

SYMMETRY

ACTIVITY AND ADDITIONAL READING



Symmetry is derived from the Greek word 'symmetria' , meaning to be in agreement.

In Mathematics,it refers to an object that does not change either in a reflection, or a Rotation , or some other transformation that it undergoes.

In this Grade ,we will be working with only two types of symmetry, namely
Line Symmetry and Rotational symmetry.

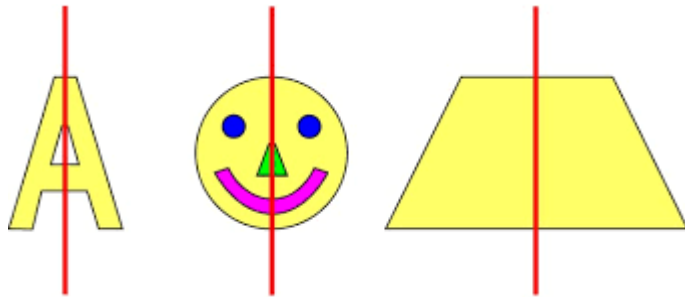


SYMMETRY AROUND US:
IN GEOMETRY:

REFLECTION SYMMETRY-Also called line or mirror symmetry. It refers to a line
Through the object that divides it into two similar halves.

ROTATIONAL SYMMETRY:If the object can be rotated about a fixed point without
A change in shape.The fixed point is the centre of rotation , the angle of turning is
The Angle of rotation and the number of times the object looks exactly the same in
A complete rotation is its order of rotation.



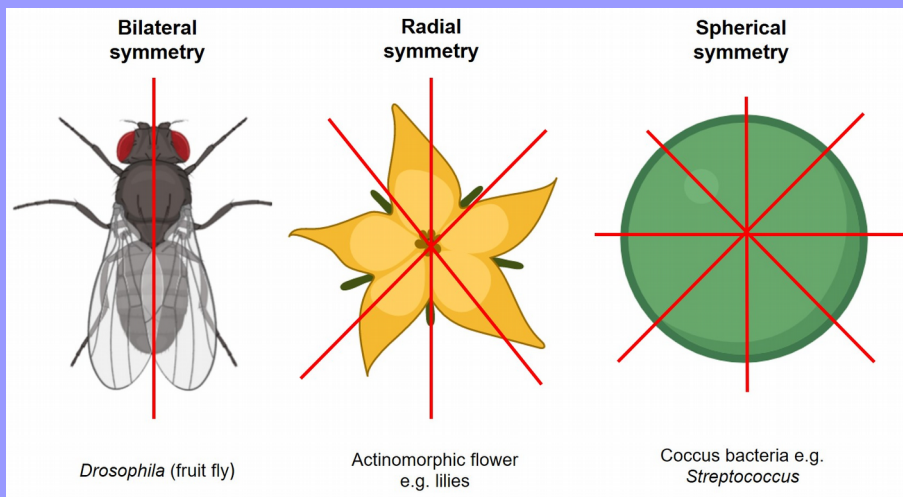


Line symmetry



Rotational symmetry





Symmetry in Biology

By Charl Hutchings - Made diagram on biorender, CC BY 4.0,
<https://en.wikipedia.org/w/index.php?curid=63302541>



SYMMETRY IN ARCHITECTURE

**The Taj Mahal has a
Bilateral line of symmetry
When seen from
The side**

By Vinayaraj - Own work, CC BY-SA 3.0, <https://commons.wikimedia.org/w/index.php?curid=18983151>



IN LITERATURE

Symetry can be found in literature as well , a simple example of which would be
A Palindrome . A text which reads the same forward and backward

For example:"Able was I ere I saw Elba" (1848) By Napoleon
Palindromic numbers which read the same both ways like 91019
Or maybe a palindromic date like 20/02/2002



To understand the concept better we will do a simple activity:

ACTIVITY :Making a Mandala

Things required : A4 sheet,2Bpencil,colours,marker pens, scissors,compass

INSTRUCTION : A Mandala is derived from the Sanskrit word 'mandal'

Meaning circle.It symbolises oneness and harmony.

It consists of geometric designs
and is Symmetrical.



To do :

Take a sheet of A4 size printing paper

Cut out a circle of radius 8cm.

Fold the circle in half and then again in half

Now you have a quadrant of a circle

Draw a geometric pattern on one of the quadrants.

Outline deeply with a marker pen.

Open the page and trace out design on the other side as well

Now open the paper and fold by the other perpendicular diameter.

Trace out the design in the next quadrant on both sides.

Again fold by the other perpendicular diameter and trace the design on both sides.

We have obtained a circular Mandala.

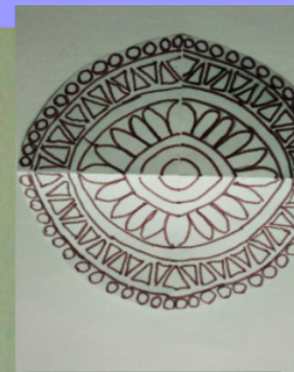
Colour as you like.

NOTE : Every time you folded the paper ,the fold line was acting as the line of symmetry

The Mandala looks alike when you rotate ,so it has rotational symmetry.



A sample Mandala:)



Trivia: One of the most intense archaeological discoveries in recent years in India is the discovery of five giant mandalas in the valley of Manipur made with Google Earth imagery. Located in the paddy field in the west of Imphal, the capital of Manipur, the Maklang geoglyph is perhaps the world's largest mandala built entirely of mud. The site wasn't discovered until 2013 as its whole structure could only be visible via Google Earth satellite imagery. The whole paddy field is locally known as Bihi Loukon.



By Google Earth - <http://www.starforts.com/bihuloukon.html>, CC BY-SA 4.0,
<https://commons.wikimedia.org/w/index.php?curid=70370723>



Apart from the NCERT textbook of grade 7 , resources have been taken from:

<https://en.wikipedia.org/wiki/Mandala>

<https://en.wikipedia.org/wiki/Palindrome>

<https://en.wikipedia.org/wiki/Symmetry>

