

CLASS – X
LESSON PLAN
CHAPTER-11: CONSTRUCTION

Unit	Geometry (Chapter 11: Constructions)
Class Transaction	Total: 8 periods (approx. 40 min each)
Pre-requisite for the course	This lesson requires basic knowledge of • Bisection of line. • Bisection of angles. • Construction of angles which are divisible by 15o. Construction of triangles using different given information with the help of scale and compass. • Students have the idea of similar triangles and conditions of similarity. • What is a tangent to the circle and its properties ?
Assessment of qualifying knowledge	1. Written test 2. Lab activity 3. HW notebook
Objective	• Student will be able to use the Geometrical instruments like compass and scale with 99% accuracy to construct the Geometrical figure (triangles) using given information.
Learning Outcomes	<u>KNOWLEDGE</u>- <i>Students will know and understand</i> 1. Division of a line segment into a given ratio. 2. Construction of a triangle similar to a given triangle as per given scale factor which may be less than or greater than 1. 3. Construction of tangent at a point on given circle. 4. Construction a pair of tangents from an external point to a circle. <u>SKILLS</u>- <i>Students would be able to develop the skill of structured and geometrical drawing using critical thinking and also do work creatively.</i> 1. Drawing of more constructions by using the knowledge of the earlier constructions (i.e. class 9th) 2. The mathematical reasoning behind why such constructions work . 3. To divide a line segment in a given ratio using a compass and a scale. 4. To construct a triangle similar to a given triangle as per given scale factor. 5. To construct the tangents to a circle from a point outside it ,using compass and scale .
Transaction	Transaction would proceed in the following manner-

Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Strategies Used : Brainstorming, Muddiest Point Discussion, Graphic Organizers Graphic Organizers: Graphic organizers are some of the most effective visual learning strategies for students and are applied across the curriculum to enhance learning and understanding of subject matter content. Brain Storming: 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 Muddiest Point: Check comprehension and identify confusion, what was most confusing about the material? <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. <i>Introduction of the topic-</i> ppt and Digital Content would be shared <i>Guided practice followed by Independent Practice-</i> NCERT questions to be discussed in the classroom. Techniques to be used: Quiz Daily Practice Problem MCQ Peer Assessment Case Studies Lab Activities Any Other
Resources	Text Book: NCERT text book for Mathematics Reference Book CBSE Exemplar
Self Study, Home Work, Assignments	Independent Practice: Students would do some questions from NCERT and Exemplar in their H.W notebooks. HW notebooks to be marked as per the given plan: <i>Assessment Parameters:</i> The total marks for the activity is 5 marks On time submission.....1 mark Presentation/ Neatness.....1 mark Content.....3 marks 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.

Assessments	3 UNIT TESTS (20, 30, 30) 80 Marks MID TERM EXAMINATION 80 Marks HALF YEARLY EXAMINATION 80 Marks PRE BOARD-I EXAMINATION 80 Marks PRE BOARD-II EXAMINATION 80 Marks ANNUAL BOARD EXAMINATION 80 Marks PERIODIC TEST Average of the best two tests to be taken that will have a weightage of 10 marks. Best 2 Tests out of: Units tests, Midterm examination, Half Yearly examination. INTERNAL ASSESSMENT 20 Marks - Periodical Test 10 Marks - Note Book Submission 05 Marks - Lab Practical 05 Marks
Addressing Classroom Diversity	Due to various social backgrounds and multiple intelligences, the classroom might be a diverse arena. The following techniques can be used for various groups: <i>For gifted students:</i> - High order thinking questions from NCERT Exemplar - Encouragement for referring other resources <i>For weak students:</i> - Buddy help to be provided - Provide grade-up classes <i>For differently abled students:</i> - Ignore spelling mistakes and formulae, if not written - Call parents at regular intervals - Provide grade-up classes
Marks	The weightage would be given by CBSE.
Assessment Questions	Q1 Draw a line segment $AB = 7$ cm. Take a point P on AB such that $AP : PB = 3 : 4$. Q2 Construct a $\triangle ABC$ in which $BC = 6.5$ cm, $AB = 4.5$ cm and $\angle ACB = 60^\circ$. Construct another triangle similar to $\triangle ABC$ such that each side of new triangle is $\frac{4}{5}$ of the corresponding sides of $\triangle ABC$ Q3 Draw an isosceles $\triangle ABC$ with $AB = AC$ and base $BC = 7$ cm and vertical angle is 120°. Construct $\triangle AB'C' \sim \triangle ABC$ with its sides $\frac{4}{3}$ times of the corresponding sides of $\triangle ABC$. Q4 Draw a circle of diameter 7 cm. Draw a pair of tangents to the circle, which are inclined to each other at an angle of 60°. Q5 Draw a line segment $AB = 9$ cm. Taking A and B as centres draw two

	circles of radius 5 cm and 3 cm respectively. Now draw tangents to each circle from the centre of the other.
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DAY	ONE
Objective	Identify different ways of similar triangles and magnification of triangles.
Assessment of qualifying knowledge	Quiz and knowledge testing on parallel lines and related angles.
Learning Outcomes	<u>KNOWLEDGE</u>- Students will know and identify the different triangles and their uses. <u>SKILLS and COMPETENCIES</u> Students would be able to Relate construction to real life.
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Transaction would proceed in the following manner- Strategies Used: Brainstorming Anticipatory Set: 10 min Recalling of the previous knowledge through questions ask from anticipatory sets. Giving them introduction about the topic through PPT, discussion and explanation on the green board. Discussion of topic through Collaborative Learning: 15 min (Critical Thinking and Problem Solving) Students would be asked to make a pair of parallel lines and Guided practice: 10 min The students will practice constructions of parallel lines and angles by compass in their notebook in the class with the help of their teacher. Independent Practice: Students will go through the solved examples before Ex 6.1 of NCERT text book. Closure: 5 min A short oral test would be taken to check proper assimilation of the topic discussed.
Resources	Text Book: NCERT text book for Mathematics Reference Book CBSE Exemplar
Self Study, Home Work, Assignments	Independent Practice: Students would do the given questions in their H.W. notebooks.
Assessments	Oral Test (5 minutes)
DAY	TWO
Objective	To help the student to understand of concept of dividing a line segment into a given ratio
Assessment of qualifying knowledge	Quiz and knowledge testing on internal division of a line
Learning	<u>KNOWLEDGE</u> - Students will know and identify the different methods of

Outcomes	dividing a line segment in the given ratio. <u>SKILLS and COMPETENCIES</u> Students would be able to Relate this concept to real life situations.
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Transaction would proceed in the following manner- Strategies Used: Hands on learning Anticipatory Set: 10 min Recap of the last day will be done by asking few questions in first 5 minutes in the class. Discussion of topic through Collaborative Learning: 15 min <u>Hands on Learning</u>(Critical Thinking and Problem Solving) Students would be asked to make a line segment and using geometry box and its instruments, would be dividing the given line segment in the desired ratio. Guided practice: 10 min The students will solve the solved examples before Ex 11.1. The facilitator would take rounds and help the students in solving the questions. Independent Practice: Students will go through the solved examples before Ex 11.1 of NCERT text book. Closure: 5 min A short oral test would be taken to check proper assimilation of the topic discussed.
Resources	Text Book: NCERT text book for Mathematics Reference Book CBSE Exemplar
Self Study, Home Work, Assignments	Independent Practice: Students would do the given questions in their H.W. notebooks.
Assessments	Oral Test (5 minutes)
DAY	THREE
Objective	Identify different ways to construct similar triangles with scale factor less than 1
Assessment of qualifying knowledge	Quiz and knowledge testing on similar triangles.
Learning Outcomes	<u>KNOWLEDGE</u>- Students will know and identify the different cases of similarity <u>SKILLS and COMPETENCIES</u> Students would be able to Relate construction with everyday life and its uses.

Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Transaction would proceed in the following manner- Strategies Used: Muddiest Point Discussion Anticipatory Set: <u>10 min</u> Facilitator will ask few questions to revise similarity of triangles. Discussion of topic through Collaborative Learning: <u>15 min</u> <u>Inquiry based learning</u> (Critical Thinking and Problem Solving) Students would be asked to make a triangle and construction of similar triangles would be taught to them Guided practice: <u>10 min</u> The students will try to solve questions from Ex 11.1. The facilitator would take rounds and help the students in solving the questions. Independent Practice: Students will go through the solved examples before Ex 11.1 of NCERT text book. Closure: <u>5 min</u> A short oral test would be taken to check proper assimilation of the topic discussed.
Resources	Text Book: NCERT text book for Mathematics Reference Book CBSE Exemplar
Self Study, Home Work, Assignments	Independent Practice: Students would do some questions from NCERT in their H.W. notebooks.
Assessments	Oral Test (5 minutes)
DAY	FOUR
Objective	Identify different ways to construct similar triangles with scale factor greater than 1
Assessment of qualifying knowledge	Quiz and knowledge testing on similar triangles.
Learning Outcomes	<u>KNOWLEDGE</u>- Students will know and identify the different cases of similarity <u>SKILLS and COMPETENCIES</u> Students would be able to Relate construction with every day life and its uses.
Transaction Methodology (The teacher can use the mentioned techniques,	Transaction would proceed in the following manner- Strategies Used: think pair and share Anticipatory Set: <u>10 min</u> Facilitator will ask few questions to revise similarity of triangles.

wherever applicable, and can use any other too.)	Discussion of topic through Collaborative Learning: <u>15 min</u> <u>Inquiry based learning</u> (Critical Thinking and Problem Solving) Students would be asked to make a triangle and construction of similar triangles would be taught to them Guided practice: <u>10 min</u> The students will try to solve questions from Ex 11.1 The facilitator would take rounds and help the students in solving the questions. Independent Practice: Students will go through the solved examples before Ex 11.1 of NCERT text book. Closure: <u>5 min</u> A short oral test would be taken to check proper assimilation of the topic discussed.
Resources	Text Book: NCERT text book for Mathematics Reference Book CBSE Exemplar
Self Study, Home Work, Assignments	Independent Practice: Students would do some questions from NCERT in their H.W. notebooks.
Assessments	Oral Test (5 minutes)
DAY	FIVE
Objective	Identify different cases of tangents and their construction
Assessment of qualifying knowledge	Quiz and knowledge testing on tangents and their properties
Learning Outcomes	<u>KNOWLEDGE</u>- Students will know and identify the different tangents and circles and their properties. <u>SKILLS and COMPETENCIES</u> Students would be able to construct effeciently
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Transaction would proceed in the following manner- Strategies Used: Inquiry based learning Anticipatory Set: <u>10 min</u> Facilitator would take up properties of tangents and circles. Discussion of topic through Collaborative Learning: <u>15 min</u> <u>Inquiry based learning</u> (Critical Thinking and Problem Solving) Students would be asked to do construction of a circle and two tangents from an external point. Guided practice: <u>10 min</u> Students would be asked to do construction of a circle and two tangents

	from an external point. . Independent Practice: Students will go through the solved examples before Ex 11.2 of NCERT text book. Closure: 5 min A short oral test would be taken to check proper assimilation of the topic discussed.
Resources	Text Book: NCERT text book for Mathematics Reference Book CBSE Exemplar
Self Study, Home Work, Assignments	Independent Practice: Students would do the given questions in their H.W. notebooks.
Assessments	Oral Test (5 minutes)
DAY	SEVEN
Objective	Identify different cases of tangents their and construction
Assessment of qualifying knowledge	Quiz and knowledge testing on tangents and their properties
Learning Outcomes	<u>KNOWLEDGE</u>- Students will know and identify the different tangents and circles and their properties. <u>SKILLS and COMPETENCIES</u> Students would be able to construct effeciently
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Transaction would proceed in the following manner- Strategies Used: Brainstorming Anticipatory Set: 10 min Facilitator would take up properties of tangents and circles. Discussion of topic through Collaborative Learning: 15 min <u>Inquiry based learning</u> (Critical Thinking and Problem Solving) Students would be asked to do construction of a circle and two tangents from an external point. Guided practice: 10 min Students would be asked to do construction of a circle and two tangents where angles between tangents is being given. Independent Practice: Students will go through the solved examples before Ex 11.2 of NCERT text book. Closure: 5 min A short oral test would be taken to check proper assimilation of the topic

	discussed.
Resources	Text Book: NCERT text book for Mathematics Reference Book CBSE Exemplar
Self Study, Home Work, Assignments	Independent Practice: Students would do some questions from NCERT in their H.W. notebooks.
Assessments	Oral Test (5 minutes)
DAY	EIGHT
Objective	Demonstrate the ability to solve questions with 90% accuracy
Assessment of qualifying knowledge	Quiz and knowledge testing on coordinate geometry
Learning Outcomes	<u>KNOWLEDGE</u> - Students will know and identify the concept of constructing similar triangles and also construct tangents to a given circle <u>SKILLS and COMPETENCIES</u> Students would be able to Reason effectively and critically differentiate between usage of concepts and accurate use of geometrical instruments.
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Transaction would proceed in the following manner- Strategies Used: Graphic Organizers Recapitulation: 5 min Oral Test would be taken up. Discussion of topic through Collaborative Learning: 10 min (Critic Exemplar would be taken up. Guided Practice: 20 min The teacher would explain the questions from the Exemplar. Independent Practice: Students would some questions from Exemplar. Closure: 5 min Summarization, preferably by a student, would be taken to check proper assimilation of the topic discussed.
Resources	Text Book: NCERT text book for Mathematics Reference Book CBSE Exemplar
Self Study, Home Work, Assignments	Independent Practice: Students would do some questions from Exemplar in their H.W. notebooks.

Assessments	Oral Test (5 minutes)
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