

**CLASS – X**  
**LESSON PLAN**  
**CHAPTER-12: AREAS RELATED TO CIRCLES**

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| Unit                                                                                            | Mensuration (Chapter 12: Areas Related to Circles)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Class Transaction                                                                               | Total: 8 periods (approx. 40 min each)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Pre-requisite for the course                                                                    | <p>This lesson requires</p> <ol style="list-style-type: none"> <li>1. Basic knowledge of some methods of finding perimeter and areas of simple plane figures such as rectangles, squares, triangles, circles</li> <li>2. Knowledge of circle and terms related to a circle.</li> </ol>                                                                                                                                                                                                                                                                                                                     |
| Assessment of qualifying knowledge                                                              | <ol style="list-style-type: none"> <li>1. Written test</li> <li>2. Lab activity</li> <li>3. HW notebook</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Objective                                                                                       | <ul style="list-style-type: none"> <li>• Students would be able to identify the various parts of circle as arc, sector and segment and calculate their lengths and areas and areas of combination of plane figures, thereby inculcating competencies like <b>collaboration, critical thinking and communication.</b></li> </ul>                                                                                                                                                                                                                                                                            |
| Learning Outcomes                                                                               | <p><u>KNOWLEDGE</u>- <i>Students will know and visualize the various figures related to circles and combination of figures</i></p> <p><u>SKILLS AND COMPETENCIES</u>- <i>Students would be able to <b>visualize and analyse</b> the given figure, thereby</i></p> <ol style="list-style-type: none"> <li>1. Calculate the areas and perimeter of Circle.</li> <li>2. Calculate the area of a given segment or sector of the circle.</li> <li>3. Calculate the length of major and minor arc.</li> <li>4. Calculate the area of combination of plane figures in <b>collaboration with others</b></li> </ol> |
| Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and | <p><b><u>Strategies Used :</u></b> Think pair and Share, Inductive and Deductive learning, Brain storming, Discussion of Muddiest Point</p> <p><b>Think Pair and Share:</b> In this activity, students think about a particular question individually, then they form pairs to discuss their answers. Following this, the results are shared in a large classroom discussion. Alternatively, two pairs of students can pair up to compare and discuss answers. This process forces students to think individually, and then allows them to analyze and clarify their response collaboratively.</p>         |

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| can use any other too.)            | <p><b>Brain Storming:</b> In this activity, students are asked to generate ideas on a certain topic, category or question while facilitator facilitate and record the answers on the board.</p> <p><b>Inquiry Based Learning:</b> Inquiry-based learning uses different approaches to learning, including small-group discussion and guided learning. Instead of memorizing facts and material, students learn by doing. This allows them to build knowledge through exploration, experience, and discussion.</p> <p><b>Inductive and Deductive Learning:</b> In Inductive type students proceed from particular to general statement(example to formula) and in Deductive type students proceed from general to particular. Students are given formula and they solve problems using them.</p> <p><b>Muddiest Point:</b> Check comprehension and identify confusion, what was most confusing about the material?</p> <p>Transaction would proceed in the following manner-</p> <p><i>Brain Storming</i>-The class would start with a discussion on what the students have already learnt in the previous classes and hence what is it that they would learn now. They would also be told the significance of the topic that they would be studying.</p> <p><i>Introduction of the topic</i>- ppt and Digital Content would be shared</p> <p><i>Guided practice followed by Independent Practice</i>- NCERT questions to be discussed in the classroom.</p> <p><b>Techniques to be used:</b><br/> Quiz<br/> Daily Practice Problem<br/> MCQ<br/> Peer Assessment<br/> Case Studies<br/> Lab Activities<br/> Any Other</p> |
| Resources                          | Text Book:<br>NCERT text book for Mathematics<br>Reference Book<br>CBSE Exemplar                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Self Study, Home Work, Assignments | <p><b>Independent Practice:</b> Students would do some questions from NCERT in their H.W notebooks.</p> <p>HW notebooks to be marked as per the given plan:</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

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|                                  | <p><i>Assessment Parameters:</i> The total marks for the activity is 5 marks<br/> On time submission.....1 mark<br/> Presentation/ Neatness.....1 mark<br/> Content.....3 marks</p> <p>It is also advised that the students come to the class with proper background knowledge of the topic under discussion. They can refer to the resources stated above.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                  |          |                             |          |                                |          |                                |          |                                 |          |                                 |          |                            |          |                   |          |                        |          |                 |          |
| Assessments                      | <table> <tr> <td><b>3 UNIT TESTS (20, 30, 30)</b></td><td>80 Marks</td></tr> <tr> <td><b>MID TERM EXAMINATION</b></td><td>80 Marks</td></tr> <tr> <td><b>HALF YEARLY EXAMINATION</b></td><td>80 Marks</td></tr> <tr> <td><b>PRE BOARD-I EXAMINATION</b></td><td>80 Marks</td></tr> <tr> <td><b>PRE BOARD-II EXAMINATION</b></td><td>80 Marks</td></tr> <tr> <td><b>ANNUAL BOARD EXAMINATION</b></td><td>80 Marks</td></tr> </table> <p><b>PERIODIC TEST</b><br/> Average of the best two tests to be taken that will have a weightage of 10 marks.<br/> Best 2 Tests out of: Units tests, Midterm examination, Half Yearly examination.</p> <table> <tr> <td><b>INTERNAL ASSESSMENT</b></td><td>20 Marks</td></tr> <tr> <td>• Periodical Test</td><td>10 Marks</td></tr> <tr> <td>• Note Book Submission</td><td>05 Marks</td></tr> <tr> <td>• Lab Practical</td><td>05 Marks</td></tr> </table> | <b>3 UNIT TESTS (20, 30, 30)</b> | 80 Marks | <b>MID TERM EXAMINATION</b> | 80 Marks | <b>HALF YEARLY EXAMINATION</b> | 80 Marks | <b>PRE BOARD-I EXAMINATION</b> | 80 Marks | <b>PRE BOARD-II EXAMINATION</b> | 80 Marks | <b>ANNUAL BOARD EXAMINATION</b> | 80 Marks | <b>INTERNAL ASSESSMENT</b> | 20 Marks | • Periodical Test | 10 Marks | • Note Book Submission | 05 Marks | • Lab Practical | 05 Marks |
| <b>3 UNIT TESTS (20, 30, 30)</b> | 80 Marks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                  |          |                             |          |                                |          |                                |          |                                 |          |                                 |          |                            |          |                   |          |                        |          |                 |          |
| <b>MID TERM EXAMINATION</b>      | 80 Marks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                  |          |                             |          |                                |          |                                |          |                                 |          |                                 |          |                            |          |                   |          |                        |          |                 |          |
| <b>HALF YEARLY EXAMINATION</b>   | 80 Marks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                  |          |                             |          |                                |          |                                |          |                                 |          |                                 |          |                            |          |                   |          |                        |          |                 |          |
| <b>PRE BOARD-I EXAMINATION</b>   | 80 Marks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                  |          |                             |          |                                |          |                                |          |                                 |          |                                 |          |                            |          |                   |          |                        |          |                 |          |
| <b>PRE BOARD-II EXAMINATION</b>  | 80 Marks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                  |          |                             |          |                                |          |                                |          |                                 |          |                                 |          |                            |          |                   |          |                        |          |                 |          |
| <b>ANNUAL BOARD EXAMINATION</b>  | 80 Marks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                  |          |                             |          |                                |          |                                |          |                                 |          |                                 |          |                            |          |                   |          |                        |          |                 |          |
| <b>INTERNAL ASSESSMENT</b>       | 20 Marks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                  |          |                             |          |                                |          |                                |          |                                 |          |                                 |          |                            |          |                   |          |                        |          |                 |          |
| • Periodical Test                | 10 Marks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                  |          |                             |          |                                |          |                                |          |                                 |          |                                 |          |                            |          |                   |          |                        |          |                 |          |
| • Note Book Submission           | 05 Marks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                  |          |                             |          |                                |          |                                |          |                                 |          |                                 |          |                            |          |                   |          |                        |          |                 |          |
| • Lab Practical                  | 05 Marks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                  |          |                             |          |                                |          |                                |          |                                 |          |                                 |          |                            |          |                   |          |                        |          |                 |          |
| Addressing Classroom Diversity   | <p>Due to various social backgrounds and multiple intelligences, the classroom might be a diverse arena. The following techniques can be used for various groups:</p> <p><i>For gifted students:</i></p> <ul style="list-style-type: none"> <li>• High order thinking questions from NCERT Exemplar</li> </ul> <p><i>For weak students:</i></p> <ul style="list-style-type: none"> <li>• Buddy help to be provided</li> <li>• Provide grade-up classes</li> </ul> <p><i>For differently abled students:</i></p> <ul style="list-style-type: none"> <li>• Ignore spelling mistakes and formulae, if not written</li> <li>• Call parents at regular intervals</li> <li>• Provide grade-up classes</li> </ul>                                                                                                                                                                                       |                                  |          |                             |          |                                |          |                                |          |                                 |          |                                 |          |                            |          |                   |          |                        |          |                 |          |
| Marks                            | The weightage would be given by CBSE.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                  |          |                             |          |                                |          |                                |          |                                 |          |                                 |          |                            |          |                   |          |                        |          |                 |          |

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| Assessment Questions | <ul style="list-style-type: none"> <li>• In a circle of radius 21cm, find the length of the arc which subtends an angle of <math>60^\circ</math></li> <li>• The area enclosed between the two concentric circles is <math>770 \text{ cm}^2</math>. If the radius of the outer circle is 21cm, calculate the radius of the inner circle.</li> <li>• A wheel of diameter 42 cm, makes 240 revolutions per minute. Find : <ul style="list-style-type: none"> <li>(i) the total distance covered by the wheel in one minute.</li> <li>(ii) the speed of the wheel in km/hr.</li> </ul> </li> <li>• A chord of a circle of radius 10 cm subtends a right angle at the centre. Find : <ul style="list-style-type: none"> <li>(i) Area of the minor sector</li> <li>(ii) Area of the minor segment</li> <li>(iii) Area of major sector</li> <li>(iv) Area of major segment ( use <math>\pi = 3.14</math> )</li> </ul> </li> <li>• The perimeter of a sector of a circle of radius 5.7 m is 27.2 m. Find the area of the sector.</li> </ul> |
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| <b>DAY</b>                                                                                                                     | <b>ONE</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Objective</b>                                                                                                               | <b>Enhance</b> ability to accurately recognize and use appropriate formula related to the figure and developing the art of <b>communication</b> and <b>critical thinking</b> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Assessment of qualifying knowledge</b>                                                                                      | Quiz and knowledge testing on formula of simple plane figures.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Learning Outcomes</b>                                                                                                       | <p><u>KNOWLEDGE</u>- <i>Students will know and <b>identify</b> the figure whose area is to be calculated.</i></p> <p><u>SKILLS and COMPETENCIES</u> <i>Students would be able to <b>Reason effectively and critically</b> differentiate given figures to calculate the required areas.</i></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)</b> | <p><b><u>Strategies Used :</u></b> Brain Storming, Discussion of Muddiest Point<br/>Transaction would proceed in the following manner-</p> <p><b><u>Anticipatory Set: 10 min</u></b><br/>Facilitator will ask few questions to introduce the topic</p> <ul style="list-style-type: none"> <li>• Terminology about circles</li> <li>• Have they ever seen such figure near their surrounding?</li> <li>• Question them whether they have an idea of how to calculate the area of a circle and terms related to a circle.</li> </ul> <p><b><u>Discussion of topic through Collaborative Learning: 15 min</u></b><br/><b><u>Inquiry based learning</u></b> (Critical Thinking and Problem Solving)</p> <p>Students would be asked to write formula for circumference and area of the circle and area of ring. The facilitator would take rounds and ensure that each learner is engaged. The facilitator would ask one child per group about what they are doing and how to explain the concept to others, thereby, enhancing public speaking and communication skills, in the process.</p> <p><b><u>Guided practice: 10 min</u></b><br/>The students will solve the questions from NCERT book, solved examples before Ex 12.1 in their notebook in the class with the help of their facilitator. The facilitator would take rounds and help the students in solving the questions.</p> <p><b><u>Independent Practice:</u></b> Students will go through the solved examples before Ex 12.1 of NCERT text book.</p> <p><b><u>Closure: 5 min</u></b><br/>A short oral test would be taken to check proper assimilation of the topic discussed.</p> |
| <b>Resources</b>                                                                                                               | Text Book:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

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|                                                                                                                                   | NCERT text book for Mathematics<br>Reference Book<br>CBSE Exemplar                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Self Study, Home Work, Assignments                                                                                                | <b>Independent Practice:</b> Students would do the given questions in their H.W. notebooks.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Assessments                                                                                                                       | Oral Test (5 minutes)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>DAY</b>                                                                                                                        | <b>TWO</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Objective</b>                                                                                                                  | Students will be able to identify the figures related to circles and the formula to be used to calculate the desired result in <b>collaborative manner</b> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Assessment of qualifying knowledge</b>                                                                                         | Written questions on formula of circumference and area of circle and area of ring.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Learning Outcomes</b>                                                                                                          | <u>KNOWLEDGE</u> - <i>Students will know and</i> <b>Demonstrate</b> the ability to visualize figure containing circles<br><u>SKILLS and COMPETENCIES</u> - <i>Students will be able to</i> <b>differentiate and classify</b> various types of figures, in <b>collaboration</b> with each other.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Transaction Methodology</b><br>(The teacher can use the mentioned techniques, wherever applicable, and can use any other too.) | <b><u>Strategies Used :</u></b> Think pair and Share, Inductive and Deductive learning,<br><br>Transaction would proceed in the following manner-<br><b><u>Recapitulation: 5 min</u></b><br>Brainstorming on the previously taught concept would be done.<br><b><u>Discussion of topic through Collaborative Learning: 15 min</u></b><br>(Critical Thinking, Collaboration)<br>An oral quiz will be taken and students will be asked to identify the formula to be used.<br><b><u>Guided practice: 15 min</u></b><br>The students, with the help of the facilitator, will solve the questions from NCERT book of Exercise – 12.1 in their notebook in the class with the help of their teacher. The teacher would ensure that each student tries to be independent at the work as well as be under the teacher's guidance.<br><b><u>Independent Practice:</u></b> Students will complete the remaining HW parts given in Exercise 12.1 in their Math HW notebook.<br>Students who would difficulty in solving the problem would solve with the help of their buddies.<br><b><u>Closure: 5 min</u></b><br>A short oral test would be taken to check proper assimilation of the topic discussed. |
| Resources                                                                                                                         | Text Book:<br>NCERT text book for Mathematics<br>Reference Book                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

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|                                                                                                                                   | CBSE Exemplar                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Self Study, Home Work, Assignments                                                                                                | <b>Independent Practice:</b> Students would do the given questions in their H.W. notebooks.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Assessments                                                                                                                       | Oral quiz (5 minutes)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>DAY</b>                                                                                                                        | <b>THREE</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Objective</b>                                                                                                                  | To make students acquainted with the concepts of areas of a sector and segment of a circle.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Assessment of qualifying knowledge</b>                                                                                         | Written questions on identifying the arcs, segment and sector of given circle.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Learning Outcomes</b>                                                                                                          | <p><u>KNOWLEDGE</u>- Students will <b>develop</b> the ability to <b>understand</b> the relationship between arcs, sector and segment of circle</p> <p><u>SKILLS and COMPETENCIES</u> - Students would be able to <b>critically apply</b> the concepts in given situations and <b>collaboratively</b> calculate the desired result in the given figure.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Transaction Methodology</b><br>(The teacher can use the mentioned techniques, wherever applicable, and can use any other too.) | <p><b>Strategies Used :</b> Inductive and Deductive learning, Discussion of Muddiest Point</p> <p>Transaction would proceed in the following manner-</p> <p><b>Recapitulation: 5 min</b><br/>Oral test on the previous concept would be taken up.</p> <p><b>Discussion of topic through Collaborative Learning: 15 min (Critical thinking)</b><br/>Digital content would be used. The students will be made acquainted with the concepts of areas of a sector and segment of a circle. The facilitator would take rounds and help students with their doubts.</p> <p><b>Guided Practice: 15 min</b><br/>The students will solve the questions from NCERT book of before the Exercise – 12.2 in their notebook in the class with the help of their teacher. The teacher would ensure that each student tries to be independent at the work as well as be under the teacher’s guidance.</p> <p><b>Independent Practice:</b> Students will complete the remaining HW parts given</p> <p><b>Closure: 5 min</b><br/>A short oral test would be taken to check proper assimilation of the topic discussed.</p> |
| Resources                                                                                                                         | <p>Text Book:<br/>NCERT text book for Mathematics</p> <p>Reference Book<br/>CBSE Exemplar</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

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| Self Study, Home Work, Assignments                                                                                             | <b>Independent Practice:</b> Students would do the given questions in their H.W. notebooks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Assessments                                                                                                                    | MCQ (5 minutes)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>DAY</b>                                                                                                                     | <b>FOUR</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Objective</b>                                                                                                               | To understand the relation between the formula of sectors and segments of circle.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Assessment of qualifying knowledge</b>                                                                                      | Written test on identifying the formula to be used in the given figure.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Learning Outcomes</b>                                                                                                       | <p><u><b>KNOWLEDGE-</b></u> <i>Students will <b>develop</b> the ability to <b>understand</b> the relationship between the formulae of sector and segment of circle.</i></p> <p><u><b>SKILLS and COMPETENCIES</b></u> - <i>Students would be able to <b>Critically apply</b> the concepts in given situations and <b>collaboratively</b> realize the fact that segment is a part of sector of the circle</i></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)</b> | <p><u><b>Strategies Used :</b></u> Inductive and Deductive learning, Discussion of Muddiest Point</p> <p>Transaction would proceed in the following manner-</p> <p><b>Recapitulation: 5 min</b><br/>Quick revision on the previous concept would be taken up.</p> <p><b>Discussion of topic through Collaborative Learning: 15 min (Creativity, Collaboration)</b><br/>The students would also be acquainted with the use of trigonometry in finding area of a segment of a circle. This would be discussed in detail with vivid examples.</p> <p><b>Guided Practice: 15 min</b><br/>The students will solve the questions from NCERT book, solved examples before Ex 12.2 in their notebook in the class with the help of their facilitator. The facilitator would take rounds and help the students in solving the questions.</p> <p><b>Independent Practice:</b> Students will solve some questions from NCERT, as directed by the teacher.</p> <p><b>Closure: 5 min</b><br/>Discussion of muddiest point.</p> <p>.</p> |
| Resources                                                                                                                      | <p>Text Book:<br/>NCERT text book for Mathematics</p> <p>Reference Book<br/>CBSE Exemplar</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Self Study, Home                                                                                                               | <b>Independent Practice:</b> Students would do the remaining questions, as                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

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| Work, Assignments                                                                                                                 | given in Ex 12.2 in their H.W. notebooks.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Assessments                                                                                                                       | Written test (5 minutes)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>DAY</b>                                                                                                                        | <b>FIVE</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Objective</b>                                                                                                                  | To solve the questions from NCERT book of Exercise – 12.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Assessment of qualifying knowledge</b>                                                                                         | MCQ on identifying formula to be used to solve the questions.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Learning Outcomes</b>                                                                                                          | <p><u><b>KNOWLEDGE</b></u>- <i>Students will <b>develop</b> the ability to <b>understand</b> the relationship between the formulae of sector and segment of circle.</i></p> <p><u><b>SKILLS and COMPETENCIES</b></u> - <i>Students would be able to <b>Critically apply</b> the concepts in given situations and <b>collaboratively</b> realize the fact that segment is a part of sector of the circle.</i></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Transaction Methodology</b><br>(The teacher can use the mentioned techniques, wherever applicable, and can use any other too.) | <p><u><b>Strategies Used</b></u> : Numbered Heads_Discussion of Muddiest Point</p> <p>Transaction would proceed in the following manner-</p> <p><b>Recapitulation: 5 min</b><br/>The students would also be acquainted with the use of trigonometry in finding area of a segment of a circle. Quick revision on the previous concept would be taken up.</p> <p><b>Discussion of topic through Collaborative Learning: 15 min</b><br/>(Critical Thinking, Collaboration)<br/>This would be discussed in detail with vivid examples.</p> <p><b>Guided Practice: 15 min</b><br/>The students will solve the questions from NCERT book, solved examples before Ex 12.2 in their notebook in the class with the help of their facilitator. The facilitator would take rounds and help the students in solving the questions.</p> <p><b>Independent Practice:</b> Students will find various irrational numbers in view of its definition figures in nature that are combination of circles and rectangles and other 2D shapes and think how can their areas be found.</p> <p><b>Closure: 5 min</b><br/>Discussion of muddiest point.<br/>.</p> |
| Resources                                                                                                                         | Text Book:<br>NCERT text book for Mathematics<br>Reference Book<br>CBSE Exemplar                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Self Study, Home Work, Assignments                                                                                                | <b>Independent Practice:</b> Students would do the given questions in their H.W. notebooks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

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| Assessments                                                                                                                       | MCQ (5 minutes)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>DAY</b>                                                                                                                        | <b>SIX</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Objective</b>                                                                                                                  | To understand the combination figures involving circles and other 2D shapes and the concept of their areas.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Assessment of qualifying knowledge</b>                                                                                         | Written test on finding combination of plane figures.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|                                                                                                                                   | The students will be explained the concept of finding area and perimeter of combination figures involving circles and other 2D shapes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Learning Outcomes</b>                                                                                                          | <p><u><b>KNOWLEDGE</b></u>- <i>Students will know, understand and differentiate between the various 2-D figures combined to form the given figure</i></p> <p><u><b>SKILLS and COMPETENCIES</b></u> - <i>Students would be able to</i></p> <ol style="list-style-type: none"> <li><b>1. Apply</b> the given knowledge with 100 % accuracy</li> <li><b>2. Creatively</b> divide the given figure into simple 2-D plane figures</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Transaction Methodology</b><br>(The teacher can use the mentioned techniques, wherever applicable, and can use any other too.) | <p><u><b>Strategies Used :</b></u> Graphic Organizers, Inductive and Deductive learning</p> <p>Transaction would proceed in the following manner-</p> <p><b>Recapitulation: 5 min</b><br/>A short discussion on what figures the students saw in nature and how can their areas be calculated .</p> <p><b>Discussion of topic through Collaborative Learning: 15 min</b><br/>(Critical Thinking)<br/>The students will be explained the concept of finding area and perimeter of combination figures involving circles and other 2D shapes</p> <p><b>Guided Practice:15 min</b><br/>The students will solve the questions from NCERT book of Exercise – 12.3 in their notebook in the class with the help of their facilitator.</p> <p><b>Independent Practice:</b> Students will complete the remaining HW parts given in of Exercise 12.3 in their Math HW notebook.</p> <p><b>Closure: 5 min</b><br/>Summarization, preferably by a student, would be taken to check proper assimilation of the topic discussed.</p> <p>.</p> |
| Resources                                                                                                                         | <p>Text Book:<br/>NCERT text book for Mathematics</p> <p>Reference Book<br/>CBSE Exemplar</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Self Study, Home Work, Assignments                                                                                                | <b>Independent Practice:</b> Students would do the given questions in their H.W. notebooks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

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| Assessments                                                                                                                       | Written test (5 minutes)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>DAY</b>                                                                                                                        | <b>SEVEN</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Objective</b>                                                                                                                  | To solve the questions from NCERT book of Exercise – 12.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Assessment of qualifying knowledge</b>                                                                                         | Written test on bifurcating the given figure into simple plane figures.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Learning Outcomes</b>                                                                                                          | <p><u>KNOWLEDGE</u>- <i>Students will know and understand</i></p> <p>1. The different figures combined to form the given figure.</p> <p><u>SKILLS and COMPETENCIES</u> - <i>Students would be able to</i></p> <p><b>Identify</b> each figure combined to form the given figure.</p> <p><b>Critically analyze</b> the formula to be used to calculate the perimeter and area of combination figure</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Transaction Methodology</b><br>(The teacher can use the mentioned techniques, wherever applicable, and can use any other too.) | <p><b><u>Strategies Used</u></b> : Inductive and Deductive learning, Discussion of Muddiest Point</p> <p>Transaction would proceed in the following manner-</p> <p><b>Recapitulation: <u>5 min</u></b></p> <p>Warming session would be taken.</p> <p><b>Discussion of topic through Collaborative Learning: <u>15 min</u></b><br/>(Critical thinking, communication)</p> <p>Solved examples from the book would be taken up.</p> <p>Brainstorming would be done.</p> <p><b>Guided Practice: <u>20 min</u></b></p> <p>The students will solve the questions from NCERT book of Exercise – 12.3 in their notebook in the class with the help of their facilitator.</p> <p>The facilitator would explain the questions from Ex 12.3 with a collaborative approach towards them.</p> <p><b>Independent Practice:</b> Students will complete the remaining HW parts given in of Exercise 12.3 in their Math HW notebook.</p> <p><b>Closure: <u>5 min</u></b></p> <p>Summarization, preferably by a student, would be taken to check proper assimilation of the topic discussed.</p> |
| Resources                                                                                                                         | <p>Text Book:</p> <p>NCERT text book for Mathematics</p> <p>Reference Book</p> <p>CBSE Exemplar</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Self Study, Home Work, Assignments                                                                                                | <b>Independent Practice:</b> Students would do the given questions in their H.W. notebooks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

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| Assessments                                                                                                                       | Written test (5 minutes)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>DAY</b>                                                                                                                        | <b>EIGHT</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Objective</b>                                                                                                                  | To solve the questions from NCERT book of Exercise – 1.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Assessment of qualifying knowledge</b>                                                                                         | Written test on calculating areas of the combination figures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Learning Outcomes</b>                                                                                                          | <p><u>KNOWLEDGE</u>- <i>Students will know and understand</i><br/>The different figures combined to form the given figure.</p> <p><u>SKILLS and COMPETENCIES</u> - <i>Students would be able to</i></p> <ol style="list-style-type: none"> <li>1. <b>Identify</b> each figure combined to form the given figure.</li> <li>2. <b>Critically analyze</b> the formula to be used to calculate the perimeter and area of combination figure</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Transaction Methodology</b><br>(The teacher can use the mentioned techniques, wherever applicable, and can use any other too.) | <p><b><u>Strategies Used</u></b> : Inductive and Deductive learning, Discussion of Muddiest Point</p> <p>Transaction would proceed in the following manner-</p> <p><b><u>Recapitulation: 5 min</u></b><br/>One-minute test would be taken.</p> <p><b><u>Discussion of topic through Collaborative Learning: 15 min</u></b><br/>(Creativity)<br/>Mind mapping would be used<br/>Digital content would be used.</p> <p><b><u>Guided Practice: 15 min</u></b><br/>The facilitator would explain through different examples. Collaborative approach would be taken up.</p> <p><b><u>Independent Practice:</u></b> Students will go through the solved examples before Ex 12.3 of NCERT text book.</p> <p><b><u>Closure: 5 min</u></b><br/>Summarization, preferably by a student, would be taken to check proper assimilation of the topic discussed.</p> <p>.</p> |
| <b>Resources</b>                                                                                                                  | <p>Text Book:<br/>NCERT text book for Mathematics</p> <p>Reference Book<br/>CBSE Exemplar</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Self-Study, Home Work, Assignments</b>                                                                                         | <b><u>Independent Practice:</u></b> Students would do the given questions in their H.W. notebooks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Assessments</b>                                                                                                                | Written test (5 minutes)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

