkbox"/> |
| 120 millilitres | <input type="checkbox"/> |
| 220 millilitres | <input type="checkbox"/> |
| 420 millilitres | <input type="checkbox"/> |

**Y3 optional test 2003 Paper B level 4**

A piece of cheese has a mass of 350 grams. Mark an arrow on the scale to show the reading for 350 g.



Here are some apples.

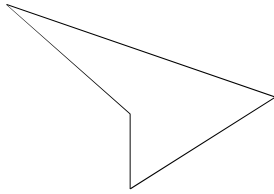


What is the total mass of these apples?

**KS2 1997 Paper B level 4**



- Draw and measure lines to the nearest millimetre; measure and calculate the perimeter of regular and irregular polygons; use the formula for the area of a rectangle to calculate the rectangle's area



Measure accurately the longest side of this shape. Give your answer in millimetres.

**KS2 2001 Paper A level 4**

An equilateral triangle has a perimeter of twenty-four centimetres. How long is one of its sides?

**KS2 2002 Mental test level 4**

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

**KS2 1999 Mental test level 3**

Each side of a pentagon is twelve centimetres. What is the perimeter of the pentagon?

**KS2 2001 Mental test level 4**

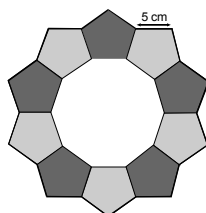
A regular hexagon has sides six centimetres long. What is the perimeter of the hexagon?

**Y4 optional test Mental test level 4**

The perimeter of a regular octagon is forty centimetres. What is the length of each side?

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

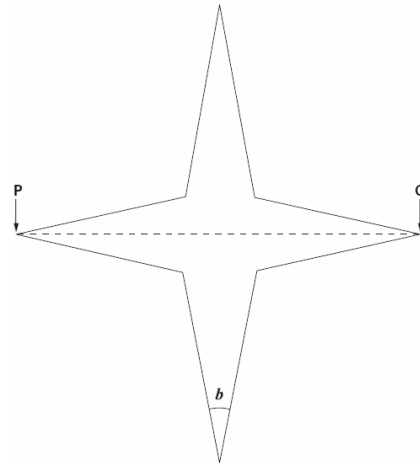
This ring is made of regular pentagons, with sides of 5 centimetres.



What is the length of the outer edge of the ring?

**KS2 1997 Paper A level 4**

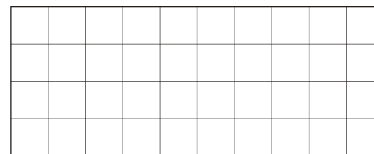
Look at this star.



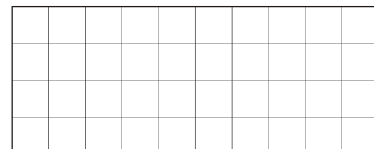
Use a ruler to measure accurately the width of the star, from P to Q. Give your answer in millimetres.

**KS2 2005 Paper A level 5**

Here is a centimetre square grid. On the grid draw a shape which has an area of 10 square centimetres.



On the grid below draw a rectangle which has a perimeter of 10 centimetres.



**KS2 1998 Paper B level 4**

- Read timetables and time using 24-hour clock notation; use a calendar to calculate time intervals

How many days are there altogether in June and July?

#### Y5 optional test 2003 Mental test level 3

Here is the calendar for August 1998.

August 1998						
Sun	Mon	Tues	Wed	Thur	Fri	Sat
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

Simon's birthday is on August 20th. In 1998 he had a party on the Sunday after his birthday. What was the date of his party?

Tina's birthday is on September 9th. On what day of the week was her birthday in 1998?

#### KS2 1999 Paper B level 4

Here is part of a calendar.

December						
Mon	Tues	Wed	Thur	Fri	Sat	Sun
		1	2	3	4	
6	7	8	9	10		
13	14	15				
20	21	22				
27	28					

Tyrone's birthday is on December 18th. On what day of the week is Tyrone's birthday?

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

Put a ring around the time which is the same as seventeen-fifteen.

5:15 am    5:45 am  
5:15 pm    7:15 pm    7:45 pm

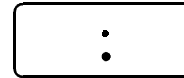
#### Y5 optional test 2003 Mental test level 4

Put a ring around the time which is the same as fourteen-thirty.

2:30 am    4:30 pm    4:30 am  
1:43 pm    2:30 pm

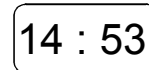
#### KS2 2000 Mental test level 4

How would quarter past four in the afternoon be shown on a twenty-four hour digital clock?



#### KS2 1999 Mental test level 4

Here is a clock.



What time will the clock show in 20 minutes?

#### KS2 2003 Paper B level 3

An aeroplane takes off on Tuesday at 22:47. It lands on Wednesday at 07:05.

How long in hours and minutes is the flight?

#### Y4 optional test Paper B level 3

These are the start and finish times on a video cassette recorder.

START 14:45

FINISH 17:25

For how long was the video recording?

#### KS2 1999 Paper B level 4

Put a ring round the time which is the same as fourteen-thirty.

2:30am    4:30pm    4:30am  
1:43pm    2:30pm

#### KS2 2000 Mental test level 4

Here is part of a train timetable.

Edinburgh	–	09:35	–	–	13:35	–	–
Glasgow	09:15	–	11:15	13:15	–	13:45	15:15
Stirling	09:57	–	11:57	13:57	–	14:29	15:57
Perth	10:34	10:51	12:34	14:34	14:50	15:15	16:35
Inverness	–	13:10	–	–	17:05	–	–

How long does the first train from Edinburgh take to travel to Inverness?

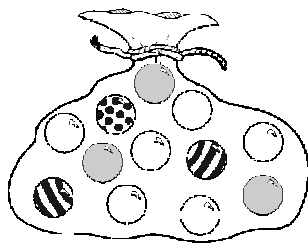
Ellen is at Glasgow station at 1.30pm. She wants to travel to Perth. She catches the next train. At what time will she arrive in Perth?

#### KS2 2004 Paper A level 5

## Handling data

- Describe the occurrence of familiar events using the language of chance or likelihood

These marbles are hidden in a bag.



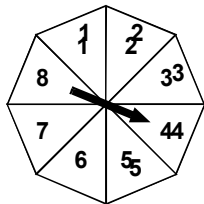
Key	
	striped
	spotty
	white
	grey

The bag is shaken. Pete pulls out one marble without looking. Which kind of marble is Pete most likely to pull out?

Explain how you know.

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

Mel uses an 8-sided spinner.

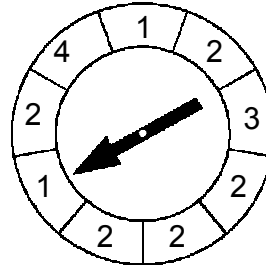


Draw lines to show how likely the following are.

a number less than 10	impossible
the number 11	unlikely
the same number three times in a row	even chance
an odd number	likely
	certain

**KS2 1997 Paper A level 3**

The spinner is divided into nine equal sections.

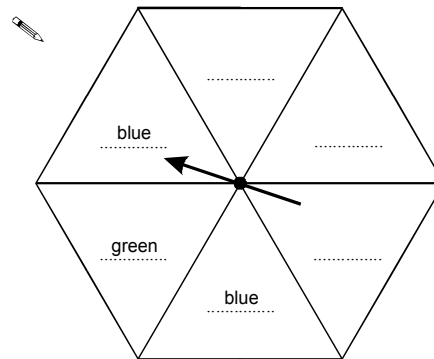


Which two different numbers on the spinner are equally likely to come up?

Meera says, '2 has a greater than even chance of coming up'. Explain why she is correct.

**KS2 2000 Paper A level 4**

Write colours on this spinner so that you are more likely to spin green than you are to spin blue.



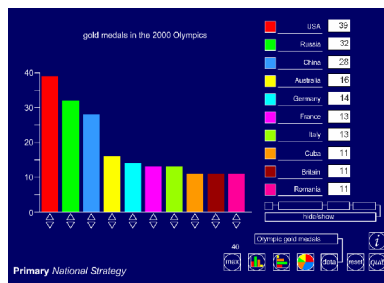
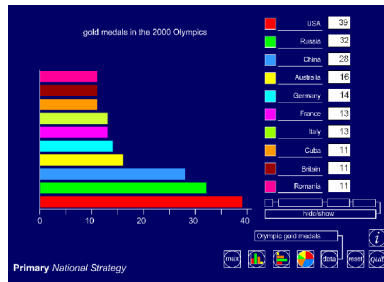
**Y7 progress test 2003 Paper A level 4**

- Answer a set of related questions by collecting, selecting and organising relevant data; draw conclusions, using ICT to present features, and identify further questions to ask

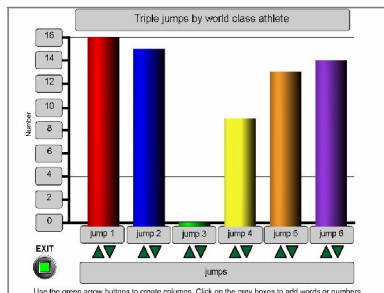
Which countries were most successful in winning gold medals in the 2000 Olympics? What happened in 2004?

Which country won the gold medal for the triple jump in 2000? What happened in 2004?

Gold medals in 2000 Olympics: ITP Data handling:  
<http://www.standards.dfes.gov.uk/primary/teachingresources/>

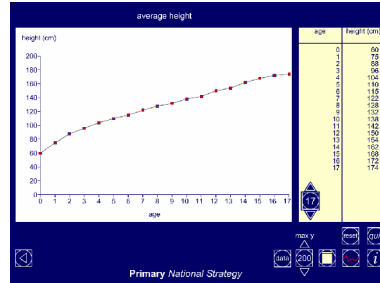


Triple jumps by world class athlete: Handy graph:  
<http://www.standards.dfes.gov.uk/primary/teachingresources/>



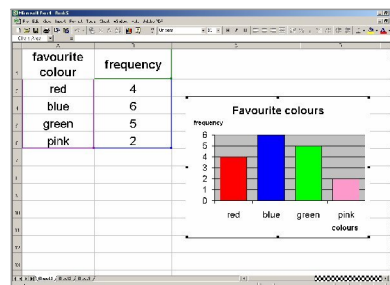
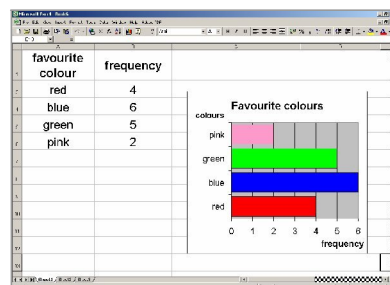
What is the average height of children of different ages? Are there differences for boys and girls?

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



Which of these colours do Class 5 prefer: red, blue, green, pink? Is the result the same for Class 6?

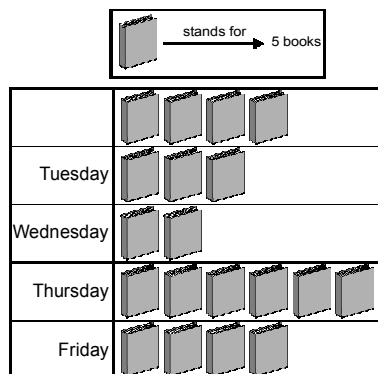
Horizontal and vertical bar charts produced in Excel showing the result of a small survey on favourite colours (mode was blue).



- Construct frequency tables, pictograms and bar and line graphs to represent the frequencies of events and changes over time

Look at this pictogram.

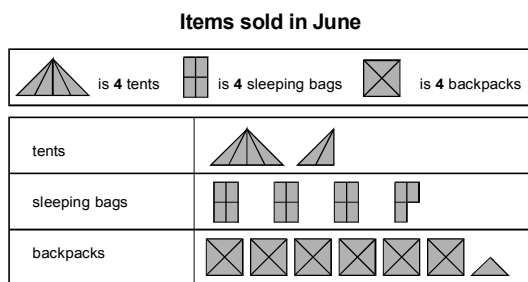
Number of books borrowed from the library



How many more books were borrowed on Tuesday than on Wednesday?

**KS1 2000 level 3**

A camping shop sells tents, sleeping bags and backpacks. This chart shows how many of each they sold in June.

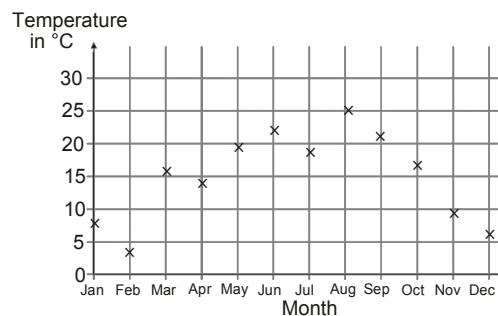


The shop had 20 sleeping bags at the beginning of June. How many of these sleeping bags did the shop have left at the end of June?

In July, the shop sold three times as many tents as in June. How many tents did the shop sell in July?

**KS2 2000 Paper A level 4**

Abbie takes the temperature outside at midday on the first day of each month. The graph shows her results from January to December.

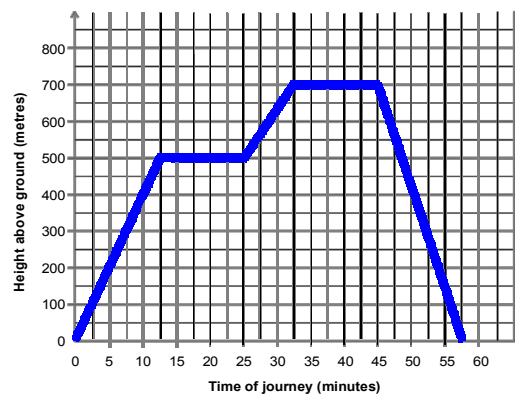


How many months on the graph show a temperature between 10°C and 20°C?

Find the difference in temperature shown on the graph between July and August.

**KS2 2004 Paper A level 4**

The graph shows the journey of a hot-air balloon.



At what height above the ground was the balloon after 10 minutes?

After how many minutes of the journey did the balloon begin to go down?

**Y5 optional test 1998 Paper B level 4**

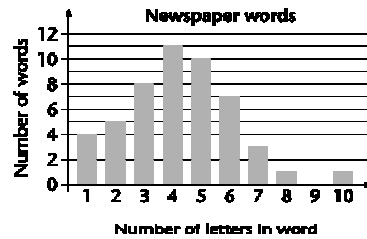
- Find and interpret the mode of a set of data

Colour of cars we saw

colour	number of cars
red	18
yellow	5
green	3
blue	4
white	7
silver	8

What colour did we see most often?  
 What colour was the second highest number of cars?  
 Which two colours of cars were seen the least?  
**Y4 optional test 1999 Paper B level 3 [adapted]**

Kelly chooses a section of a newspaper. It has 50 words in it. She draws a bar chart of the number of letters in each word.



What fraction of the 50 words have more than 6 letters?  
 What is the mode for the number of letters used in a word?

**KS2 1997 Paper B level 5 [adapted]**

Write a number in each of these boxes so that the mode of the five numbers is 11.

**KS2 1997 Paper A level 5**

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*please go to [www.testbase.co.uk](http://www.testbase.co.uk).*