

LESSON PLAN CLASS 9 [2019-2020]



Class	Subject	Time Slot	Lesson	Topic
IX	MATHS	35Min+35Min P5+P6	Triangles	Some properties of a triangle. (isosceles property)
Expected Learning Outcome: The learners will be able to : 1. Prove- The angle opposite to equal sides of a triangle are equal. 2. Prove – sides opposite to equal angles of a triangle are equal. 3. Deduce that each angle of an equilateral triangle is 60°.				
Expected skill development: • Developing connections of different properties of triangles. • Logical thinking while proving two triangles congruent. • Visual and spatial ability to identify the type of congruency being used. • Procedural thinking while finding the corresponding sides and angles. • Problem solving while doing HOTS based questions.				

FLOW OF LESSON WITH RESPECT TO TIME (Introduction/warm-up, Content, Think Line, Closure)

Pedagogy	Content
<u>(5 Min) Warm Up</u> <u>Interactive method</u> The facilitator will tell the relationship between sides and angles and verify it on the board with the help of examples. 1. Angles opposite to the equal sides of a triangle are equal. 2. The sides opposite to equal angles of a triangle are equal.	The facilitator ask the learner about different types of triangles and their properties. 1. Scalene triangle – a triangle whose all three sides are unequal. 2. Isosceles triangle – a triangle with two sides and two angles equal. 3. Equilateral triangle – a triangle with all sides are equal

(20 Mins) Demonstration by facilitator on board.

(Demonstration / Discussion method)

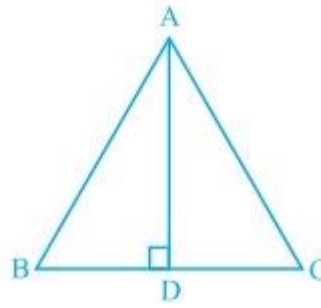
Theorem 1 -

Angles opposite to the equal sides of a triangle are equal.

Theorem 2 -

The sides opposite to equal angles of a triangle are equal.

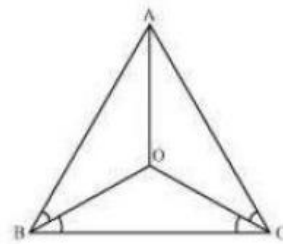
The facilitator takes up the questions from the exercise and discuss with the learners.



The facilitator will show its prove on the board and verify it with the help of few examples.

1. In an isosceles triangle ABC, with $AB = AC$, the bisectors of $\angle B$ and $\angle C$ intersect each other at O. Join A to O. Show that :

- (i) $OB = OC$
- (ii) AO bisects $\angle A$



- (i) It is given that in triangle ABC,
 $AB = AC$
 $\angle ACB = \angle ABC$

(Angles opposite to equal sides Of a triangle are equal) $\frac{1}{2}\angle ACB = \frac{1}{2}\angle ABC$

$$\angle OCB = \angle OBC$$

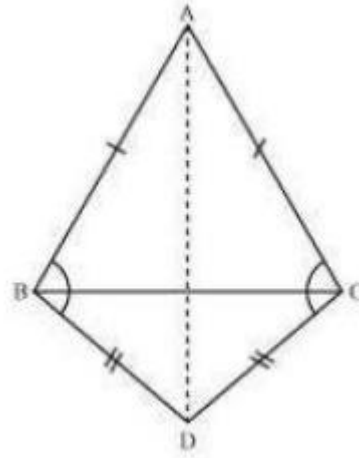
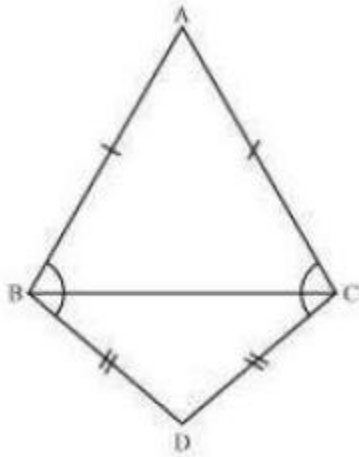
Therefore, $OB = OC$

(Sides opposite to equal angles of a triangle are also equal)

(5 Minutes) Closure:

ABC and DBC are two isosceles triangles on the same base BC (see Fig). Show that $\angle ABD = \angle ACD$

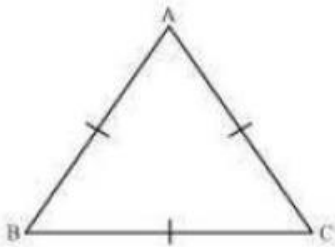
Ans :



In $\triangle ABD$ and $\triangle ACD$,
 $AB = AC$ (Given)
 $BD = CD$ (Given)
 $AD = AD$ (Common side)
 Therefore, $\triangle ABD \cong \triangle ACD$ (By SSS congruence rule)
 $\angle ABD = \angle ACD$ (By CPCT)

- a) Proposed Questions (must include the questions asked in the classroom and the ones given as class-work in the notebook)

Show that the angles of an equilateral triangle are 60° each.



ABC is an equilateral triangle.

$$AB = AC$$

$\angle C = \angle B$ (Angles opposite to equal sides of a triangle are equal) Also,

$$AB = AC, \angle B = \angle C$$

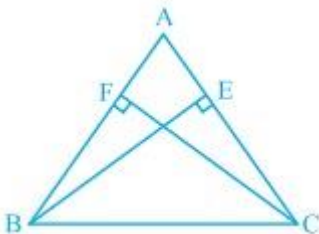
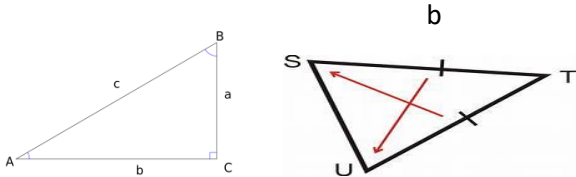
$$\angle A = \angle B = \angle C$$

$$\text{In } \triangle ABC, \angle A + \angle B + \angle C = 180^\circ$$

$$3\angle A = 180^\circ$$

$$\angle A = 60^\circ$$

$$\text{Therefore } \angle A = \angle B = \angle C = 60^\circ$$

b) Evaluation/Assessment: Peer discussion will be done. Teacher will assess the children randomly and also through student teacher interaction.	
Learners on the way In an isosceles triangle ABC with $AB=AC$, the bisectors of $\angle B$ and $\angle C$ intersect each other at O. Join A to O show that : 1. $OB = OC$ 2. AO bisects $\angle A$. Draw the figure of the given question.	Advanced Learners ABC is an isosceles triangle in which altitudes BE and CF are drawn to equal sides AC and AB respectively (see Fig). Show that these altitudes are equal. 
Materials needed/Resources: NCERT Text book.	
Common Misconceptions: Students think that angle opposite to equal sides of two different triangles are also equal.	Addressing the Misconceptions:  This property is valid only for one triangle not in two different triangles. In Triangle ABC and Triangle TUS , $AC=TS$ but $\angle C \neq \angle S$

HOME ASSIGNMENTS:

Do exercise 7.2 Q No 2, 3 and 6.

Teaching Methodology :

- Discussion/ interaction method.
- Lecture
- Demonstation.