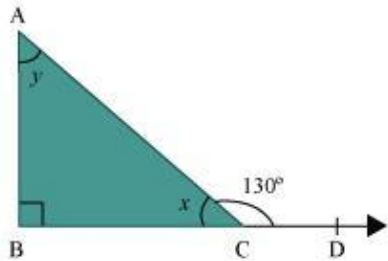


CLASS – VII
LESSON PLAN
CHAPTER-6: TRIANGLES AND ITS PROPERTIES

Unit	Geometry (Chapter 6: TRIANGLES AND ITS PROPERTIES)
Class Transaction	Total: 9 periods (approx. 40 min each)
Pre-requisite for the course	This lesson requires 1. Knowledge of terms sides, angles, lines of a triangle. 2. Basic knowledge of different types of triangles. 3. Basic knowledge of perpendicular and right angle
Assessment of qualifying knowledge	1. Written test 2. Lab activity 3. Group Discussion 4. HW notebook
Objective	Students will know in detail about the medians, altitude, exterior angle property, angle sum property, isosceles and equilateral triangle, right angled triangle and Pythagoras property thereby inculcating competencies like collaboration, critical thinking and creativity
Learning Outcomes	<u>KNOWLEDGE</u>- <i>Students will develop the ability to understand</i> 1. Median and Altitude of a triangle 2. Exterior angle property 3. Angle sum property 4. Properties of equilateral, right angle and isosceles triangle 5. Sum of two sides is greater than the third side of triangle. 6. Pythagoras property SKILLS and COMPETENCIES-<i>Students would be able to</i> 1. Identify median and altitude of a triangle. 2. Find the missing angle in the triangle using exterior angle property. 3. Analyze the various types of triangles and their properties. 4. Use the angle sum property to find the missing angle in the triangle. 5. Use the property of Pythagoras property to solve geometrical problems thus, develop critical thinking and collaboration in the process
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any	Strategies Used : Inductive Deductive Reasoning, Graphic Organizers, Think, pair and share, muddiest point discussion Dimensions of Learning : D1, D2, D3 Transaction would proceed in the following manner- <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.

other too.)	<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 the questions in their H.W notebooks from their course book. 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	Through Pen Paper Test Students will be assessed creatively and critically <table> <tr> <td>4 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	4 UNIT TESTS	20 Marks each	HALF YEARLY EXAMINATION	80 Marks	ANNUAL BOARD EXAMINATION	80 Marks
4 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	
Marks	The weightage would be given by CBSE.	
Assessment	Q1	In $\triangle ABC$, $\angle ACD$ is the exterior angle of given triangle. Find the value of x and y. 
	Q2	If angles of a triangle are in the ratio of 1:1:1, then what will be the measure of each of the angle?
	Q3	A man goes 20 m due East and then 15 m due South. Find the distance between the starting point and the terminal point.
	Q4	Fill in the blanks: a. _____ means being the same or equal to. An angle with measure between 90 and 180 degrees is b. called _____. An _____ is defined as "A triangle with two c. congruent sides." If two parallel lines are cut by a transversal, then d. corresponding angles are _____. e. An _____ is "A triangle with all angles congruent."
	Q5	Is it possible to have two obtuse angles in a triangle? Justify your answer.
	Q6	What is an angle sum property of a triangle? What is the measure of angles of an equilateral triangle?

DAY	ONE
Objective	Enhance ability to accurately recognize and use appropriate terminology related to triangles and developing the art of communication and critical thinking.
Assessment of qualifying knowledge	Quiz and knowledge testing on triangles and its properties.
Learning Outcomes	<u>KNOWLEDGE</u>- Students will know and identify median and altitude of a triangle. <u>SKILLS and COMPETENCIES</u>-Students would be able to Reason effectively and critically examine about the median and altitude of a triangle.
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Strategies Used : Inductive Deductive Reasoning, Graphic Organizers, 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 are its elements? • Find numerous examples where triangular shapes are used in daily life situations? Discussion of topic through Collaborative Learning: 15 min <u>Inquiry based learning</u> (Critical Thinking and Problem Solving) Students would be asked to draw triangles and to write their sides, and angles and median, altitude , then they shall critically examine the difference between median and altitude of a triangle. 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 6.1 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 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 from their course book.

Assessments	Oral Test (5 minutes)
DAY	TWO
Objective	Students will be able to understand the exterior angle property, in collaborative manner .
Assessment of qualifying knowledge	Written questions on finding missing exterior angle in the question using exterior angle property.
Learning Outcomes	KNOWLEDGE- <i>Students will know and</i> Demonstrate exterior angle property, in collaborative manner. SKILLS and COMPETENCIES- <i>Students will be able to proof and how to use exterior angle property, in</i> 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, Graphic Organizers, Think, pair and share 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) An oral quiz will be taken and students will be asked to find the missing exterior angle using exterior angle property and will be able to realize the fact that exterior angle of a triangle is equal to two interior opposite angles. Guided practice: 15 min The students, with the help of the facilitator, will solve the questions from NCERT book of Exercise – 6.2 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. Independent Practice: Students will complete the remaining HW parts of Exercise 6.2 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 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 from their course book.
Assessments	Oral quiz (5 minutes)
DAY	THREE
Objective	To solve the questions of Ex- 6.2 based on exterior angle property.
Assessment of qualifying knowledge	Written questions on finding missing interior angle in the question using exterior angle property.

Learning Outcomes	<u>KNOWLEDGE</u>- Students will know and Demonstrate exterior angle property, in collaborative manner. <u>SKILLS and COMPETENCIES</u>- Students will be able to proof and how to use exterior angle property, 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, Graphic Organizers, Think, pair and share 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) An oral quiz will be taken and students will be asked to find the missing interior angle using exterior angle property and will be able to realize the fact that exterior angle of a triangle is equal to two interior opposite angles. Guided practice: 15 min The students, with the help of the facilitator, will solve the questions from NCERT book of Exercise – 6.2 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. Independent Practice: Students will complete the remaining HW parts of Exercise 6.2 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 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 from their course book.
Assessments	MCQ (5 minutes)
DAY	FOUR
Objective	To understand and apply the angle sum property of a triangle.
Assessment of qualifying knowledge	Written test on finding the unknown angles in a triangle.
Learning Outcomes	<u>KNOWLEDGE</u>- Students will know and Demonstrate angle sum property of a triangle, in collaborative manner. <u>SKILLS and COMPETENCIES</u>- Students will be able to proof and how to use angle sum property of a triangle, 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, Graphic Organizers, Think, pair and share 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) An oral quiz will be taken and students will be asked to find the unknown angle using angle sum property and will be able to realize the fact that sum of three angles of a triangle is equal to 180° . Guided practice: 15 min The students, with the help of the facilitator, will solve the questions from NCERT book of Exercise – 6.3 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 6.3 in their Math HW notebook. Students who would difficulty in solving the problem would solve with the help of their buddies. 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	FIVE
Objective	To solve the questions of Ex- 6.3 based on Angle sum property.
Assessment of qualifying knowledge	Written questions on angle sum property of a triangle.
Learning Outcomes	<u>KNOWLEDGE</u>- Students will develop the ability to understand how to find the two unknown angles using angle sum property. <u>SKILLS and COMPETENCIES</u> - Students would be able to Comprehend the various results related to angle sum property of a triangle, through collaborative leaning process.
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can	Strategies Used : Inductive Deductive Reasoning, Graphic Organizers, Dimensions of Learning : D1, D3 Transaction would proceed in the following manner- Recapitulation: 5 min Oral test on the previous concept would be taken up.

use any other too.)	Discussion of topic through Collaborative Learning: <u>15 min</u> (Critical thinking) Exercise 6.3 would be discussed and students would solve different questions per group and then the questions would be crosschecked. Digital content would be used. The facilitator would take rounds and help students with their doubts. Guided Practice: <u>15 min</u> The students will solve the questions from NCERT book of Exercise – 6.3 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 6.3 in their Math HW notebook. 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 the given questions in their H.W. notebooks from their course book.
Assessments	MCQ (5 minutes)
DAY	SIX
Objective	To study special types of triangles and properties of triangles.
Assessment of qualifying knowledge	Written test on questions based on using the properties of the triangle.
Learning Outcomes	<u>KNOWLEDGE</u>- <i>Students will know and understand</i> 1. The properties of equilateral and isosceles triangle 2. Sum of two sides of the triangle is greater than the third side. <u>SKILLS and COMPETENCIES</u> - <i>Students would be able to</i> 1. Apply the given knowledge with 100 % accuracy 2. Creatively prove that the sum of two sides is greater than the third side.
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Strategies Used : Inductive Deductive Reasoning, Think, pair and share Dimensions of Learning : D1, D3 Transaction would proceed in the following manner- Recapitulation: <u>5 min</u> Oral test would be taken. Discussion of topic through Collaborative Learning: <u>15 min</u> (Critical Thinking) Take two triangles with different sides. Add two sides of a triangle and compare with the third side. Take another pair of sides and do same. Repeat this activity with other triangles. Guided Practice: <u>15 min</u>

	The students will solve the questions from NCERT book of Exercise – 6.4 in their notebook in the class with the help of their facilitator. Independent Practice: Students will complete the remaining HW parts of Exercise 6.4 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	SEVEN
Objective	To study about right angled triangle and Pythagoras property.
Assessment of qualifying knowledge	Written test on questions to check whether Pythagoras property can be applied or not.
Learning Outcomes	<u>KNOWLEDGE</u>- <i>Students will know and understand</i> 1. In a right angled triangle, the square on the hypotenuse is equal to the sum of the squares on the legs. <u>SKILLS and COMPETENCIES</u> - <i>Students would be able to</i> 1. Use appropriate Pythagoras property in right angled triangle.
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Strategies Used : Inductive Deductive Reasoning, Graphic Organizers, muddiest point discussion Dimensions of Learning : D1, D3 Transaction would proceed in the following manner- Recapitulation: 5 min Warming session would be taken. Discussion of topic through Collaborative Learning: 15 min (Critical thinking, communication) Solved examples from the book would be taken up. Brainstorming on Pythagoras property would be done. Guided Practice: 20 min The students will solve the questions from NCERT book of Exercise – 6.5 in their notebook in the class with the help of their facilitator. The facilitator would explain the questions from Ex 6.5 with a collaborative approach towards them. Independent Practice: Students will complete the remaining HW parts of Exercise 6.5 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	Written test (5 minutes)
DAY	EIGHT
Objective	To solve the questions of Ex- 6.5 based on finding perimeter and diagonals
Assessment of qualifying knowledge	Written test on SSS and RHS congruence rule.
Learning Outcomes	<u>KNOWLEDGE</u>- <i>Students will know and understand</i> - How to find the perimeter of the rectangle - How to find the diagonal of the rhombus when two diagonals are given. <u>SKILLS and COMPETENCIES</u> - <i>Students would be able to</i> Critically solve questions using different formulas.
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Strategies Used : Inductive Deductive Reasoning, Graphic Organizers, Think, pair and share Dimensions of Learning : D1, D3 Transaction would proceed in the following manner- Recapitulation: 5 min Warming session would be taken. Discussion of topic through Collaborative Learning: 15 min (Critical thinking, communication) Solved examples from the book would be taken up. Brainstorming on Pythagoras property. Guided Practice: 20 min The students will solve the questions from NCERT book of Exercise – 6.5 in their notebook in the class with the help of their facilitator. The facilitator would explain the questions from Ex 6.5 with a collaborative approach towards them. Independent Practice: Students will complete the remaining HW parts of Exercise 6.5 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	Written test (5 minutes)
DAY	NINE
Objective	To solve the questions from NCERT book of Exercise – 6.5

Assessment of qualifying knowledge	MCQ test on properties of a Triangle. Apply the knowledge meaningfully and creatively
Learning Outcomes	<u>KNOWLEDGE</u> - <i>Students will know and understand</i> 1. Pythagoras property in questions <u>SKILLS and COMPETENCIES</u> - <i>Students would be able to</i> 2. Develop various techniques to produce more and more different proves of the results creatively
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Strategies Used : Inductive Deductive Reasoning, Graphic Organizers, Dimensions of Learning : D1, D3 Transaction would proceed in the following manner- Recapitulation: 5 min Warming session would be taken. Discussion of topic through Collaborative Learning: 15 min (Critical thinking, communication) Solved examples from the book would be taken up. Brainstorming on Pythagoras property would be done. Guided Practice: 20 min The students will solve the questions from NCERT book of Exercise – 6.5 in their notebook in the class with the help of their facilitator. The facilitator would explain the questions from Ex 6.5 with a collaborative approach towards them. Independent Practice: Students will complete the remaining HW parts of Exercise 6.5 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)