

Macro Teaching Lesson Plan - 5

I. Preliminary

Information:

Name of the student teacher: S. Kajal

Registered Number: Y2AED03020

Subject: Mathematics

Class taken: IX

Name of the Unit: Circles

Name of the topic: Opposite Angles to a cyclic quadrilateral is 180°

Date: :

Time Duration: :

Name of the school: Pmc High School.

Name of the Supervisor: :

Knowledge Assumed:

I. Previous
I assume

that students have the previous knowledge about Definition and Properties of Quadrilaterals, angle made by their ^{minor} arc at the centre of the circle with the major arc of the circle.

III. a) Teaching-learning point:

Theorem: In a cyclic quadrilateral, Sum of opposite angles is 180° .

Required to Prove:

$$\angle A + \angle C = 180^\circ$$

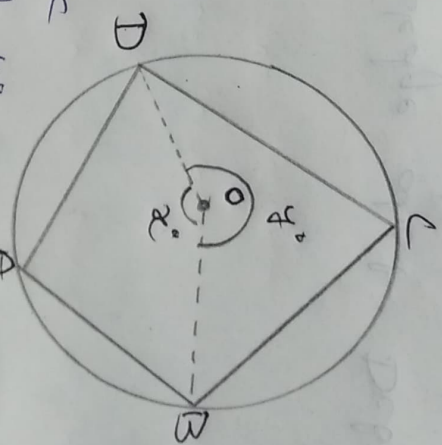
$$\angle B + \angle D = 180^\circ$$

Construction:

Let O be the centre of the circle.

Join O to B and D .

Then let the angle subtended by the major arc and the minor arc at the centre be x° and y° respectively.



Proof: $x^\circ = 2\angle C$ [Angle at Centre theorem] — (1)

$$y^\circ = 2\angle A \quad \text{--- (2)}$$

Adding (1) and (2), we get

$$x^\circ + y^\circ = 2\angle C + 2\angle A \quad \text{--- (3)}$$

$$\text{But } x^\circ + y^\circ = 360^\circ \quad \text{--- (4)}$$

From (3) and (4), we get

$$2L + 2A = 360^\circ$$

$$2(L + A) = 360^\circ$$

$$L + A = \frac{360^\circ}{2} = 180^\circ$$

But we know that angle sum property of quadrilateral.

$$A + B + C + D = 360^\circ$$

$$B + D + 180^\circ = 360^\circ \quad (\because A + C = 180^\circ)$$

$$B + D = 360^\circ - 180^\circ$$

$$B + D = 180^\circ$$

Hence proved.

b) Teaching Learning Material:

Chalk, Duster, Roller Board, chart.

c) Teaching - Method:

Analytic - Synthetic method

d) Reference Books:

1.) AP SCERT 9th class Mathematics English Medium Textbook.

2.) NCERT 9th class Mathematics Textbook

3.) Teaching of Mathematics - S.K. Mangal for methods of teaching.

IV. Academic Standards:

By the end of this period students will be able to develop the following Academic Standards.

1. Problem Solving:

- ⇒ Pupil reads the statement of the theorem.
- ⇒ Pupil understands the theorem.
- ⇒ Pupil separates the data given in the proof of the theorem.
- ⇒ Pupil selects the relevant method to prove the theorem.

2. Reasoning Proof:

- ⇒ Pupil gives reason for different steps involved in the proof of the theorem.
- ⇒ Pupil generalises the statement of the theorem.
- ⇒ Pupil verifies the result of the theorem.

3. Communication:

- ⇒ Pupil reads and write the definition, formula, properties in the proof of the theorem.
- ⇒ Pupil expresses the statement of the theorem in his own words.
- ⇒ Pupil explains the procedures to prove the theorem.

4. Connection:

- ⇒ Pupil connects the theorem with other topics of mathematics.
- ⇒ Pupil connects the theorem with other subjects like physics, chemistry etc.

→ Pupil Connect the Concept of theorem with daily life situations.

5. Visualization and Representation:

→ pupil represents the theorem through a diagram.

V. Introduction of topic:

a) Greeting the students:

I will greet the students after entering into the classroom.

b) Observation of pre-concept:

1. What is quadrilateral?

2. What is a circle?

3. What is the sum of angles in a quadrilateral?

4. What is cyclic quadrilateral?

5. How much angle is made by the minor arc at the centre of the circle?

c) Introducing the topic:

By explaining a situation, I will introduce the topic.

d) Announcement of the topic:

Today we are going to learn the theorem.

e) Importance of the topic:

In mathematics geometry we come across different theorems. This theorem will be helpful to prove the other theorems of geometry.

VI. Presentation of the topic:

a) Reading the text book:

I will ask the students to read the textbook page no. 183.

b) Identification of key words:

I will write the key words identified by students and write them on Blackboard as follows.

* cyclic quadrilateral

* opposite Angles.

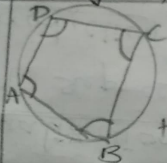
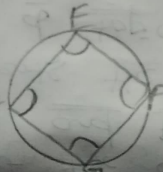
c) Discussion on key words:

I will discuss the key terms with the students.

d) Activities to understand the concept:

I will give Activity sheets to each group and ask them to identify and measure the angles and note down their observations in the Activity sheets.

Activity-1:

S.No	Figures	observation
1.		<u>Opposite Angles:</u>
2.		<u>opposite Angles:</u>

Activity 2:

S.No	Figure	Observation
1.		$\angle P + \angle N =$ $\angle M + \angle Q =$
2.		$\angle E + \angle G =$ $\angle F + \angle H =$

VII. Problem Solving:

① By teacher:

I will explain the theorem clearly.

② By student:

VIII. Recapitulation:

1. What is cyclic quadrilateral?
2. Sum of angles opposite of a cyclic quadrilateral is —

IX. Home Assignment:

Prove the theorem "Sum of opposite angles of a cyclic quadrilateral is 180° "

Teacher's Signature.