

CLASS – VII
LESSON PLAN
CHAPTER-10: PRACTICAL GEOMETRY

Unit	Construction of triangles (Chapter 10: Practical Geometry)
Class Transaction	Total: 10 periods (approx. 40 min each)
Pre-requisite for the course	This lesson requires 1. Basic knowledge of drawing line segments 2. Knowledge of basic construction of angles using compass. 3. Knowledge of properties of triangles.
Assessment of qualifying knowledge	1. Class test 2. Lab activity 3. HW notebook
Objective	Students would be able to use different properties of triangles to construct triangles with different given measurements , thereby inculcating competencies like collaboration, critical thinking and creativity
Learning Outcomes	KNOWLEDGE- <i>Students will develop the ability to understand</i> 1. The angles which can be constructed using compass. 2. The method of constructing different triangles. 3. Properties of triangles. SKILLS and COMPETENCIES-<i>Students would be able to</i> 1. Develop the ability to analyze and differentiate between various types of triangles. 2. Perform construction skills like constructing angles and triangles with different methods and develop critical thinking and collaboration in the process.
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Strategies used- Inductive deductive reasoning, think pair share, graphic organizer, brain storming Dimensions of learning- D1, D3 Transaction would proceed in the following manner- Brain Storming-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. Introduction of the topic- ppt and Digital Content would be shared Guided practice followed by Independent Practice- 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 the given questions in their H.W. notebooks from their course book. H.W. 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	Through Pen Paper Test Students will be assessed creatively and critically <table> <tr> <td>10 UNIT TESTS</td> <td>20 Marks each</td> </tr> <tr> <td>HALF YEARLY EXAMINATION</td> <td>80 Marks</td> </tr> <tr> <td>ANNUAL BOARD EXAMINATION</td> <td>80 Marks</td> </tr> </table> INTERNAL ASSESSMENT 10 Marks - Note Book Submission 05 Marks - Lab Practical (Subject Enrichment) 05 Marks Through lab Practical Students are assessed for Collaboration, Character building	10 UNIT TESTS	20 Marks each	HALF YEARLY EXAMINATION	80 Marks	ANNUAL BOARD EXAMINATION	80 Marks
10 UNIT TESTS	20 Marks each						
HALF YEARLY EXAMINATION	80 Marks						
ANNUAL BOARD EXAMINATION	80 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> - 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 • Encourage and motivate them at every level.	
Marks	The weightage would be given by CBSE.	
Assessment	Q1	Construct a triangle ABC given BC= 6cm , CA= 5cm and AB = 3.5cm
	Q2	Construct a right angles triangle ABC, right angled at B and BC= 4cm and AB= 3cm
	Q3	Construct a triangle ABC, given that AB=5 cm, BC=6 cm and CA= 7 cm.
	Q4	Construct a triangle ABC, given that AB =5 cm, $\angle B = 50^\circ$ and $\angle A = 75^\circ$
	Q5	Construct a triangle ABC, given that AB=6 cm, BC =10 cm and $\angle A = 90^\circ$
	Q6	Draw a line parallel to a given line of length 5cm.

DAY	ONE
Objective	Enhance ability to accurately recognize and use appropriate terminology related to constructions and developing the art of communication and critical thinking.
Assessment of qualifying knowledge	Quiz and knowledge testing on triangles and their properties.
Learning Outcomes	<u>KNOWLEDGE</u> - <i>Students will know and identify</i> different conditions of constructing triangles. <u>SKILLS and COMPETENCIES</u> <i>Students would be able to Reason effectively and critically</i> differentiate different constructions.
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Strategies used- Inductive deductive reasoning, graphic organizer, brain storming Dimensions of learning- D1, D3 Transaction would proceed in the following manner- Anticipatory Set: 10 min Facilitator will ask few questions to introduce the topic • What is a triangle? • What is a diagonal? • What are properties of triangles? • How many measurements are required for constructing a triangle? • Constructing sides using compass. • Are there angles which cannot be constructed using compass? • Can you construct all angles using compass? • What is difference between square, rhombus, rectangle? Discussion of topic through Collaborative Learning: 15 min <u>Inquiry based learning</u> (Critical Thinking and creativity) Students would be asked to construct triangles with one diagonal and four sides. The facilitator would take rounds and ensure that each learner is engaged. Guided practice: 10 min The students will solve the questions from NCERT book, solved examples before Ex 10.1 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. Independent Practice: Students will go through the solved examples before Ex 10.1 of NCERT text book. Closure: 5 min A quick recap would be done for 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 from their course book.

Assessments	Oral Test (5 minutes)
DAY	TWO
Objective	Students will be able to identify the given measurements and would also be able to make rough diagrams for construction in collaborative manner .
Assessment of qualifying knowledge	Questions on construction of triangles when one diagonal and 10 sides are given.
Learning Outcomes	<u>KNOWLEDGE</u>- Students will know and Demonstrate the ability to construct triangles with one diagonal and 10 sides. <u>SKILLS and COMPETENCIES</u>- Students will be able to differentiate and classify sides and diagonals from given measurements, in collaboration with each other.
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Strategies used- Inductive deductive reasoning, , think pair share, graphic organizer Dimensions of learning- D1, D3 Transaction would proceed in the following manner- Recapitulation: 5 min Brainstorming on the previously taught concept would be done. Discussion of topic through Collaborative Learning: 15 min (Critical Thinking, Collaboration, creativity) An oral quiz will be taken and students will be asked about triangles and will be able to realize the fact that five measurements are required for construction of a triangle . Guided practice: 15 min The students, with the help of the facilitator, will solve the questions from NCERT book of Exercise – 10.1 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. Independent Practice: Students will complete the remaining HW parts of Exercise 10.1 in their Math HW notebook. Students who would difficulty in solving the problem would solve with the help of their buddies. Closure: 5 min A quick recap would be done for 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 from their course book.
Assessments	Oral quiz (5 minutes)
DAY	THREE
Objective	Students will be able to construct triangles when 2 angles and 3 sides are given.
Assessment of	Questions for triangles.

qualifying knowledge	
Learning Outcomes	<u>KNOWLEDGE</u>- Students will develop the ability to understand the Construction of triangles when 2 angles and 3 sides are given. <u>SKILLS and COMPETENCIES</u> - Students would be able to 1. Critically apply the concepts in given situations and collaboratively realize the fact that triangles require five measurements for construction. 2. Comprehend that not every triangle can be constructed with same method.
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Strategies used- Inductive deductive reasoning, think pair share, graphic organizer Dimensions of learning- D1, D3 Transaction would proceed in the following manner- Recapitulation: 5 min Quick revision on the previous concept would be taken up. Discussion of topic through Collaborative Learning: 15 min (Creativity, Collaboration) Construction of triangles with 2 angles and 3 sides would be introduced to students. They will know how to construct triangles when 2 angles and 3 sides are given. This would be discussed in detail with vivid examples. Guided Practice: 15 min The students will solve the questions from NCERT book, solved examples before Ex 10.2 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. Independent Practice: Students will construct triangles. Closure: 5 min Discussion of muddiest point. .
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 from their course book.
Assessments	Written test (5 minutes)
DAY	FOUR
Objective	To understand application of properties of triangles and construction of triangles when 2 adjacent sides and 3 angles are given.
Assessment of qualifying knowledge	MCQ on identifying type of triangles.
Learning Outcomes	<u>KNOWLEDGE</u>- Design new ways to construct angles and triangles as many ways as possible. <u>SKILLS and COMPETENCIES</u> - Students would be able to Comprehend that triangles can be constructed using properties also through collaborative leaning process.

Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Strategies used- Inductive deductive reasoning, Muddiest point of discussion Dimensions of learning- D1, D3 Transaction would proceed in the following manner- Recapitulation: 5 min Quick revision on the previous concept would be taken up. Discussion of topic through Collaborative Learning: 15 min (Critical Thinking, Collaboration, creativity) Triangles with 2 adjacent sides and 3 angles would be introduced to students. They will know how these are different from triangles of previous exercises. This would be discussed in detail with vivid examples. Guided Practice: 15 min The students will solve the questions from NCERT book, solved examples before Ex 10.3 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. Independent Practice: Students will construct given triangles Closure: 5 min Discussion of muddiest point. .
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 from their course book.
Assessments	MCQ (5 minutes)
DAY	FIVE
Objective	To understand construction of triangles when 2 adjacent sides and 3 angles are given.
Assessment of qualifying knowledge	Quick recap test of previously done questions.
Learning Outcomes	<u>KNOWLEDGE</u>- Design new ways to construct angles and triangles as many ways as possible. <u>SKILLS and COMPETENCIES</u> - <i>Students would be able to</i> Comprehend that triangles can be constructed creatively using properties also through collaborative leaning process.
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Strategies used- Inductive deductive reasoning Dimensions of learning- D1, D3 Transaction would proceed in the following manner- Recapitulation: 5 min Quick recap would be done for properties. Discussion of topic through Collaborative Learning: 15 min (Critical Thinking, creative thinking) How to use Pythagoras theorem to represent various irrational numbers on number line would be discussed in detail. Guided Practice: 15 min

	The students will solve the questions from NCERT book of Exercise – 10.3 in their notebook in the class with the help of their facilitator. Independent Practice: Students will complete the remaining HW parts of Exercise 10.3 in their Math HW notebook. 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 the given questions in their H.W. notebooks from their course book.
Assessments	Written test (5 minutes)
DAY	SIX
Objective	To understand construction of triangle when three sides and two angles are given
Assessment of qualifying knowledge	Quick test.
Learning Outcomes	<u>KNOWLEDGE</u>- Design new ways to construct angles and triangles according to given measurements. <u>SKILLS and COMPETENCIES</u> - <i>Students would be able to</i> Comprehend that triangles can be constructed creatively using properties also through collaborative leaning process.
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Strategies used- Inductive deductive reasoning, Muddiest point of discussion, graphic organizer Dimensions of learning- D1, D3 Transaction would proceed in the following manner- Recapitulation: 5 min One-minute recap would be done. Discussion of topic through Collaborative Learning: 15 min (Creativity) Demonstration of construction of triangle when three sides and two angles are given mind mapping would be used Digital content would be used. Guided Practice: 15 min The facilitator would explain through different examples. Collaborative approach would be taken up. Independent Practice: Students will go through the solve questions of Ex 10.3 of NCERT text book. 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 the given questions in their H.W. notebooks from their course book.
Assessments	Written test (5 minutes)
DAY	SEVEN
Objective	To demonstrate construction of special type of Triangles like right angled triangle
Assessment of qualifying knowledge	Oral test on properties of triangles.
Learning Outcomes	<u>KNOWLEDGE</u>- students will Design new ways to construct angles and triangles according to given measurements and properties of triangles. <u>SKILLS and COMPETENCIES</u> - <i>Students would be able to</i> 1. Apply critically the knowledge meaningfully and creatively. 2. Develop various techniques to construct triangles.
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Strategies used- Inductive deductive reasoning, think pair share, graphic organizer Dimensions of learning- D1, D3 Transaction would proceed in the following manner- Recapitulation: 5 min Oral test would be taken. Discussion of topic through Collaborative Learning: 10 min (Communication, creativity, critical thinking) Properties would be discussed. Mind mapping would be used and would discuss different questions Guided Practice: 20 min The teacher, as a facilitator, would explain the questions from Ex 10.4 would be taken up and collaborative approach towards them so that the facilitator would help them with their doubts. Independent Practice: Students will complete the remaining HW parts of Exercise 10.3 in their Math HW notebook. 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 the given questions in their H.W. notebooks from their course book.
Assessments	Oral test (5 minutes)
DAY	EIGHT
Objective	To solve the questions from NCERT book of Exercise – 10.5
Assessment of	MCQ test on properties of triangles.

qualifying knowledge	
Learning Outcomes	KNOWLEDGE- students will Design new ways to construct angles and triangles according to given measurements and properties of triangles. SKILLS and COMPETENCIES - <i>Students would be able to</i> 1. Apply critically the knowledge meaningfully and creatively. 2. Develop various techniques to construct triangles.
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Strategies used- Inductive deductive reasoning, Muddiest point of discussion, graphic organizer, Dimensions of learning- D1, D3 Transaction would proceed in the following manner- Recapitulation: 5 min One minute test would be taken. Discussion of topic through Collaborative Learning: 15 min (Critical and creative thinking) Identification of different triangles based on their properties. Guided Practice: 15 min The facilitator would explain the questions from Ex 10.5 with a collaborative approach towards them. Independent Practice: Students will complete the remaining HW parts of Exercise 10.5 in their Math HW notebook. 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 the given questions in their H.W. notebooks from their course book.
Assessments	MCQ test (5 minutes)

DAY	NINE
Objective	To solve the questions from NCERT book of Exercise – 10.5
Assessment of qualifying knowledge	MCQ test on properties of triangles.
Learning Outcomes	KNOWLEDGE- students will Design new ways to construct angles and triangles according to given measurements and properties of triangles. SKILLS and COMPETENCIES - <i>Students would be able to</i> 1. Apply critically the knowledge meaningfully and creatively. 2. Develop various techniques to construct triangles.

Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Strategies used- Inductive deductive reasoning, Muddiest point of discussion, graphic organizer, Dimensions of learning- D1, D3 Transaction would proceed in the following manner- Recapitulation: 5 min One minute test would be taken. Discussion of topic through Collaborative Learning: 15 min (Critical and creative thinking) Identification of different triangles based on their properties. Guided Practice: 15 min The facilitator would explain the questions from Ex 10.5 with a collaborative approach towards them. Independent Practice: Students will complete the remaining HW parts of Exercise 10.5 in their Math HW notebook. 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 the given questions in their H.W. notebooks from their course book.
Assessments	MCQ test (5 minutes)

DAY	TEN
Objective	To solve the questions from NCERT book of Exercise – 10.5
Assessment of qualifying knowledge	MCQ test on properties of triangles.
Learning Outcomes	<u>KNOWLEDGE</u> - students will Design new ways to construct angles and triangles according to given measurements and properties of triangles. <u>SKILLS and COMPETENCIES</u> - <i>Students would be able to</i> 1. Apply critically the knowledge meaningfully and creatively. 2. Develop various techniques to construct triangles.
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Strategies used- Inductive deductive reasoning, Muddiest point of discussion, graphic organizer, Dimensions of learning- D1, D3 Transaction would proceed in the following manner- Recapitulation: 5 min One minute test would be taken. Discussion of topic through Collaborative Learning: 15 min (Critical and creative thinking) Identification of different triangles based on their properties.

	Guided Practice: <u>15 min</u> The facilitator would explain the questions from Ex 10.5 with a collaborative approach towards them. Independent Practice: Students will complete the remaining HW parts of Exercise 10.5 in their Math HW notebook. Closure: <u>5 min</u> 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 the given questions in their H.W. notebooks from course book.
Assessments	MCQ test (5 minutes)