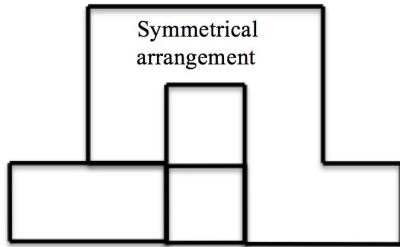
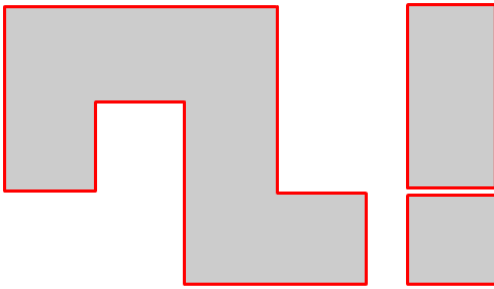
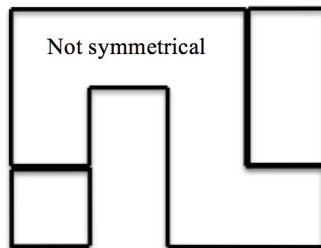
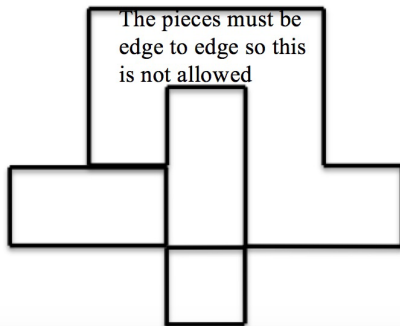


REFLECTING SQUARELY

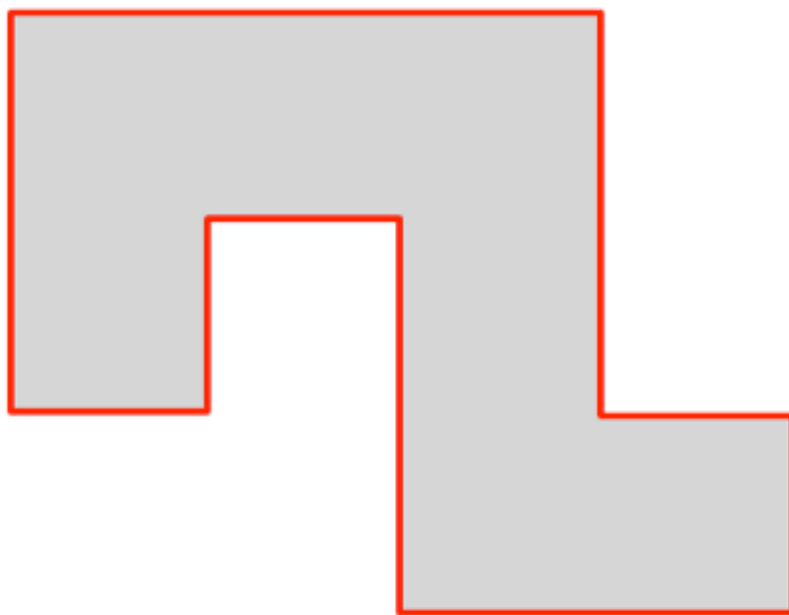
In how many ways can you fit all three pieces together, edge to edge, to make shapes with line symmetry?



The first of these examples shows a symmetrical arrangement, the second is not allowed because the pieces are not placed edge to edge and the third is not symmetrical.

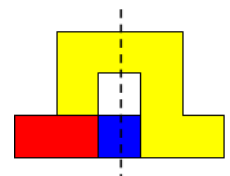


HELP



Cut out these three shapes. Try different positions of the 3 pieces. Work systematically to find all the symmetrical arrangements.

Draw the solutions on squared paper.



Draw the axis of symmetry (mirror line). Check your solution by placing a mirror on this axis if you have one available.

NEXT

Now it is time to 'beat the problem'. Design your own three shapes, like the original, all made from squares on a square grid, with a total area of 10. Can you find 3 shapes that can be put together symmetrically in more ways than the original problem? Look for a 9-ways-set, a 10-ways-set...etc.

Working with a partner or a group, or with the whole class, can you find a complete collection: a 0-ways-set, a 1-ways-set, a 2-ways-set...?"

Prepare a poster. When you have designed a set, and think you have found all the symmetrical arrangements, draw them clearly and stick your work to the board or poster, for others to check. The poster could be prepared with headings: 0-ways-sets, 1-ways-sets, 2-ways-sets... Different students could take responsibility for checking at least one displayed solution and confirming that it is in the right category. Keep the work on display so that students (from this class or another) can add to it over the next few weeks.

Can you find three shapes that have very few possible arrangements (or none), and/or more solutions than anything found so far?

