

LESSON PLAN 6

CLASS : 7 **TEACHER'S NAME :**

NAME OF THE UNIT	SUB-TOPICS	NO OF PERIODS REQUIRED			Time line for teaching		
		Teaching	Practice	TOTAL	From	To	
TRIANGLE AND ITS PROPERTIES	6.1 INTRODUCTION 6.2 MEDIANS OF A TRIANGLE 6.3 ALTITUDES OF A TRIANGLE	2	4	6			
	6.4 EXTERIOR ANGLE OF A TRIANGLE 6.5 ANGLE SUM PROPERTY OF A TRIANGLE	2	4	6			
	6.6 TWO SPECIAL TRIANGLES : EQUILATERAL AND ISOSCELES 6.7 SUM OF THE LENGTHS OF TWO SIDES OF A TRIANGLE 6.8 RIGHT ANGLED TRIANGLES AND PYTHAGORAS PROPERTY	3	5	8			
	TOTAL	7	13	20			
	KEY CONEPTS		KEY VOCABULARY				
	PRE-REQUISITES	Every Pupil is expected to have basic knowledge in # basic geometric terms like, line, line segment, ray, angle, Triangle etc., and naming them # identifying basic geometrical shapes and their parts like sides, angles, interior, exterior, simple curve, closed curve etc., # classification of triangles based on sides and angles # utilization of geometrical instruments from geometry box. # four basic operations like +,-,x and ÷	# simple curve # closed curve # line, line segment, ray, angle, Triangle # vertex, side, opposite, adjacent # acute, obtuse, right angle # interior, exterior # Equilateral, Isosceles, Scalen			# Median # Altitude # right angled triangle # legs # hypoteneuse # pythagoras # property	

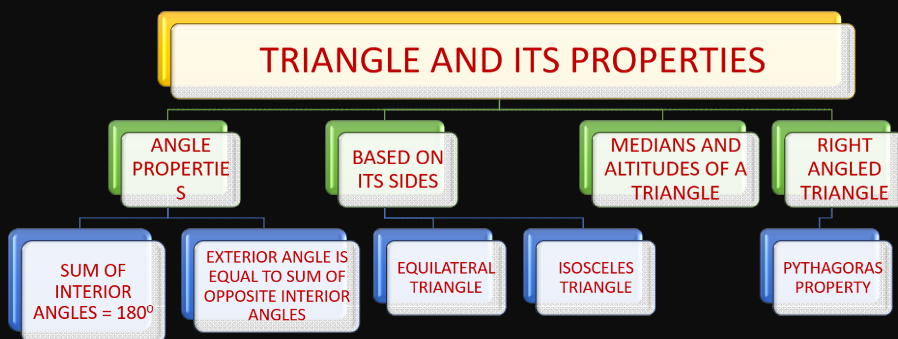
LEARNING OUTCOMES

After Completion of this lesson every student will be able to

- # identify and distinguish between medians and altitudes of a triangle
- # identify the exterior angles of a triangle and know that the measure of any exterior angle of a triangle is equal to the sum of the measures of its two opposite interior angles
- # understand that sum of all interior angles of a triangle is 180°
- # distinguish the properties between an equilateral and isosceles triangles
- # understand that the sum of the lengths of any two sides of a triangle is more than the length of the third side
- # understand the properties of a right angled triangle and check the correctness of pythagoras property .
- # recognize the significance and appreciate the importance of Triangles and its Properties in real life situations.

Teaching Learning Process

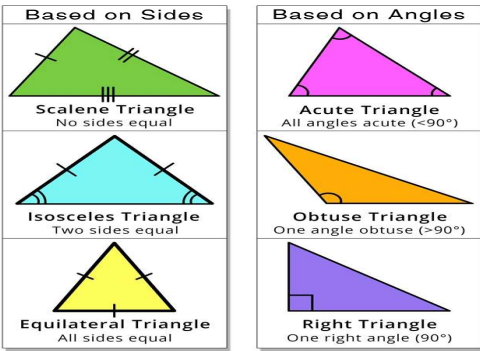
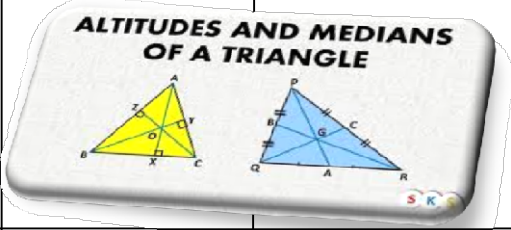
MIND MAPPING

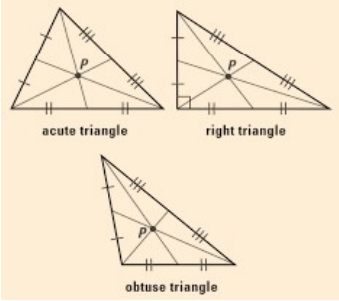
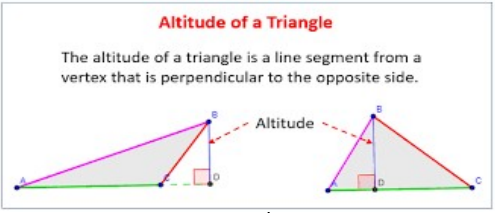


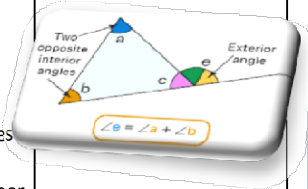
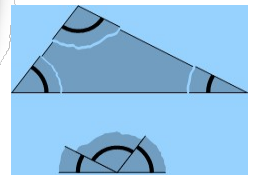
Experience & Reflection

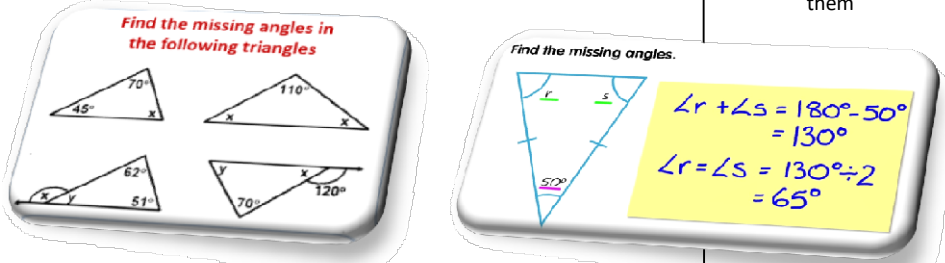
Pupils will recollect their knowledge on basic geometric concepts like Point, Line, Line segment, ray, angle, different types of angles, triangles etc and will utilize that knowledge in exploring deep into this new concept of triangles and its properties

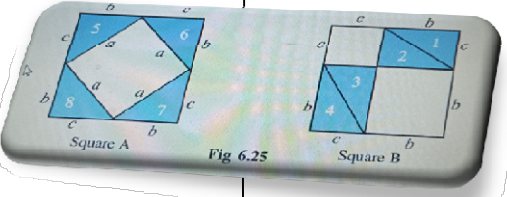
Students will experience the applications of Triangles and its properties in real life situations.

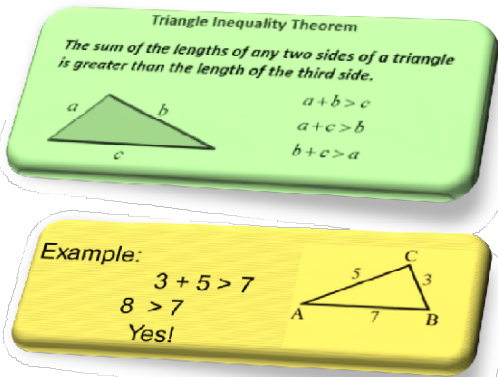
TEACHING PERIOD : 1,2		INTRODUCTION, MEDIANS OF A TRIANGLE, ALTITUDES OF A TRIANGLE	
CONCEPTS/STEPS	TEACHER ACTIVITY (I DO)	GROUP ACTIVITY (WE DO)	INDIVIDUAL ACTIVITY (YOU DO)
KEY WORDS & PRE REQUISITES	Brain storming session involving children with pre-requisites vocabulary and concepts related to previous knowledge. Introduction of new vocabulary and key words associated with the concept # simple curve # closed curve # Line # Line segment # Ray # angle # Triangle # Vertex # side # Median # height # Altitude	* Students read the pre-requisites and answer the questions to the teacher (whole class activity)	Every Pupil will read and write the key words in their note books
MIND MAPPING	Teacher writes the key word "TRIANGLES AND ITS PROPERTIES " on the black board and will elicit its other related words through questioning and will draw pupils' attention towards key concepts in the lesson	Heterogeneous groups are created. One group will read the words and other will explain the meaning	Pupils individually read the keywords associated with the chapter
CONCEPTUAL UNDERSTANDING	Teacher recalls the pupils' knowledge on basic geometric shapes like simple curve, closed curve, line, ray, line segment, angle and triangle different parts of a triangle like side, angle, interior, exterior along with different types of triangles based on sides and angles like equilateral, isosceles and scalene based on sides and acute angled, right angled and obtuse angled triangle based on angles. Later teacher introduces the concept of naming the triangles as well as the vertices and sides of a triangle through an activity involving heterogeneous groups. Here each group will be given different triangles and were asked to identify and name the vertices and sides of the given triangles to each group. Later pupil groups will be directed to measure the lengths of sides and the angles of each triangle given to them and classify them basing on sides or angles. Later teacher introduces the concept of median and altitude of a triangle by another paper tracing activity. Medians: Take a paper cut in the shape of a triangle and name it as ΔABC . fold it in such a way that any two vertices coincide each other and the side consisting of these two vertices is exactly folded at half. name the mid point of the side as D. Now from vertex A fold the paper in such a way that AD makes a line. Now this AD is nothing but a median of triangle ΔABC Altitudes: Take a paper cut in the shape of a triangle and name it as ΔPQR . fold it in such a way that any side for example say BC is folded by coinciding on itself and see that the fold exactly passes through the vertex opposite vertex A. Here there is no need of coinciding the vertices B and C	Heterogeneous groups are formed to participate in the activities Types of Triangles  	Each student in the group participates in the activities and learns the concept of different types of triangles as well as the medians and
SUMMARY	Teacher writes the summary of the concept in a step wise procedure and asks children to note and read	pupils will note down and read the summary in groups	every individual reads the summary and notes it down
ASSESSMENT	Teacher asks children to solve the sums of try these section, Think Discuss & Write along with example sums and exercise sums of 6.1	every group will do the sums by discussion among each other	every individual solves the sums on their own

PRACTICE PERIOD: 1,2,3,4		INTRODUCTION, MEDIANS OF A TRIANGLE, ALTITUDES OF A TRIANGLE	
CONCEPTS/STEPS	TEACHER ACTIVITY (I DO)	GROUP ACTIVITY (WE DO)	INDIVIDUAL ACTIVITY (YOU DO)
KEY WORDS READING	Teacher writes the key words from previous class's teaching period and asks children to read and write them in note books # simple curve # closed curve # Line # Line segment # Ray # angle # Triangle # Vertex # side # Median # height # Altitude	Whole class activity : one child comes to the board and reads the key words loudly and the remaining	Every child comes to the board and reads the key words and notes them down in their note books
SIMILAR LINES READING	Teacher draws some triangles and their medians and altitudes and asks children to draw some more by watching similar lines 	Each group will read the similar lines and will frame some more by discussion 	Every individual prepares their own similar lines using the lines prepared by the teacher
SUMMARY/ SYNOPSIS	Teacher once again writes important key words and summary of the concept and asks children to read,note down and practice.	pupils will note down and read the summary in groups	every individual spells and reads the summary and notes it down
WRITING/ EDITING	Teacher guides children in doing sums of exercise 6.1 on their own and checks their writings	One group will check the writings of the other and vice versa	Slow learners are focused and teacher will ascertain that every individual learns the concept in the forth coming practice sessions

TEACHING PERIOD : 3,4		EXTERIOR ANGLE OF A TRIANGLE, ANGLE SUM PROPERTY OF A TRIANGLE	
CONCEPTS/STEPS	TEACHER ACTIVITY (I DO)	GROUP ACTIVITY (WE DO)	INDIVIDUAL ACTIVITY (YOU DO)
KEY WORDS	Brain storming session involving children with key words # Angles # Interior Angle # Exterior Angle # Opposite Angles	* Students read the keywords answer the	Every Pupil will read and write the key words in their note
CONCEPTUAL UNDERSTANDING	<p>Teacher illustrates the concept of the angle properties</p> <p>1. Any exterior angle of a triangle is equal to the sum of its opposite interior angles.</p> <p>with help of an activity through a TLM prepared in advance involving cut pieces of angles of a triangle and its opposite exterior angle. If we trace both the opposite angles on the exterior angle they coincide there by concluding the property</p> <p>2. Sum of all the interior angles of a triangle is equal to 180°.</p> <p>With the help of activities involving heterogeneous groups where teacher gives different triangle shaped paper cuts and asks children to cut those triangles into 3 parts in such a way that the three angles are not disturbed. Now teacher guides children to join those 3 angles side by side and children can obviously observe that those 3 angles make 180°.</p>	<p>pupils are divided into heterogeneous groups and engaged in the activity</p> 	<p>Each student in the group participates in the activity and learns the concept</p> 
SUMMARY	Teacher once again writes important key words and summary of the concept and asks children to note down and adopt.	Pupils will note down and read the summary in groups	Every individual reads the summary and notes it down and adopts the procedure
ASSESSMENT	Teacher gives some questions from Try These sections as well as sums from exercise 6.2 & 6.3 and asks children to do those sums	Every group will do the sums by discussion among each other	Every individual solves the sums on their own

PRACTICE PERIODS: 5 TO 8	EXTERIOR ANGLE OF A TRIANGLE, ANGLE SUM PROPERTY OF A TRIANGLE		
CONCEPTS/STEPS	TEACHER ACTIVITY (I DO)	GROUP ACTIVITY (WE DO)	INDIVIDUAL ACTIVITY (YOU DO)
KEY WORDS READING	Teacher writes the key words from previous class's teaching period and asks children to read and write them in note books # Angles # Interior Angle # Exterior Angle # Opposite Angles	Whole class activity : one child comes to the board and reads the key words	Every child comes to the board and reads the key words and notes them down in their note
SIMILAR LINES READING	Teacher finds the unknown angles by taking some exemplary triangle sums and asks children to find some more by watching similar lines 	Each group will read the similar lines and will frame some more by watching them	Every individual will watch the similar lines and will frame some more
SUMMARY/ SYNOPSIS	Teacher once again writes important key words and summary of the concepts covered and asks children to note down and adopt.	Pupil groups will read and adopt the procedure	Teacher focuses on every individual so that each one learns the concept in successive upcoming practice sessions
WRITING/ EDITING	Teacher gives some questions from Try These sections and guides them in doing some sums of examples and exercise 6.2 & 6.3 and teacher checks the writings of children	One group will check the writings of the other and vice versa	

TEACHING PERIOD : 5,6,7	TWO SPECIAL TRIANGLES : EQUILATERAL AND ISOSCELES, SUM OF THE LENGTHS OF TWO SIDES OF A TRIANGLE, RIGHT ANGLED TRIANGLES AND PYTHAGORAS PROPERTY		
CONCEPTS/STEPS	TEACHER ACTIVITY (I DO)	GROUP ACTIVITY (WE DO)	INDIVIDUAL ACTIVITY (YOU DO)
KEY WORDS	Brain storming session involving children with key words # Equilateral Triangle # Isosceles Triangle # Right angled triangle # Hypoteneuse # Pythagorean Property	* Students read the key words and answer the questions to the teacher	Every Pupil will read and write the key words in their note books
CONCEPTUAL UNDERSTANDING	Teacher introduces what an equilateral triangle is and what an isosceles triangle is with the help of some illustrative models and pictures. Later teacher conducts an activity involving heterogeneous groups in which each group will be given different triangles and are asked to measure the lengths of each side and find the sums of lengths every two sides and are now asked to check whether the sum of any two sides of a triangle is always greater than the third side or not. By this activity teacher draws an inference that sum of the lengths any two sides of a triangle is greater than the third side.	Heterogeneous groups are created and are engaged in activities	Every child participates in the activity and understands the concept
LEARNING ACTIVITY	<p>Later teacher conducts another activity in the next teaching session in which class is divided into two groups and each group will be given 8 sets of identical right angled triangles. Before going into the activity teacher introduces the names of the sides of a right angled triangle. The longest side as hypoteneuse, the remaining two sides as legs.</p> <p>Now teacher asks the two groups to draw a square each of length equal to the sum of the lengths of the legs of the right angled triangle given to them. NO teacher guides two groups to arrange the given triangles (4 each group) in two squares drawn by them in two different ways as shown in the picture. NO teacher lets them know that the squares are identical and the triangles are identical hence the left over areas in both the arrangements must be equal which draws an inference that $a^2=b^2+c^2$</p>	 <p>Fig 6.25</p> <p>The squares are identical; the eight triangles inserted are also identical. Hence the uncovered area of square A = Uncovered area of square B. i.e., Area of inner square of square A = The total area of two uncovered squares in square B. $a^2 = b^2 + c^2$ This is Pythagoras property. It may be stated as follows: In a right-angled triangle, the square on the hypotenuse = sum of the squares on the legs.</p>	
SUMMARY	Teacher writes the summary of the concept discussed and asks children to read, note down and adopt	pupils will note down and read the summary in groups	every individual reads the summary and notes it down and adopts the procedure
ASSESSMENT	Teacher gives some questions from Try These section and exercise sums of 6.4 & 6.5 and asks children to solve those sums	every group will do the sums by discussion among each other	every individual solves the sums on their own

PRACTICE PERIODS: 9 to 13			
TWO SPECIAL TRIANGLES : EQUILATERAL AND ISOSCELES, SUM OF THE LENGTHS OF TWO SIDES OF A TRIANGLE, RIGHT ANGLED TRIANGLES AND PYTHAGORAS PROPERTY			
CONCEPTS/STEPS	TEACHER ACTIVITY (I DO)	GROUP ACTIVITY (WE DO)	INDIVIDUAL ACTIVITY (YOU DO)
KEY WORDS READING	Teacher writes the key words from previous class's teaching period and asks children to read and write them in note books # Equilateral Triangle # Isosceles Triangle # Right angled triangle # Hypotenuse # Pythagorean Property	Whole class activity : one child comes to the board and reads the key words loudly and the remaining	Every child comes to the board and reads the key words and notes them down in their note books
SIMILAR LINES READING	Teacher checks different properties of triangles like sum of any two sides of a triangle is greater than the third side and also uses the pythagoras property in some right angled triangles to find the length of unknown side and asks children to check some more by watching similar lines 	Each group will read the similar lines and will frame some more by discussion	Every Individual prepares their own similar lines using the lines prepared by the teacher
SUMMARY/ SYNOPSIS	Teacher once again writes important key words and summary and asks children to read ,note down and adopt.	Pupil groups will read the summary and utilize	Teacher focuses on every individual so that each one
WRITING/ EDITING	Teacher asks children to solve the sums of exercise 6.4 & 6.5 on their own and teacher checks the writings of children	One group will check the writings of the other and vice versa	knows and adopts the concept learnt in successive upcoming practice sessions