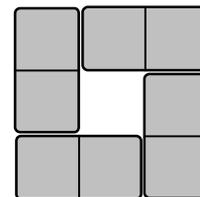


**intro**

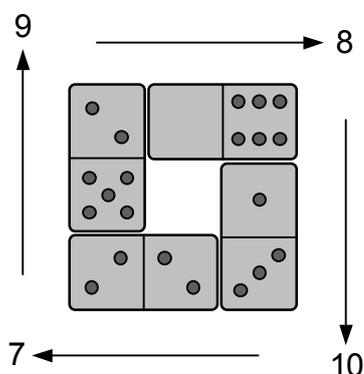
Here we begin with a problem – which has a number of solutions – and then move on to a wider investigation. The challenges involved are quite easy for pupils to understand and the answers are not too hard to find . . .



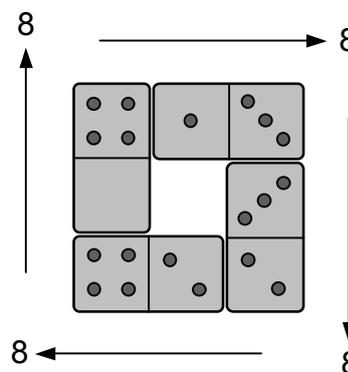
**first steps**

If you arrange 4 dominoes in a square, as above, and then add up the number of spots along each side of the square . . .

you might get four different totals :



or exactly the same total on all four sides :



The first challenge for pupils is to look for arrangements like the second one above ie with the same total on all four sides. There are quite a few ways of doing this . . .

**the investigation**

Once pupils have found a few arrangements which work, you can get them to investigate : What's the largest total you can get on all four sides? What's the smallest total you can get?

**practical**

Children can work on their own or in pairs. Obviously, they'll need dominoes and you can either let them choose how to record their results or you can provide them with gridsheets (see photocopy masters).

**results**

There are many possible arrangements which fit the bill. Results can be recorded on the board for all to see – and to identify the largest and smallest possible totals . . .

**extension**

A natural way of extending this investigation is to repeat with 10 dominoes arranged in a square instead of 4.