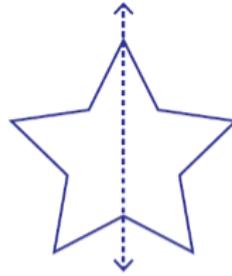| Board- CBSE	Std- 6	Topic- Symmetry	Revision Notes

Symmetry

When we fold a paper in such a way that the picture is divided into two equal halves then the line which divides the picture into two halves is called a Line of Symmetry.

Here the line divides the star into two halves so it is the line of symmetry. It is also called the Mirror Line because if we place the mirror on that line then one side of the picture will fall exactly on the other side of the picture.

Non-symmetrical Figure
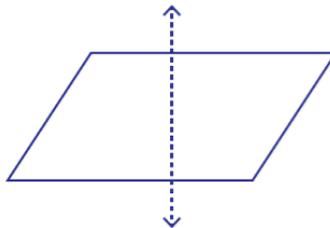
This figure is not symmetrical because if we fold the image from the dotted line then it does not divide it into two equal halves.

Making Symmetric Figures: Ink-blot Devils

To make an ink-blot pattern-

- Take a piece of paper and fold it in half.
- Put some drops of ink on one side of the paper.
- Then press the halves together.
- It will make a symmetric pattern with the fold acting as the line of symmetry.
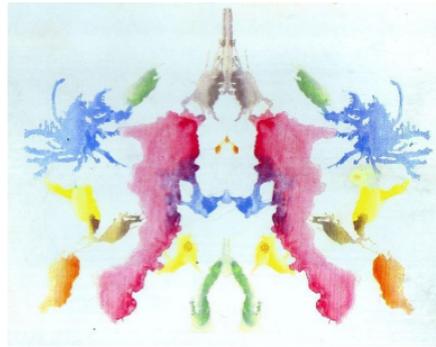
Inked-string pattern

To make an inked string pattern-

- Take a piece of paper and fold it in half.
- Dip a string in different colors and arrange it on one side of the paper.
- Press the two halves together and pull the string.
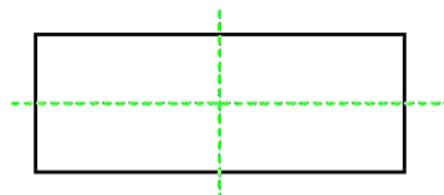- It will make a symmetric inked string pattern with the fold as the line of symmetry.

Two Lines of Symmetry

Some figures have two lines of symmetry.

1. A Rectangle

Take a rectangular sheet and fold it horizontally in two equal halves and then again fold it vertically in two equal halves. After opening it, we get two lines of symmetry of the rectangular sheet.

2. More Figures with two Line of Symmetry

If we take a rectangular piece of paper and double-fold it to make two lines of symmetry and cut it in some new shape, then after opening it, we will get a new image with two lines of symmetry.
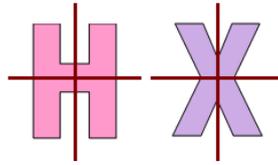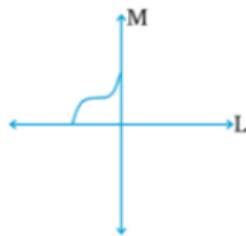
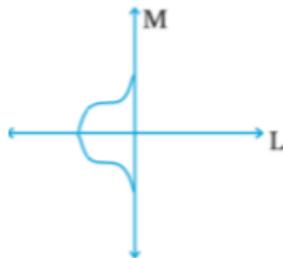## Construction of figure with two Lines of Symmetry

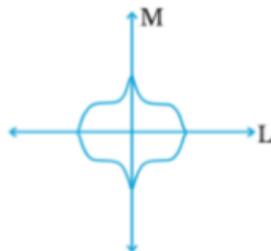1. To draw a figure with two lines of symmetry, take one figure.

2. Let L and M be the two lines of symmetry.

3. Draw the figure in such a way that L is the line of symmetry,

4. Now complete the figure by drawing the remaining part so that M will also become a line of symmetry.
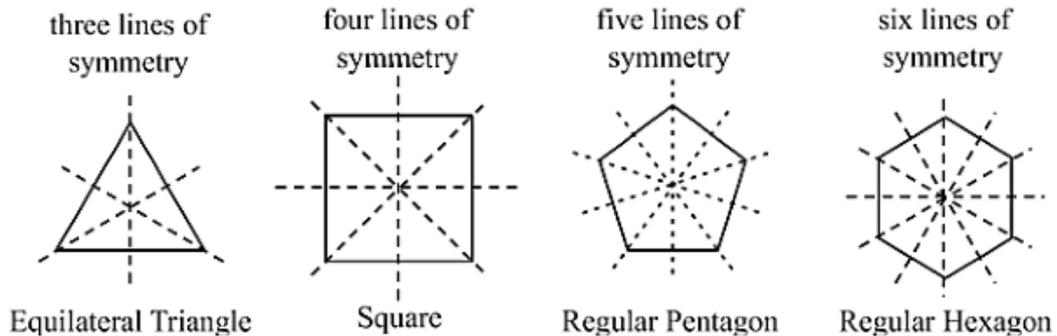

Hence this is the final figure with two lines of symmetry.

Multiple Lines of Symmetry

Take a square sheet of paper and fold it in two halves vertically and again horizontally. Open it and fold it in two equal halves diagonally, then again open it and fold it along the other diagonal. When you open the paper you will see four imaginary lines and these lines are the lines of symmetry.
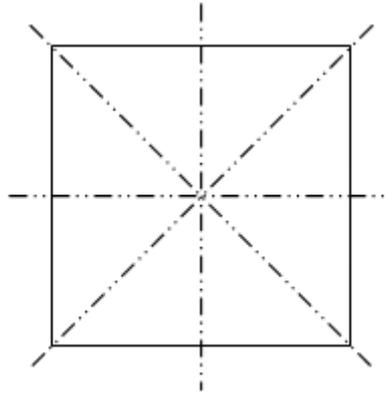

Some more images with more than two lines of symmetry

three lines of symmetry	four lines of symmetry	five lines of symmetry	six lines of symmetry
Equilateral Triangle	Square	Regular Pentagon	Regular Hexagon

- An equilateral triangle will have three lines of symmetry.
- Square will have four lines of symmetry.
- A regular pentagon will have five lines of symmetry.
- A regular hexagon will have six lines of symmetry.

Some Real-life Examples of Symmetry
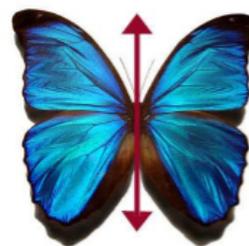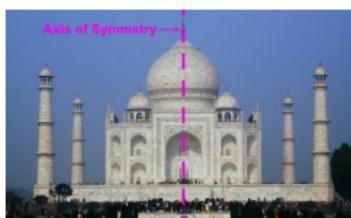
In the Taj Mahal and the butterfly, there is one line of symmetry. There are so many other things in our daily life with one or more lines of symmetry.

Reflection and Symmetry

The line of symmetry is also called Mirror Line because the mirror image of an object is symmetrical to the image. When we see an object in the mirror then there is no difference in the length and angles of the object except one thing i.e. the image is opposite to the original image.

Line of Reflection

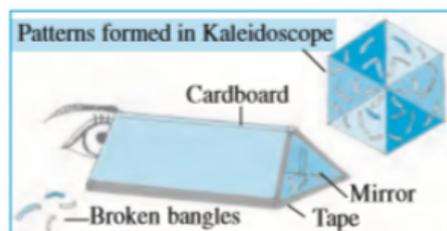## Some Examples of Reflection Symmetry

1. Paper Decoration

We can use a rectangular sheet to fold and create some intricate patterns by cutting paper.

2. Kaleidoscope

In Kaleidoscope, mirrors are used to create pictures having various lines of symmetry. Two mirrors strips forming a V-shape are used. The angle between the mirrors determines the number of lines of symmetry.
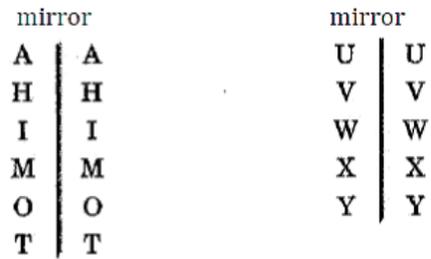

Example

Which alphabet will remain the same after reflection symmetry? Check for R, C, N, A, and T.

Solution

In the alphabet reflection symmetry, the alphabets look opposite in the mirror i.e. the alphabet written from right to left will appear as written from left to right.

Hence C, N, and R will not look the same after reflection.

Hence A and T will look the same after reflection symmetry.