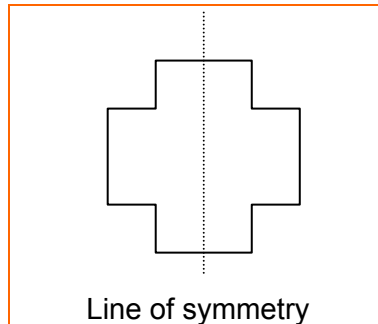
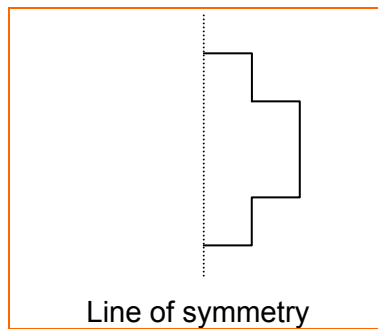


Mini-task: 2D and 3D shapes (1)

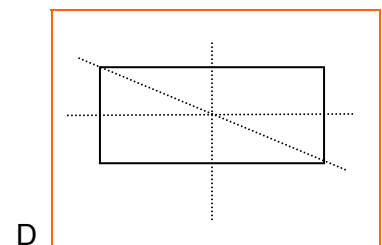
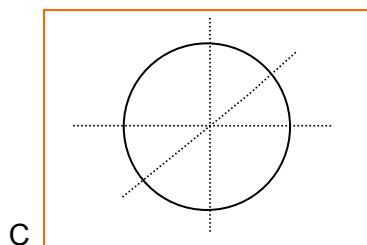
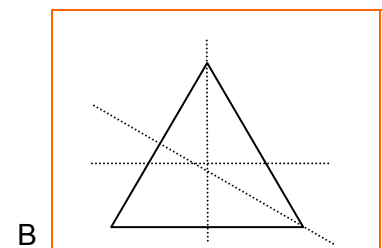
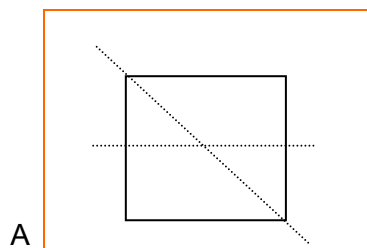
A shape has a line of (reflectional) symmetry when you can place a mirror on it and the shape made by part of the shape and its mirror image is the same as the whole shape. Try putting a mirror on the dotted line below and then look at one side of the shape and its image in the mirror.



Notice that if you fold the shape down this line, both sides will fit exactly over one another.

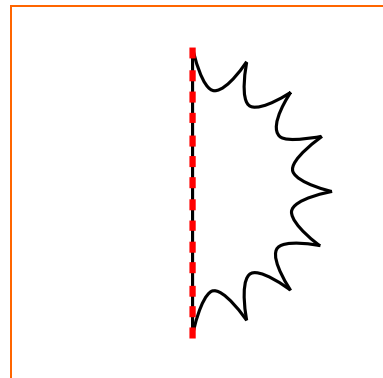
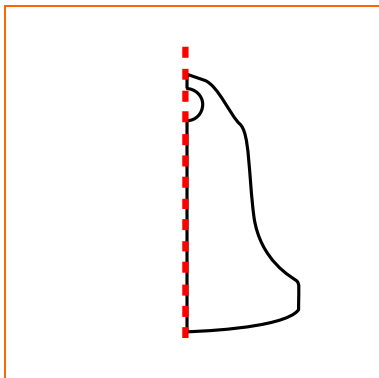
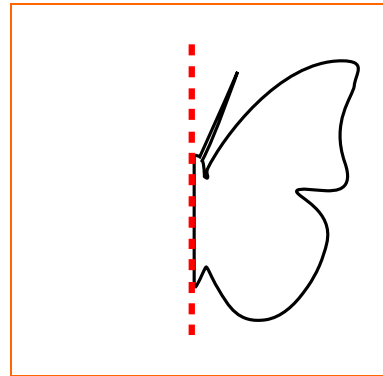
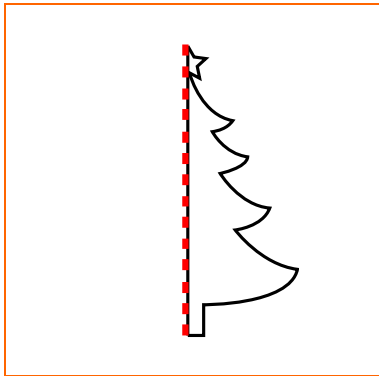


- 1 Consider the following shapes. Decide for each line shown whether it is a line of symmetry for that shape or not. If you want, try the shapes using a mirror and/or by cutting out the shapes and folding them down the lines shown.



Do these shapes have any other lines of symmetry?
Mark them onto the shape if you think you can see any others.

- 2 Jasminder has set up a small business designing and making cards, gift tags and small gifts. What shapes would these cards be when opened up?



- 3 Jasminder is also experimenting with creating a range of cards that open out to form a letter of the alphabet.

Think about which capital letters would make a suitable shape for this sort of card – so that you can divide it in half and both sides match each other. *Remember: the cards could fold so that they open sideways or so they open upwards.*



Suggest:

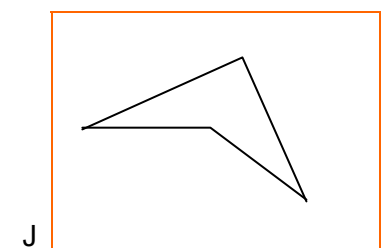
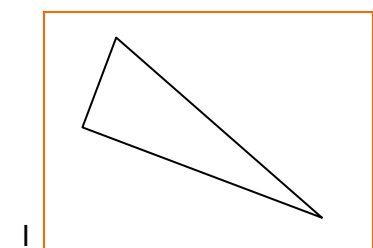
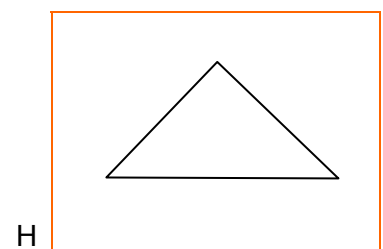
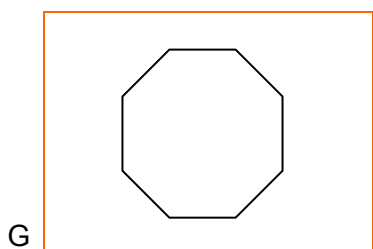
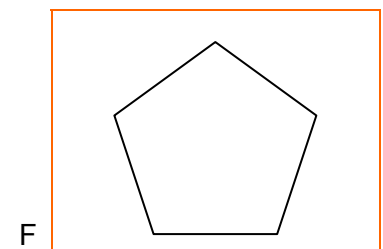
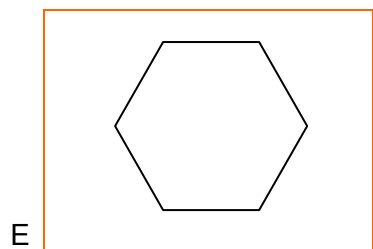
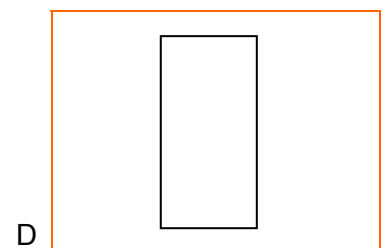
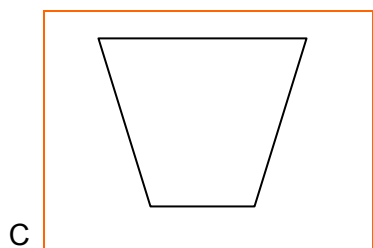
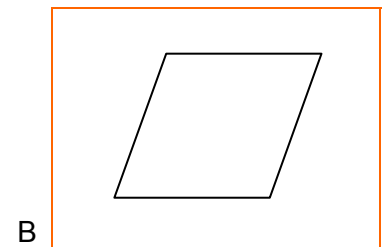
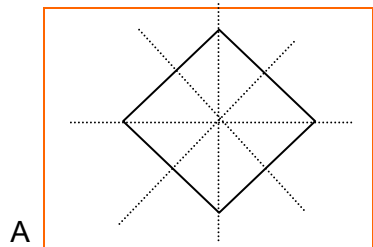
- two letters that would make a card that opens sideways
- two that would make a card opening upwards.

Are there any letters that could form a card that might open sideways or upwards?

Would there be many letters of the alphabet that could not be included in Jasminder's range of cards?

- 4 Look at each of the shapes below.
How many *sides* has the shape got?
How many *right angles* has it got?
How many *lines of symmetry* has it got?

Fill in the table on the next page with this information.

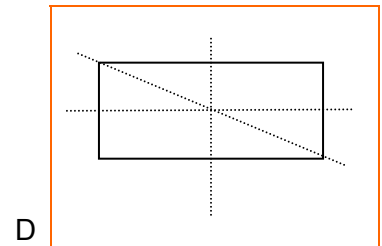
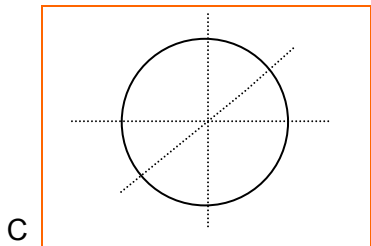
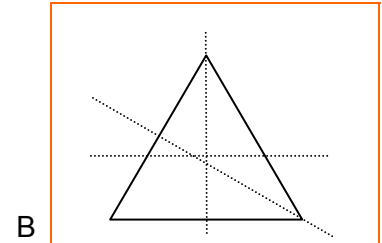
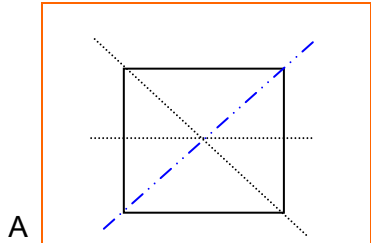


Shape	Number of sides	No. of right angles	No. of lines of symmetry
A	4	4	4
B			
C			
D			
E			
F			
G			
H			
I			
J			

Mini-task: 2D and 3D shapes

Answer sheet

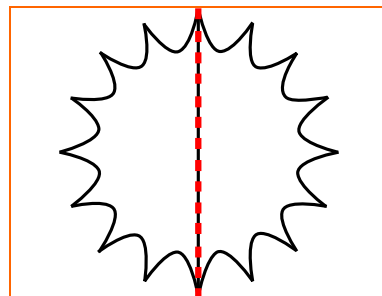
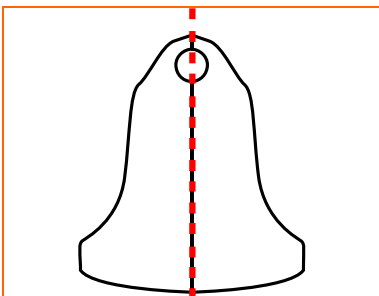
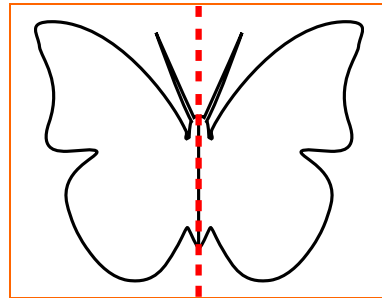
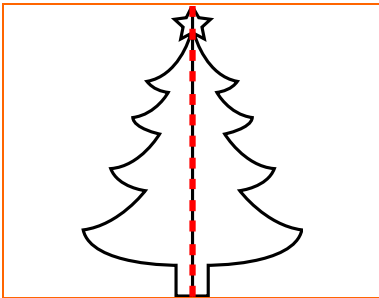
1 The lines of symmetry are marked with a bold dotted line on the shapes below.



Shapes B and D have no additional lines of symmetry. An additional line of symmetry for shape A is shown by the blue dashed and dotted line

For a circle, any straight line that goes through the centre of the circle will be a line of symmetry, so for shape C there will be many additional lines of symmetry.

2 The cards opened up would look like this:



3 The capital letters that would be suitable for Jasminder's cards are:

Letters for a card opening sideways:

A H I M O T V W X Y

Letters for a card opening upwards:

B C D E H I K O X

Letters for a card that could open sideways or upwards:

I H O X

The capital letters not suitable for this type of card would be:

F G J L N P Q R S U Z

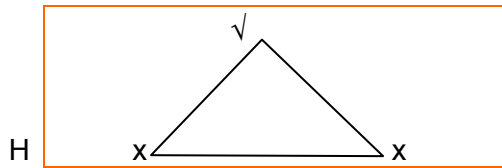
4

Shape	Number of sides	No. of right angles	No. of lines of symmetry
A	4	4	4
B	4	0	2
C	4	0	1
D	4	4	2
E	6	0	6
F	5	0	5
G	8	0	8
H	3	1	1
I	3	1	0
J	4	1	1

Additional guidance

Reminder: a **right angle** is a 'square' angle (90°)

In shape H, the angle marked ' \surd ' is a right angle, the angles marked 'x' are not.



Lines of symmetry:

