

Class	Subject	Time Slot	Lesson	Topic P2
IX	Maths	35 Mins 1 Pd	Circles	Perpendicular from the centre to the chord. Circle through three points.

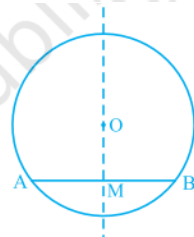
Expected Learning Outcome :The learners will be able to :

- Prove that the perpendicular drawn from the centre of a circle to a chord, bisects the chord and vice versa and apply the concept in practical situations.

Expected skill development:

- Logical thinking, Mathematical Skills.
- Computational Skills and Thinking skills while proving different statements.
- Representation skill while drawing the figure as per the requirement of the question.

FLOW OF LESSON WITH RESPECT TO TIME (Introduction/warm-up, Content, Think Line, Closure)

Pedagogy	Content
<u>(15 Mins) Warm Up</u> <u>Demonstration by Facilitator</u> Facilitator will present the following situation: Thinkline: Does the point B coincide with A?	Draw a circle on a paper. Let O be its center. Draw a chord AB. Fold the paper along a line through O so that a portion of the chord falls on the other. Let the crease cut AB at the point M. Then, $\angle OMA = \angle OMB = 90^\circ$ or OM is perpendicular 

(15 mins) demonstration by Facilitator on board

Facilitator will give a proof of this fact:

Theorem 10.3 : The perpendicular from the centre of a circle to a chord bisects the chord.

Theorem 10.4 : The line drawn through the centre of a circle to bisect a chord is perpendicular to the chord.

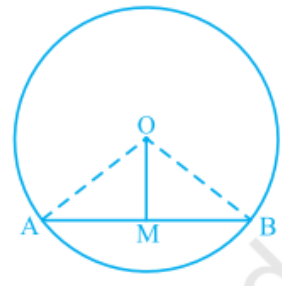
From these two theorems we can conclude that perpendicular bisector of a chord of a circle passes through the center.

Thinkline:

How many points are sufficient to determine a line?

How many points are sufficient to determine a circle?

Prove that There is one and only one circle passing through three given non- collinear points.



Let AB be a chord of a circle with centre O and O is joined to the mid-point M of AB. You have to prove that $OM \perp AB$. Join OA and OB (see Fig. 10.16). In triangles OAM and OBM,

$$OA = OB \quad (\text{Why ?})$$

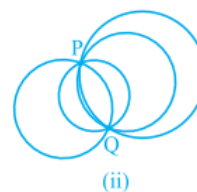
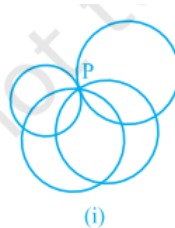
$$AM = BM \quad (\text{Why ?})$$

$$OM = OM \quad (\text{Common})$$

$$\text{Therefore, } \triangle OAM \cong \triangle OBM \quad (\text{How ?})$$

$$\text{This gives } \angle OMA = \angle OMB = 90^\circ \quad (\text{Why ?})$$

Take a point P. How many circles can be drawn through this point? You see that there may be as many circles as you like passing through this point [see Fig. 10.17(i)]. Now take two points P and Q. You again see that there may be an infinite number of circles passing through P and Q [see Fig. 10.17(ii)]. What will happen when you take three points A, B and C? Can you draw a circle passing through three collinear points?



(5 mins) In class Exercise – Closure Students will be reinforced to attempt Ex 10.3 in the notebook. Facilitator will take round and give personal interventions	1. Draw different pairs of circles. How many points does each pair have in common? What is the maximum number of common points? 2. Suppose you are given a circle. Give a construction to find its centre.
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Proposed Questions (must include the questions asked in the classroom <u>and</u> the ones given as class-work in the notebook) If two circles intersect at two points, prove that their centres lie on the perpendicular bisector of the common chord.	
Evaluation/Assessment: Peer discussion will be done. Teacher will assess the children randomly and also through student teacher interaction.	
Learners on the way Draw different pairs of circles. How many points does each pair have in common? What is the maximum number of common points?	Advanced Learners Suppose you are given a circle. Give a construction to find its centre.
Materials needed/Resources: Chalk, blackboard, duster, NCERT Text Book	
Common Misconceptions:	Addressing the Misconceptions:

Home Assignment:

2. Suppose you are given a circle. Give a construction to find its centre.
3. If two circles intersect at two points, prove that their centres lie on the perpendicular bisector of the common chord.