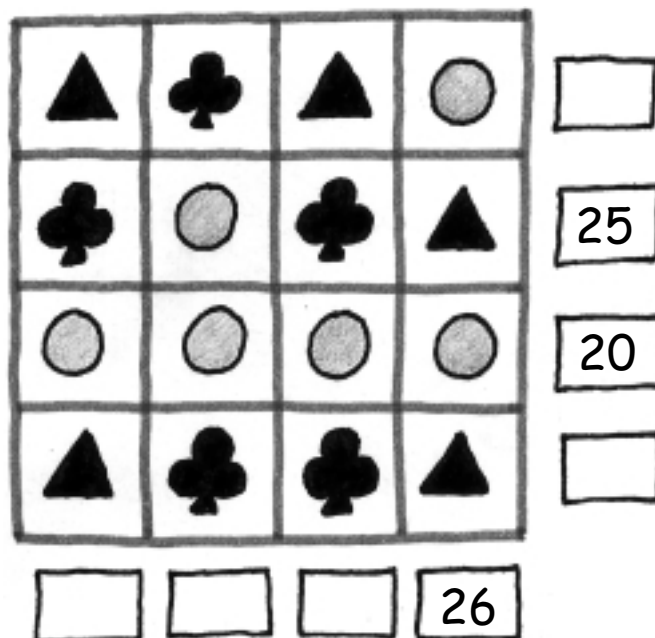


**Puzzles and problems
for Years 5 and 6**

Shape puzzle

Each shape stands for a number.

The numbers shown are the totals of the line of four numbers in the row or column.



Find the remaining totals.

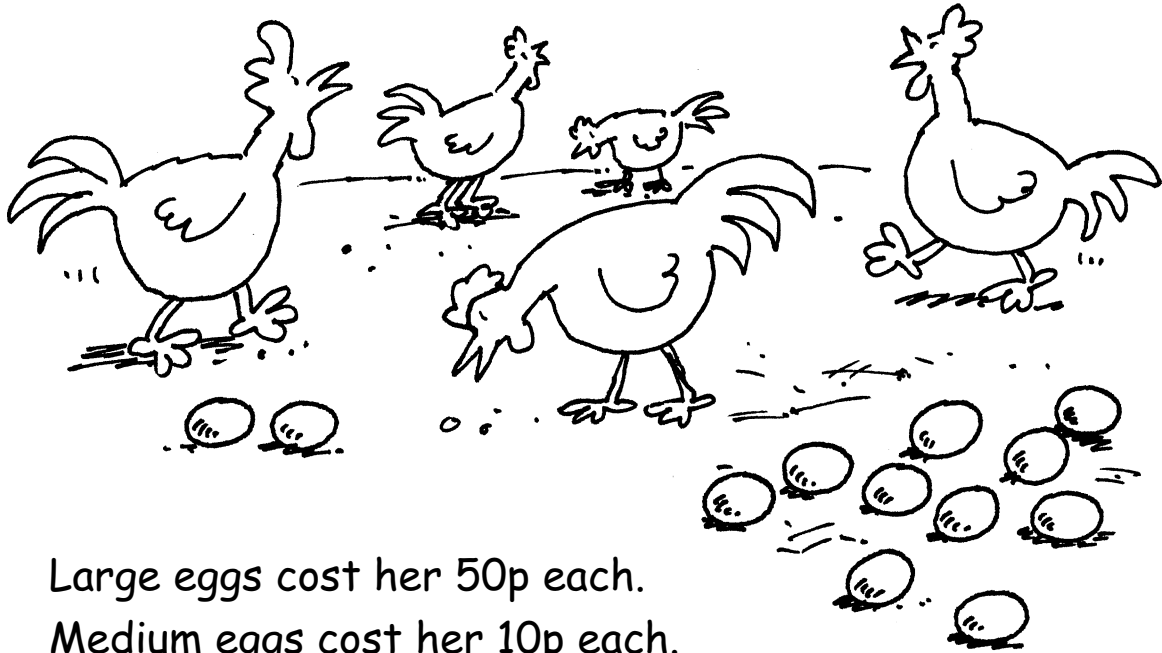
Teaching objectives

Solve mathematical problems or puzzles.
Use a symbol to stand for an unknown number.
Explain methods and reasoning.

72

Eggs

Mrs Choy spent exactly £10 on 100 eggs for her shop.



Large eggs cost her 50p each.
Medium eggs cost her 10p each.
Small eggs cost her 5p each.

For two of the sizes, she bought the same number of eggs.

How many of each size did she buy?

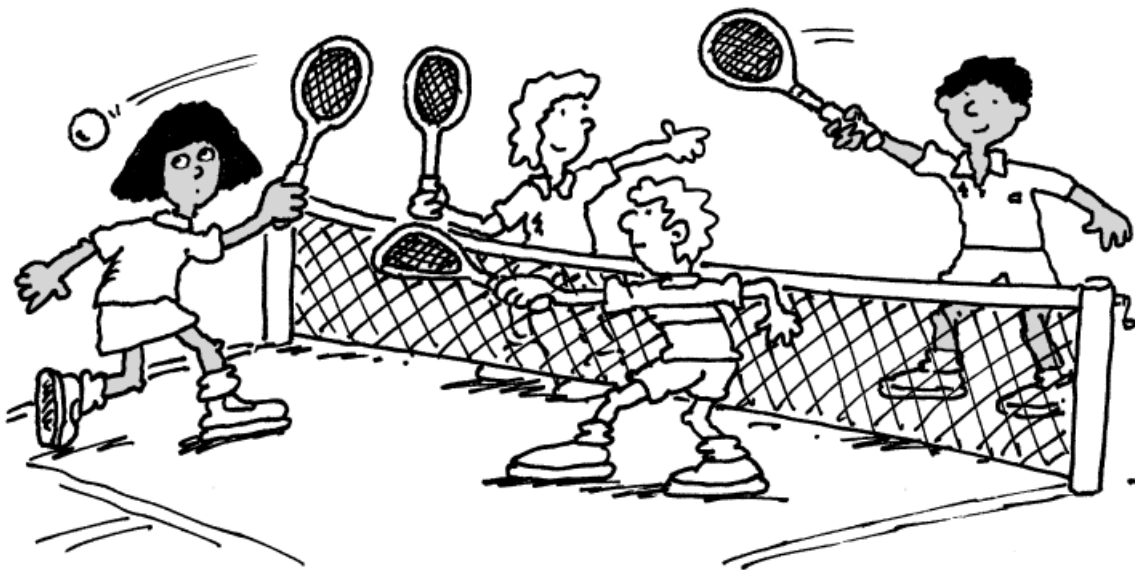
73

Teaching objectives

Solve problems involving ratio and proportion.
Explain methods and reasoning.

Anyone for tennis?

Two boys and two girls can play tennis.



Ali said: 'I will only play if Holly plays.'

Holly said: 'I won't play if Ben is playing.'

Ben said: 'I won't play if Luke or Laura plays.'

Luke said: 'I will only play if Zoe plays.'

Zoe said: 'I don't mind who I play with.'

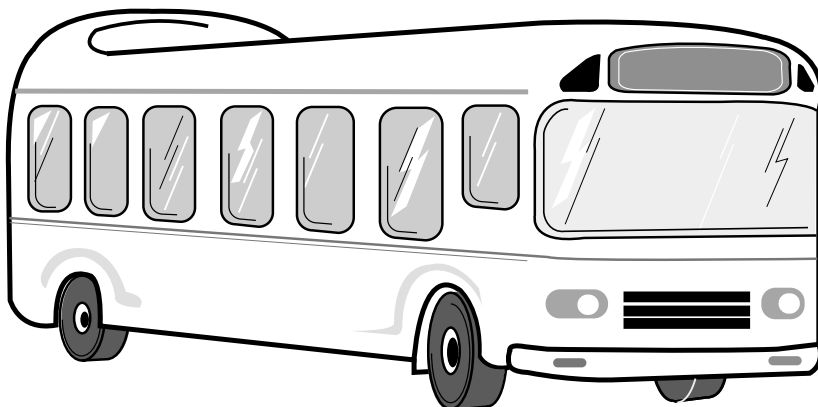
Which two boys and which two girls play tennis?

Teaching objectives

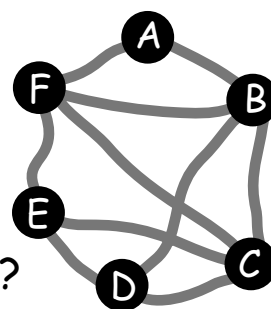
Solve a problem by extracting and interpreting data.
Explain methods and reasoning.

74

Bus routes



Six towns are connected by bus routes.
The bus goes from A back to A.
It visits each of the other towns once.
How many different bus routes are there?



This table shows the bus fare for each direct route.
B to A costs the same as A to B, and so on.

A to B	B to C	C to D	D to E	E to F	F to A	B to D	B to F	C to E	C to F
£4	£3	£4	£4	£3	£4	£5	£3	£2	£2

Which round trip from A to A is the cheapest?

75

Teaching objectives

Solve a problem by extracting and interpreting data.
Add several numbers mentally.

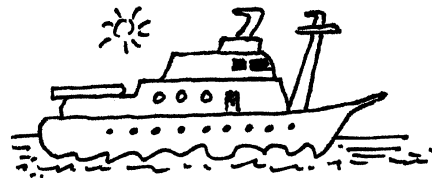
Slick Jim

Slick Jim won the lottery.

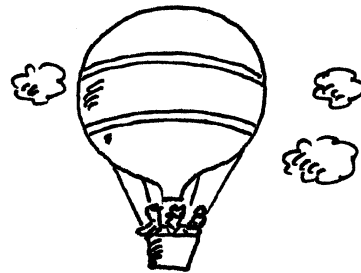
He spent two thirds of his winnings on a very posh house.



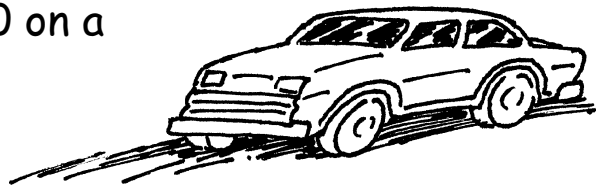
He spent two thirds of what he had left on a luxury yacht.



Then he spent two thirds of what he had left on a hot air balloon.



He spent his last £20000 on a flashy car.



How much did Slick Jim win on the lottery?

Teaching objectives

Solve a problem by organising information.

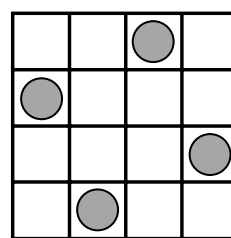
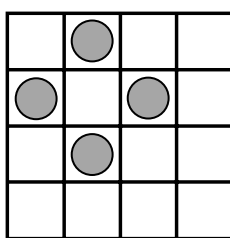
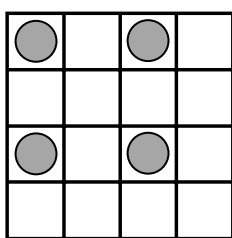
Find fractions of quantities.

Understand the relationship between multiplication and division.

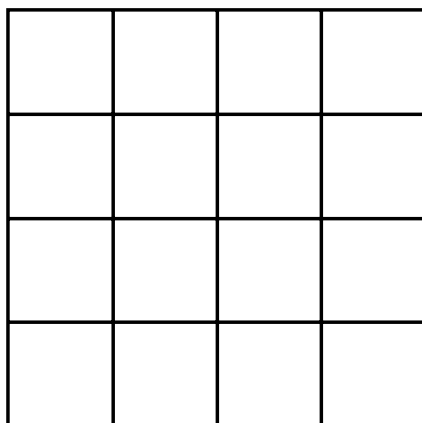
76

All square

On each of these grids, the counters lie at the four corners of a square.



What is the greatest number of counters you can place on this grid without four of them lying at the corners of a square?



77

Teaching objectives

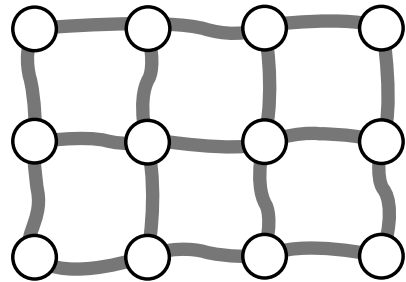
Solve a problem by organising information.
Visualise 2-D shapes.

Sleigh ride



In Snow Town, 3 rows of 4 igloos are linked by 17 sleigh paths.

Each path is 10 metres long.



When Santa visits, he likes to go along each path at least once.

His route can start and end at any igloo.

How long is the shortest route Santa can take?

What if there are 4 rows of 5 igloos?

Teaching objectives

Solve a problem by organising information.
Visualise 2-D shapes.

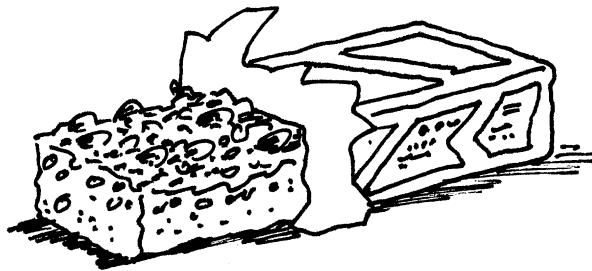
78

Spendthrift

Choc bars cost 26p each.



Fruit bars cost 18p each.



Anil spent exactly £5 on a mixture of choc bars and fruit bars.

How many of each did he buy?

79

Teaching objectives

Solve mathematical problems or puzzles.

Choose and use efficient calculation strategies to solve a problem.

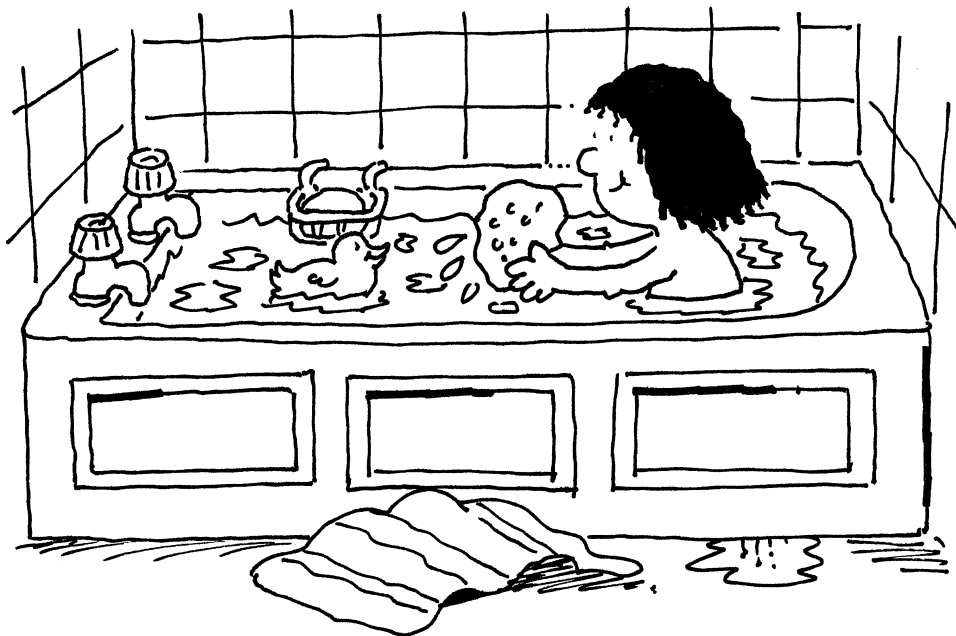
Add sums of money.

Cola in the bath

A can of cola holds 33 centilitres.



If you had a bath in cola - don't try it! - approximately how many cans of cola would you need?
Hint: 1 cubic centimetre is the same as 1 millilitre.



Teaching objectives

Solve mathematical problems or puzzles.
Estimate lengths and convert units of capacity.
Develop calculator skills and use a calculator effectively.

80

Millennium



At what time of what day of what year will it be:

- a. 2000 seconds
- b. 2000 minutes
- c. 2000 hours
- d. 2000 days
- e. 2000 weeks

after the start of the year 2000?

81

Teaching objectives

Solve mathematical problems or puzzles.
Convert smaller to larger units of time.
Develop calculator skills and use a calculator effectively.

People in the crowd

Estimate how many people there are in the crowd.



Teaching objectives

Solve mathematical problems or puzzles.
Count larger collections by grouping.
Give a sensible estimate.

82

Make 200

1 2 3 4 5 6 7 8 9

Choose four of these digits.
Each one must be different.
Put one digit in each box.

This makes two 2-digit numbers reading across
and two 2-digit numbers reading down.
Add up all four of the numbers.

In this example the total is 100.

$$12 + 47 + 14 + 27 = 100$$

1	2
4	7

How many different ways of making 200 can you find?

83

Teaching objectives

Solve mathematical problems or puzzles.
Know what each digit represents.
Add several two-digit numbers.