CLASS — VI

PROJECTS IN MATHEMATICS

PROJECT: Set of activities in which pupils discover experiment and collect information by themselves in a natural situation to understand a concept and arrive at a conclusion may be called a PROJECT.

Project work will develop the skills in academic standards such as problem solving, logical thinking, mathematical communication, representing data in various forms in daily life situations. This approach is to encourage the pupils to participate, discuss (articulation) and take active part in class room processes.

Project work essentially involves the students in a group work and submitting a report by the students on a given topic, after they worked on it, discussed it and analyzed it from various angles and perspectives.

ASSIGNING PROJECTS – TEACHER'S ROLE

1. Teachers must have a thorough awareness on projects to be assigned to the students.
2. Teachers must give specific and accurate instructions to the students.
3. Teachers must see that all the students must take part in the projects assigned.
4. Allot the projects individually on the basis of student's capabilities and nature of the projects.
5. Teachers must see that children with different abilities are put in each group and give opportunity to select division of work according to their interesting task at the time of allotment of the project.
6. Teachers must analyze and encourage the pupil, while they work on the project.
7. Teachers should act as facilitators.
8. Proper arrangements must be made for the presentation and discussion of each student's project, when the students must be told whom to meet to collect the information needed.
9. Allow the students to make use of the library, computer lab etc.
10. Give time and fix a date to present the project. Each project should be submitted within a week in the prescribed Proforma.
11. Each project can be allotted to more number of pupils just by changing the data available in and around the school.
12. The projects presented should be preserved for future reference and inspection.
13. Every mathematics teacher is more capable to prepare projects based on the Talent/Interest/ Capability of students.
14. Teacher also ideal to the students by adopting one difficult project from each class.
15. Procedure of the project should be expressed by the students using his own words.
16. Each student should submit 4 projects in an academic year.

Welcome your comments and suggestions.

PROFORMA FOR THE PROJECT

PRELIMINARY INFORMATION

Class :

Subject :

Name of the Lesson/Unit :

No. of the Project :

Allotment of work :

(i) Identifying the shapes

(ii) Measuring the lengths of the sides

(iii) Recording the measurements

(iv) Calculating the Areas & Perimeters

(v) Presentation of the project

DETAILED INFORMATION OF THE PROJECT

1. **Title of the Project** :

2. **Objectives of the project** :

3. **Materials used** :

4. **Tools** :

5. **Procedure** :
    1. *Introduction* :
    2. *Process* :
    3. *Recording the data* :
    4. *Analysis* :
    5. *Conclusion* :

6. **Experiences of the students** :

7. **Doubts & Questions** :

8. **Acknowledgement** :

9. **Reference Books/Resources** :

10. **Signature of the student(s)** :

CLASS—VI
MODEL PROJECT

PROFORMA

PRELIMINARY INFORMATION

Class   : 6

Subject   : Mathematics

Name of the Lesson/Unit : AREA AND PERIMETER

No. of the Project   : 1

Allotment of work   :

> *(i) Identifying the shapes*
> > - Master Krishna Vamsi

> *(ii) Measuring the lengths of the sides*
> > - Master Venkatesh

> *(iii) Recording the measurements*
> > - Master Nagoor Vali

> *(iv) Calculating the Areas & Perimeters*
> > - Master Rama Krishna Naidu

> *(v) Presentation of the project*
> > - Master Sathya Rama Jayanth

<h1 style="text-align:center">DETAILED INFORMATION OF THE PROJECT</h1>

1. Title of the Project :

Identification of rectangle and square shapes in our daily life and find its Perimeter and Area.

2. Objectives of the project :

(i) Identification of rectangular and square shapes in our surroundings.

(ii) Finding of perimeter and area of rectangular and square shapes.

3. Materials used :

Tape, twine thread, charts, Long scale, pencil, sketch pens, etc.,

4. Tools :

(i) Different shapes which are in rectangular, square shapes (class room, table, verandah, game courts, note book, windows, doors etc.,)

(ii) Measurements of all shapes.

5. Procedure :

1. Introduction : I want to measure the dimensions of rectangle and square shapes in our surroundings.

2. Process : Measure the dimensions of Badminton court, Verandah, Table.

3. Recording the data of rectangular shapes

S. No.	Name of the rectangular shape	Length (l)	Breadth (b)	Perimeter P = 2 (l + b)	Area A = l x b
1	Verandah	8 m	2 m	20 m	16 Sq.m.
2	Table	1.8 m	1.2 m	6 m	2.16 Sq.m.
3	Garden	6 m	2 m	16 m	12 Sq.m.
4	Badminton Court	24 m	12 m	72 m	288 Sq.m.
5	Volley Ball Court	18 m	9 m	54 m	162 Sq.m.

Recording the data of square shapes

S.No.	Name of the square shape	Side (*s*)	Perimeter P = 4 x *s*	Area A = *s* x *s*
1	Class room	25 Ft	100 Ft	625 Sq.Ft.
2	Garden	4 m	16 m	16 Sq.m.
3	Chess board	24 cm	96 cm	576 Sq.cm.
4	Caroms board	75 cm	300 cm	5625 Sq.cm.

4. Analysis :

S. No.	Name of the shape	Length (*l*)	Breadth (*b*)	Perimeter P = 2 (*l* + *b*)	Area A = *l* x *b*
1	Garden	6 m	2 m	16 m	12 Sq.m.
2	Garden	4 m	-	16 m	16 Sq.m.

(i) From the above table I noticed that the area of square is more than the area of rectangular shape having the same perimeter.

S. No.	Name of the shape	Length (*l*)	Breadth (*b*)	Perimeter P = 2 (*l* + *b*)	Area A = *l* x *b*
1	Verandah	8 m	2 m	20 m	16 Sq.m.
2	Garden	4 m	-	16 m	16 Sq.m.

(ii) From the above table I noticed that the perimeter of rectangle is more than the perimeter of square having the same area.

5. Conclusion :

1. The area of square is more than the area of any rectangle having the same perimeter.

2. The perimeter of rectangle is more than the perimeter of any square having the same area.

6. Experiences of the students :

(i) I measured length in feet and breadth in cm by using a scale.

(ii) I used *l* + *b* instead of *l* x *b* to finding the area.

(iii) I wrote Sq.units to perimeter which is not correct.

(iv) I feel very happy while measuring the dimensions and finding the areas of games courts, carom board, chess board and garden etc.,

7. Doubts & Questions :

1. Whether rectangle is a regular figure?

2. How can we find out the area of closed figure other than square and rectangle?

3. How we can find out the area and perimeter of winners stand, and the following closed figures.
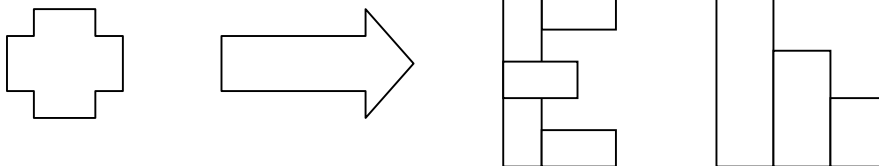
8. Acknowledgement :

1. Convey my sincere thanks to our Principal to allow into our kitchen garden.

2. Convey my sincere thanks to our PET to provide games material like chess board, carom board etc.,

9. Reference Books/Resources :

1. Class – VI Mathematics text book

10. Signature of the student(s) :

CLASS—VI : LESSON WISE PROJECTS

S. No.	Name of the Lesson	Title of the Project
1	Knowing our Numbers	1. Collect the information from your surroundings/daily life, like population of some states/countries, food expenditure for one year, distance between earth and moon, planets and write them in Indian system and International system. 2. Collect the information about Indian great mathematician Sri Srinivasa Ramanujan.
2	Whole Num-bers	1. Collect the information about whole numbers and represent on number line and perform operations of addition, subtraction and multiplication. 2. Prepare a chart of properties of whole numbers under addition,
3	Playing with Numbers	1. Prepare the list of prime numbers by using Sieve of Eratosthe-nes with the help of divisibility rules. 2. Establish the relationship between LCM and HCF by collecting some daily life situations.
4	Basic Geo-metrical Ideas	1. Prepare models/drawing and cutting a colour paper in the shape of circle, and identifying/marking centre, radius, diame-ter, chord, arc and a sector. 2. Prepare a model clock and observe different timings and draw the diagrams then find the angles made by the hands of the clock. 3. Collect some rangoli designs and draw them in your book and identify the geometrical shapes in them. 4. Collect information about Euclid and write his contributions to the geometry.
5	Measure of Lines and An-gles	1. Prepare models of different types of angles with refills, match sticks and paste them on a chart. Draw the pictures of these angles and note in a tabular form. 2. Observe your surroundings and identify the parallel lines, per-pendicular lines and intersecting lines and draw their diagrams with names.

S. No.	Name of the Lesson	Title of the Project
6	Integers	1. Collect information about temperatures recorded in the month of January in various places, heights of the mountains and depth of sea. Write these in an ascending order. 2. Represent the addition and subtraction of integers by using number line.
7	Fractions and Decimals	1. Note the time spent on each activity in a day. Express each time period as a fraction of whole day. Arrange them in ascending order also write them in simplest form and in decimal form. 2. Observe and write some different daily life situations using fractions and decimals. Find the sum and difference of (i) these fractions and (ii) these decimals.
8	Data Handling	1. Collect grades of your classmates in SA-1, and organize the data in the form of frequency distribution table using tally marks. 2. Collect the information of monthly income and expenditure of your family for six months/SSC results of your school for 5 years and represent the data in a bar graph.
9	Introduction to Algebra	1. Make different patterns by using sticks to from different shapes and writing the rules that is used in the patterns. 2. Collect and write the examples for algebraic expression and equations from daily life situations. (Buying of vegetables, pens, books etc.,)
10	Perimeter and Area	1. Identify the rectangular and square shapes of class rooms/ verandah/windows/doors/tables/textbooks/games courts etc., and measure the dimensions. Prepare table showing perimeter and area of the above shapes. 2. Measure the dimensions of your kitchen garden/field/the boundaries of your school/house plot. The cost of fencing per meter is Rs.24. Find the total cost for fencing in each case. 3. Identify the shape of class room/verandah/dining hall and measure the dimensions. The cost of 2 Sq.m. tile is Rs.90, how much will it cost for flowing of the above.

S. No.	Name of the Lesson	Title of the Project
11	Ratio and Proportion	1. Collect the marks of Physics and Mathematics of your class. Find all the possible ratios in simplest form and identify the proportion.
12	Symmetry	1. Collect some figures/objects/articles/English alphabets/ mathematical diagrams from your surroundings and draw its miniatures and draw the lines of symmetry to them. What do you observe? 2. Collect some rangoli patterns/design of dresses and draw in your project book. Try to draw the lines of symmetry to the, How many such lines can you draw?
13	Practical Geometry	1. Draw some beautiful pictures by using compass/protractor. 2. Collect the life history of mathematicians and their contribution to geometry. (Ex. Pythagoras, Bhaskaracharya)
14	Understanding 3D and 2D Shapes	1. Collect 2D and 3D objects in your surroundings. 2. Take any multi faced solid in your surroundings (verify the Euler's formula: $V + F = E + 2$. Find a relation between the number of vertices, faces and edges.

CLASS—VI : LESSON WISE ASSIGNMENTS

S.No	Name of the chapter	Assignment
1	**Knowing our Numbers**	1. Give 5 examples where large numbers used in real life. 2. Take the digits 4, 5, 6, 7, 8 & 9 and make any three 8-digit numbers. (Put commas for easy reading) 3. The distance between the school and house of student is 1 Km 875 Mtrs., every day she walks both ways. Find the total distance covered by her in 6 days.

2	**Whole Numbers**	1. Find the following using number line.
		  (i) 4 + 5 (ii) 2 + 6 (iii) 5 – 3 (iv) 2 x 6
		2. Find 14 + 17 + 6 in two ways.
		3. The school canteen charges Rs.20 for lunch and Rs.4 for milk in a day. How much money do you spend in one week on these things?
		4. Study the pattern
		   1 X 8 + 1 = 9
		  12 X 8 + 2 = 98
		 123 X 8 + 3 = 987
		5. Write the next FOUR steps. Can you say how the pattern works?

3	**Playing with numbers**	1. Find the factors of 30, 36 and 45? 2. Match the items in Column-1 with those in Column-2. Column – 1 / Column – 2 1. 35 — a. Multiple of 8 2. 15 — b. Multiple 7 3. 16 — c. Factor of 30 4. 20 — d. Multiple of 20 5. 25 — e. Factor of 50 f. Multiple of 70 3. Find a perfect number(s) between 1 to 100? (Perfect number is a number who's sum of all the factor is double to that number)

	Basic geometrical ideas	1. Draw a figure suitably in the each of the following cases?
		  a) Point P lies on $\overleftrightarrow{AB}$ b) $\overline{XY}$ and $\overline{PQ}$ interest at m.
		  c) Line ' *l* ' contain E & F but not D.
		2. Draw a rough sketch of a quadrilateral KLMN state
		  (a) 2 Pairs of opposite sides. (b) 2 Pairs of opposite angle.
		  (c) Two pairs of adjacent pairs.

5	**Measure of lines and angles**	1. (i) What is the angle name for half a revolution.
		   (ii) what is the angle name of 1/74th revolution.
		   (ii) Draw 5 situations of 1/4th, Half and 3/4th revolutions on a clock.
		2. How many right angles make 180°, 360° and 270°.
		3. Take a post card and measure its two adjecebnt sides using divider and scale.

S.No	Name of the chapter	Assignment
6	**Integers**	1. The list of temparatures of 5 Places in india on a perticular day of the year. Write the temparatures as integers. | Place	Temperature	Integer | |---|---|---| | Siachin | 10°C below 0° C | | | Simla | 2°C below 0° C | | | Ahmebadad | 30°C above 0°C | | | Delhi | 20°C above 0°C | | | Srinagar | 5°C belove 0°C | | 2. Find the value of -8- (-10) using the number line.
7	**Fractions and Decimal**	1. Represent $\frac{3}{5}$ on number line. 2. Arrange the following in ascending and descending order. (a) $\frac{1}{5}$, $\frac{11}{5}$, $\frac{4}{3}$, $\frac{3}{5}$, $\frac{7}{5}$ (b) $\frac{1}{7}$, $\frac{3}{7}$, $\frac{13}{7}$, $\frac{11}{7}$, $\frac{7}{7}$ 3. In a class A out of 25 students, 20 passed in first class in another class B out of 30 students 24 passed in first class. In which class has a greater fraction of students getting first class.
8	**Data handling**	1. Observe the vehicles which passed on the road in front of your school from 4 PM to 6 PM in one day. Represent this data in a frequency distribution table using tally marks. 2. Collect the academic qualifications of at least 40 persons in the nearby houses in your village. Represent a data as a bar graph.
9	**Introduction to algebra**	1. Cost of a book and a pen is Rs.20 and Rs.10 respectively. Ravi purchased some books and pens and paid Rs.100 for them. Express this as simple equation. 2. Write some problems in your daily life which involved simple equations. 3. Krishna brought 3 shirts and paid Rs.2000 to the shop keeper. Shop keeper gave Rs.200 back to Krishna. Express this as algebraic equation and find the solution.
10	**Perimeter and area**	1. Measure the length and breadth of windows in your dormitories/ class, find total length of mosquito mesh of 1 meter width required for your dormitory. 2. Find the length and breadth of black board in your class room find the length of ribbon required to decorate the borders of black board. Find the quantity of black paint required for the board in your class room if 100 ml paint is sufficient for 100 Sq.cm.
11	**Ratio and Proportion**	1. Ravi, Siva went to a picnic with 5 & 4 rotis with them Bheema joined with them. Three eat the food equally. Bheema gave 9 biscuits to Ravi and Siva to share. Find their share. 2. Find the ratio of length and breadth of a post card.

S.No	Name of the chapter	Assignment
12	**Symmetry**	1. Write the capital letters in English which remains same in the mirror image. 2. Draw the shapes of regular polygons up to hexagon. Find the number of symmetrical for them. 3. Draw symmetrical shapes by using same triangular figures.
13	**Practical Geometry**	1. Draw a square of side 5cm without using protractor. 2. Construct 15° with compass.
14	**Understanding 3D & 2D Shapes**	1. Take a circle. Rotate the circle along its diameter what do you observe. 2. Take some 3D objects guess and draw their vertical, horizontal, cross sections. Prepare a list.