

# ATOMIC ENERGY CENTRAL SCHOOL

## CLASS-6 PRACTICAL GEOMETRY MODULE – 4 HAND OUT

### THE PERPENDICULAR BISECTOR OF A LINE SEGMENT

#### PAPER FOLDING METHOD-1

- Fold a sheet of paper
- Let AB be the fold
- Mark a point X (anywhere on paper)
- Find the image X'X with AB as the mirror line.
- Let AB and X'X intersect at O
- We observe that  $OX = OX'$
- This means that AB divides XX' into parts of equal length

Also note that  $\angle AOX = \angle BOX = 90^\circ$

### THE PERPENDICULAR BISECTOR OF A LINE SEGMENT

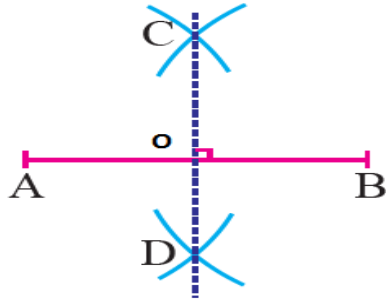
#### PAPER FOLDING METHOD-2

- Draw a line segment AB
- Place a strip of a coloured strip diagonally across AB with the edges of the strip on the end points A and B.
- Repeat the process by placing another strip over A and B just diagonally across the previous one. The two strips cross at M and N.
- OBSERVATION:
- We observe that MN is a bisector of AB.
- $OA = OB$

### THE PERPENDICULAR BISECTOR OF A LINE SEGMENT

#### USING RULER AND COMPASSES

- Draw a line segment AB of any length
- With A as centre, using compasses, draw a circle. The radius of your circle should be more than half of the length of AB.
- With the same radius and with B as centre, draw another circle using compasses. Let it cut the previous circle at C and D.
- Join CD. It cuts AB at O.

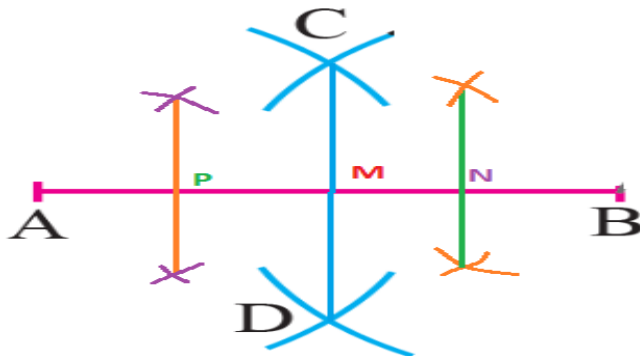


Observation:

- O is the mid-point of AB
- $\angle COA$  and  $\angle COB$  are right angles

#### Dividing a line segment into equal parts

- Draw a line segment AB.
- Taking A and B as centres and radius more than half of AB draw arcs which intersect each other at C and D.
- Join CD. CD bisects AB.
- Let M be the intersecting point and  $AM = MB$ .
- Now draw perpendicular bisector of MB, which cuts it at N.
- Here  $MN = NB$ .
- Again draw perpendicular bisector of AM, which cuts it at P.
- Here  $AP = MP$ .
- This way we can divide a line segment into equal parts.



#### HOW TO FIND THE CENTRE OF A CIRCLE

- Draw a circle with a bangle or any bottle cap.
- Draw any two chords AB and CD in this circle.
- Taking A and B as centres and radius more than half the length of AB, draw two arcs which intersect each other at E and F
- Join EF
- EF is the perpendicular bisector of chord AB
- Similarly draw GH which is perpendicular bisector of CD
- These two perpendicular bisectors meet at centre "O"

