

Lab Manual in Mathematics

Class – 7th

**Activity Book
for SA-1
PSEB**

Scheme of Evaluation

Time : 2 hours

Year-end Evaluation of activities : 10 marks

The break up of 10 marks could be as under :

- (i) Evaluation of two activities out of four : $4 \times 2 = 8$ marks
- (ii) Viva : 2 marks

LIST OF HANDS-ON ACTIVITIES IN MATHEMATICS

1. To find sum of two unlike fractions by an activity.
2. To verify that the sum of all interior angles of a triangle is 180° .
3. To verify that an exterior angle of a triangle is equal to the sum of the two interior opposite.
4. To illustrate that the medians of a triangle concur at a point (i.e. pass through a common point).
5. To illustrate that the internal bisectors of angles of a triangle concur at a point.
6. To verify Pythagoras theorem.
7. To explore criteria of congruency of triangles.
8. To verify that angles opposite to equal sides of a triangle are equal.
9. To construct a triangle :
 - (i) When three sides are given
 - (ii) When two sides and angle between them given
 - (iii) When two angle and side between them given
 - (iv) When hypotenuse and one side given
 - (v)
10. To make a cube and cuboid by paper folding.

Important : The year-end assessment of practical skills will be done during an organized session in small groups as per the convenience of the schools. All the activities given in the document, every student may be asked to complete these activities during the academic year. He/she should be asked to maintain a proper activity record for this work done during the year. The activities should be preferably carried out individually and not in a group as it helps the each student to build interest and confidence in learning the subject.

With Best Wishes

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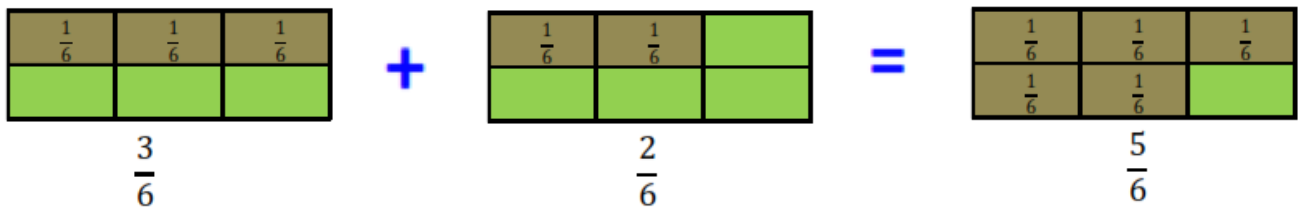
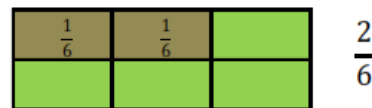
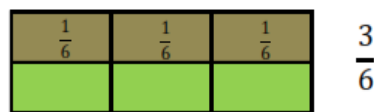
ACTIVITY-1

To find sum of two unlike fractions by an activity.

Pre- Requisite : The students have knowledge of LCM of two numbers.

Material Required : Paper, Scale. Pencil, Coloured Pencil.

Procedure : Let two fraction $\frac{1}{2}$ and $\frac{1}{3}$. Take LCM of 2 and 3 which is 6. Now follow the steps as shown below :



Observation : We need to make the denominators same which is the LCM of denominators before adding the fractions, then add numerators only.

Learning Outcomes : We learn that to find of sum of unlike fraction denominators must be same .

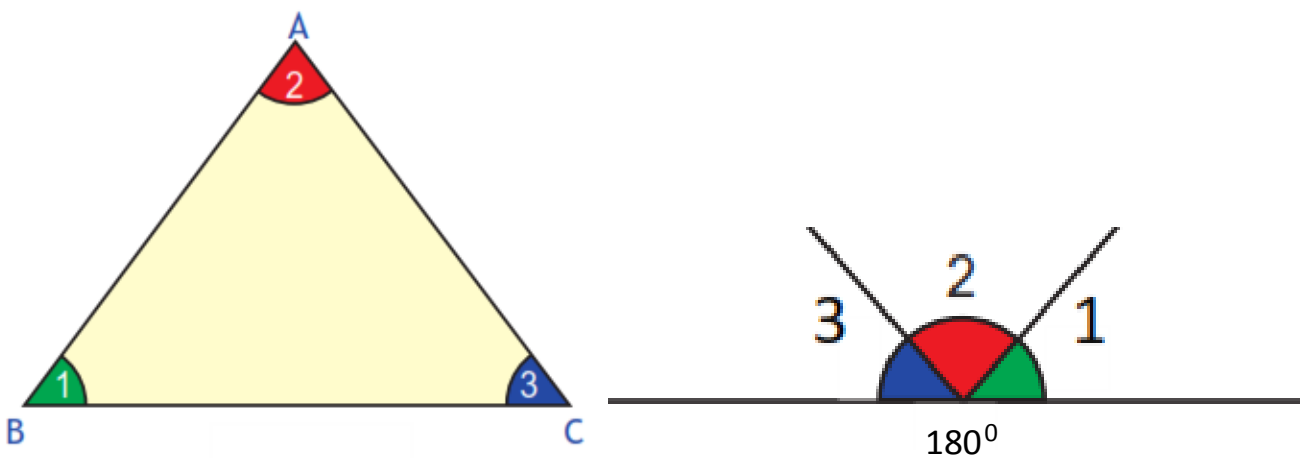
ACTIVITY-2

To verify that the sum of all interior angles of a triangle is 180° .

Pre- Requisite : The students must have knowledge of straight angle.

Material Required : Coloured Papers, a scale, a pair of scissors, glue.

Procedure : Draw a triangle on a paper and cut out the angles A,B,C and paste them on a straight line as shown below:



Observation : We know that straight angle is 180° and sum of angles A,B,C is a straight line

So sum of angles of triangles is 180° .

Learning Outcomes : We learn that the angle sum property of a triangle, by an activity.

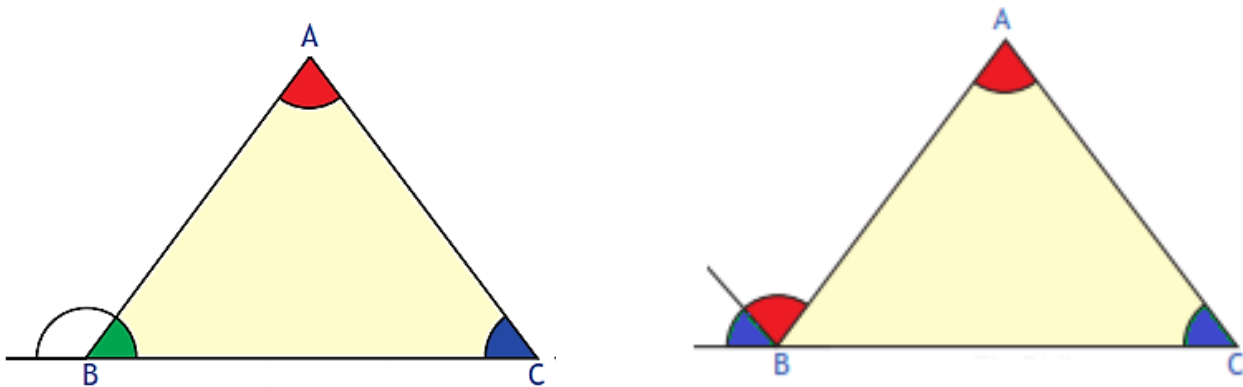
ACTIVITY-3

To verify that an exterior angle of a triangle is equal to the sum of the two interior opposite angles .

Pre- Requisite : The students must have knowledge of exterior and interior angles of triangle.

Material Required : Coloured Papers, a scale, a pair of scissors, glue.

Procedure : Draw a triangle on a paper and cut out the angles A and C and paste them on a exterior angle B as shown below:



Observation : We see that cut out of angles A and C is fit in exterior angle B of triangle, therefore exterior angle of a triangle is equal to the sum of the two interior opposite angles .

Learning Outcomes : We learn that the exterior angle property of a triangle, by an activity.

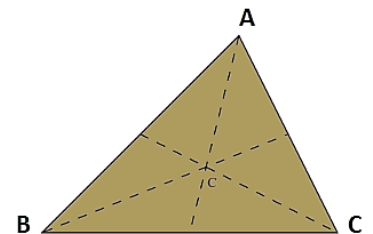
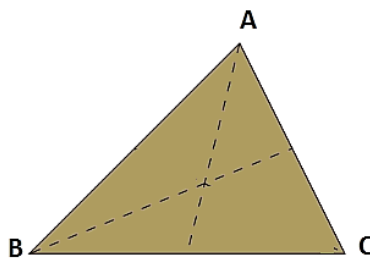
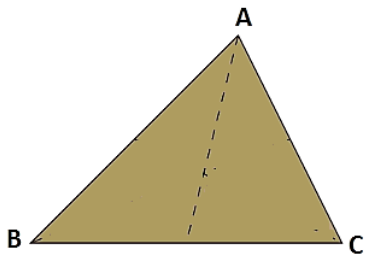
ACTIVITY-4

To illustrate that the medians of a triangle concur at a point .

Pre- Requisite : The students must have knowledge of mid point of line segment and median of a triangle.

Material Required : Coloured paper, pencil, a pair of scissors, gum.

Procedure : Find the mid-points of the sides by bringing the corresponding two vertices together. Make three folds such that each joins a vertex to the mid-point of the opposite side.



Observations : We observe that the three medians of a triangle concur. We also observe that the centroid (common point of intersection) of triangle inside the triangle.

Learning Outcomes : We learn that the medians of a triangle are concurrent and intersect inside the triangle at a common point, called centroid.

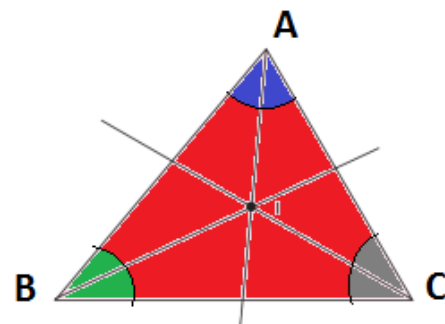
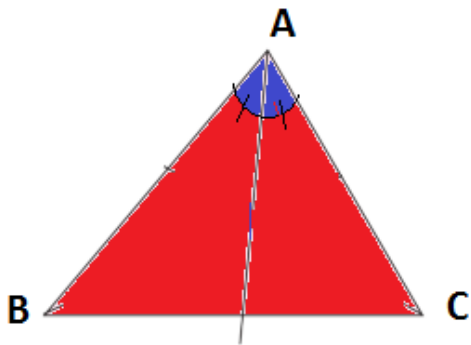
ACTIVITY-5

To illustrate that the internal bisectors of angles of a triangle concur at a point.

Pre- Requisite : The students must have skill to bisect an angle,

Material Required : Coloured paper, pencil, a pair of scissors, gum.

Procedure : Cut a triangle (ABC) from a paper . Bisect the vertex A of the triangle by folding the paper. The crease formed is the angle bisector of angle A and so on as shown in figures below :



Observations : We see that the three angle bisectors are concurrent and the point , where these are meet , is called the incentre and the incentre of triangle always lies inside the triangle.

Learning Outcomes : We learn that the internal bisectors of angles of a triangle are concurrent and intersect inside the triangle at a common point, called incentre of triangle.