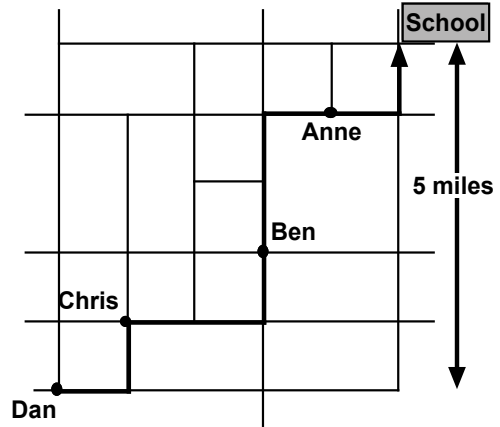## 4   Problems to try

Modelling and explaining: Sharing petrol costs

Each day Dan's mum drives him to school.

On the way, she picks up 3 of Dan's friends, Chris, Ben and Anne.

Each afternoon, she returns by the same route and drops them off at their homes.

At the end of a term, the four students decide to pay a sum of £100 towards the cost of petrol.

How should they share out the cost?
Find some reasonable solutions and say which you think is best and why.

This map shows where each person lives and the route taken.

Solving logic puzzles: Multiplication grids

Drag the numbers 1 to 9 into the yellow spaces to make the products of the rows and columns correct.
There is more than one puzzle to solve!

What advice would you give someone else to help them solve puzzles like this?

Multiplication Grids
Drag the numbers to the boxes
Try to make the products of the rows and columns correct

1	2		⟫◀ × ⟫◀ × ⟫◀ = ☐	12
3	4		× × ×	
5	6		⟫◀ × ⟫◀ × ⟫◀ = ☐	240
7	8		× × ×	
9			⟫◀ × ⟫◀ × ⟫◀ = ☐	126

Show a solution

New problem   ☐   ☐   ☐
                    140   72   36

1 to 9   0 to 8

Planning and organising: Aircraft turn-round time

Between landing and taking off, the following jobs need to be done on an aircraft.

	Job	Time needed
A	Get passengers out of the cabin and off the plane	10 minutes
B	Clean the cabin	20 minutes
C	Refuel the plane	40 minutes
D	Unload the baggage from the cargo hold beneath the plane	25 minutes
E	Get new passengers on the plane	25 minutes
F	Load the new baggage into the cargo hold	35 minutes
G	Do a final safety check before take-off	5 minutes

What is the shortest time needed to do all these jobs?
Would it make any difference to this time if the people could get off more quickly (from the front and rear of the plane)?