4 Dom

http://nrich.maths.org/179

Use these four dominoes to make a square that has the same number of dots on each side.
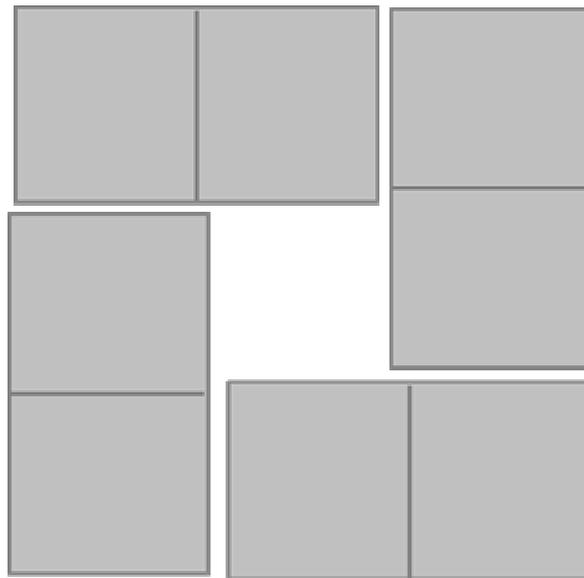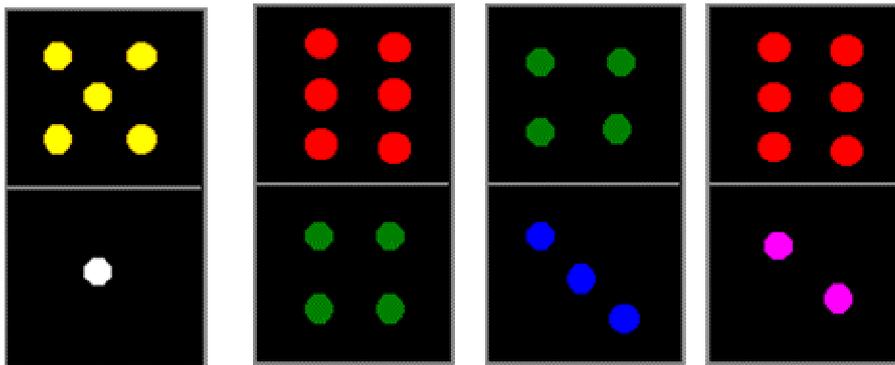
You Will Need:

- Dominoes (5-1, 6-4, 4-3, 6-2)
- Recording sheets are available for printing from the site

Teachers' Notes

Why do this problem?

Dominoes are such a versatile resource. The discussion of the thinking involved in solving this tricky problem , and the use of appropriate vocabulary, is a good reason to do it. And there are tens of similar problems to be made up too.

Possible approach

The question needs little introduction, but you may wish to check that everyone understands it by displaying the four dominoes and placing them into a square (as in the problem) but in incorrect positions. Ask, "How many dots are there altogether? How many dots are there on each side?".

Confirm that each side adds up to a different number and then set the challenge. You may wish to suggest that if they solve the problem they should keep quiet so that they don't spoil it for everyone else - can they work on making up a similar problem using different dominoes from the set?

Draw the children back together and spend some time discussing the way that they started and what strategies they used. Most children will use trial and improvement and may strike lucky quite quickly. Listen for statements which give an indication that some logical thinking is going on - perhaps in terms of the biggest number a side could add to, or the smallest, or some acknowledgement of the number of odds and evens which would affect the totals.

Key questions

How many dots are there altogether?
How many dots could there be on each side?

Possible extension

As suggested above, children could use other dominoes from the set to make up a similar puzzle. What other rules could they try? What if each side had to total to an even number? What sort of dominoes would they need? What if each side had to add to an odd number?

You could collect the children's own puzzles and collate them into a book for the rest of the class to use.

Possible support

Children who are struggling can be asked to place the dominoes in any position and record the sums for each side. How many different totals can they find? Which is the biggest? Why?

Which is the smallest? Why?