ARMY PUBLIC SCHOOL GOPALPUR
SPLIT-UP SYLLABUS
SESSION – 2020 -2021
NCERT TEXT BOOK OF MATHEMATICS
CLASS : IX
SUBJECT : MATHEMATICS

SL . NO.	NAME OF THE EXAMINATION	CHAPTER	TENTATIVE NO OF PERIODS REQUIRED	MONTH
1	**PMTT 1**	NUMBER SYSTEMS	18	APRIL
2		POLYNOMIALS	10	
		POLYNOMIALS(CONTD	9	MAY/JUNE
3		COORDINATE GEOMETRY	6	JULY
4		LINEAR EQUATIONS IN TWO VARIABLES	14	
5		INTRODUCTION TO EUCLID'S GEOMETRY	6	
6	**MTT**	LI NES AND ANGLES	13	AUGUST
7		TRIANGLES	10	
		TRINGLES CONTD	12	SEPTEMBER
8		QUADRILATERALS	10	
9	**PMTT2**	AREA OF PARALLELOGRAMS AND TRIANGLES	10	OCTOBER
10		CIRCLES	8	
		CIRCLES CONTD.	8	NOVEMBER
11		CONSTRUCTIONS	11	
12		HERONS FORMULA	6	
13		SURFACE AREAS AND VOLUMES	10	DECEMBER
		SURFACE AREAS AND VOLUMES CONTD	10	JANUARY
14	**ANNUAL EXAMINATION**	STATISTICS	13	
15		PROBABILITY	9	FEBRUARY
		REVISION FOR SESSION ENDING EXAM	15	

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CLASS: IX SUBJECT: MATHEMATICS

MONTH : APRIL **NO. OF PERIODS -18**

TOPIC:- CH -1 : NUMBER SYSTEMS

SUB- TOPICS	METHODOLOGY	TEACHING LEARNING MATERIALS/AIDS	INTERFACE	LEARNING OUTCOME
• Definition of irrational numbers. • Real Numbers and their Decimal Expansions • Representing Real Numbers on the Number Line. • Operations on Real Numbers. • Rationalisation of denominators • Laws of Exponents for real numbers	• Inductive methods. • Problem solving methods.	• Geometrical box for representation of real numbers.	• Parents will help the child to revise conversion of rational numbers into decimal expansions, operations on Real Numbers and Laws of Exponents for real numbers	. • Definition of irrational numbers. • Real Numbers and their Decimal Expansions • Representing Real Numbers on the Number Line. • Operations on Real Numbers • Laws of Exponents for real numbers

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CLASS: IX **SUBJECT: MATHEMATICS**

MONTH : APRIL **NO. OF PERIODS:10**

TOPIC:- CH-02: POLYNOMIALS

SUB- TOPICS	METHODOLOGY	TEACHING LEARNING MATERIALS/AIDS	INTERFACE	LEARNING OUTCOME
• Polynomials in one variable • Zeroes of a polynomial • Remainder Theorem • Factorisation of polynomials	• Inductive method. • Problem solving method.	• Different examples related to polynomials.	• Parents will help the children to revise how to find zeroes of a polynomial and apply remainder and factorisation of polynomials.	• Able to write examples of polynomial in one variable. • Able to find zeroes of a polynomial • Able to apply remainder theorem and to do factorisation of polynomials.

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CLASS: IX **SUBJECT: MATHEMATICS**

MONTH : JUNE **NO. OF PERIODS: 09**

TOPIC:- CH-02 : POLYNOMIALS

SUB- TOPICS	METHODOLOGY	TEACHING LEARNING MATERIALS/AIDS	INTERFACE	LEARNING OUTCOME
• Algebraic Identities $(a+b)^2$, $(a-b)^2$, $(a+b)^3$, $(a-b)^3$, $(a+b+c)^2$, (a^3+b^3), (a^3-b^3), $a^3+b^3+c^3-3abc$.	• Inductive method. • Problem solving method.	• Squared paper to verify $(a+b)^2$, $(a-b)^2$, $(a+b+c)^2$	• Parents will help the children understand the derivation different algebraic expression.	• Able to know the geometrical interpretation and derivation of algebraic Identities $(a+b)^2$, $(a-b)^2$, (a^2-b^2), $(a+b)^3$, $(a-b)^3$, $(a+b+c)^2$, (a^3+b^3), (a^3-b^3), $a^3+b^3+c^3-3abc$.

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CLASS: IX **SUBJECT: MATHEMATICS**

MONTH : JULY **NO. OF PERIODS: 06**

TOPIC :- CH :- 03:- COORDINATE GEOMETRY

SUB- TOPICS	METHODOLOGY	TEACHING LEARNING MATERIALS/ AIDS	INTERFACE	LEARNING OUTCOME
• Cartesian co-ordinate axes • Quadrants • Cartesian co-ordinates of a point • Convention of signs • Plotting of points	• Activity method • Problem solving method	• Geometry box. • Graph paper	• Parents will help the children to construct Cartesian Plane and plot the points according to the coordinates.	• Able to construct Cartesian coordinate axes • Able to identify quadrants • Able to find Cartesian coordinates of a point • Able to determine the sign of the points in Cartesian Plane. • Able to locate and plot the points in Cartesian Plane.

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MONTH : JULY **NO. OF PERIODS -14**

TOPIC:- CH:- 04:- LINEAR EQUATIONS IN TWO VARIABLES

SUB- TOPICS	METHODOLOGY	TEACHING LEARNING MATERIALS/AIDS	INTERFACE	LEARNING OUTCOME
• Definition of Linear equation of two variables. • Solution of a linear equation. • Graph of a linear equation in two variables. • Equations of lines parallel to the X-axis and Y-axis.	• Inductive method • Activity method	• Graph paper. • Geometry box	Parents encourage child to collect data from daily life situation and draw bar graph, double bar graph.	• Able to define linear equation of two variables • Able to find solutions of a linear equation. • Able to represent linear equation in two variables graphically. • Able to write equations of lines parallel to the X-axis and Y-axis.

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CLASS: IX **SUBJECT: MATHEMATICS**

MONTH : JULY **NO. OF PERIODS -06**

TOPIC:- CH:- 05:- INTRODUCTION TO EUCLID'S GEOMETRY

SUB- TOPICS	METHODOLOGY	TEACHING LEARNING MATERIALS/AIDS	INTERFACE	LEARNING OUTCOME
• Definition axioms, postulates and theorems. • History- Geometry in India and Euclid's geometry • Relation between axiom and theorem.	• Activity method • Problem solving method	• Scissors • String • Scale	• Teachers will help the children to find out the relation between axioms and postulates.	• Able to know the history – geometry in India and Euclid's geometry. • Able to understand the difference between axioms and postulates. • Able to understand fifth postulates and Playfair's axiom. • Able to show the relationship between axiom and theorem.

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MONTH : AUGUST **NO. OF PERIODS - 13**

TOPIC:- CH :- 06 :- LINES AND ANGLES

SUB- TOPICS	METHODOLOGY	TEACHING LEARNING MATERIALS/AIDS	INTERFACE	LEARNING OUTCOME
• Definitions of different lines • Different types of angle and angles • Types of triangles on the basis of angles and sides • Condition for parallel lines • Theorem on angle sum property of triangle • Exterior angle theorem	• Activity method • Problem solving method	• Geometry Box • A_4 Sheet • Scissors • Pencil	• Teachers will help the children to find out the condition related to parallel lines.	• Able to know the definitions of different lines. • Able to understand the different types of angle and angles. • Able to understand types of triangles on the basis of angles and sides. • Able to find the condition for which the lines can be parallel.

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CLASS: IX **SUBJECT: MATHEMATICS**

MONTH : AUGUST /SEPTEMBER **NO. OF PERIODS – 22**

TOPIC:- CH :- 07 :- TRIANGLES

SUB- TOPICS	METHODOLOGY	TEACHING LEARNING MATERIALS/AIDS	INTERFACE	LEARNING OUTCOME
• Definitions of congruent figures corresponding parts of congruent triangles • Criteria for congruence of two triangles • Inequalities in a triangle	• Activity method • Problem solving method	• Geometry Box • A_4 Sheet • Scissors • Pencil	• Teachers will help the children to find out the condition related to congruent triangles and inequalities in a triangle.	• Able to know the definitions of congruent figures. • Able to find the corresponding parts of congruent triangles • Able to understand different types of criteria for congruent triangles. • Able to find the inequalities in a triangle

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CLASS: IX **SUBJECT: MATHEMATICS**

MONTH : SEPTEMBER **NO. OF PERIODS - 10**

TOPIC:- LN:- 08 :- QUADRILATERALS

SUB- TOPICS	METHODOLOGY	TEACHING LEARNING MATERIALS/AIDS	INTERFACE	LEARNING OUTCOME
• Definition of quadrilateral and its components • Parallelogram and its properties • Different types of parallelogram – Rectangle, Rhombus and Square • Mid-point Theorem and its converse	• Activity method • Problem solving method	• Geometry Box • A_4 Sheet • Scissors • Pencil	• Teachers will help the children to make a parallelogram by paper folding and find all the properties. • Teacher will conduct activity on Mid-point Theorem	• Able to identify the various components of quadrilateral. • Able to make the parallelogram by paper folding and find the properties of parallelogram • Able to understand different criteria of other parallelogram and properties of other special quadrilaterals.

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CLASS: IX **SUBJECT: MATHEMATICS**

MONTH : OCTOBER **NO. OF PERIODS - 10**

TOPIC:- CH:- 09 :- AREAS OF PARALLELOGRAMS AND TRIANGLES

SUB- TOPICS	METHODOLOGY	TEACHING LEARNING MATERIALS/AIDS	INTERFACE	LEARNING OUTCOME
• Area formula of parallelogram, triangle, rhombus and trapezium • Parallelogram on the same base and between the same parallels • Triangles on the same base and between the same parallels	• Activity method • Problem solving method	• Geometry Box • A_4 Sheet • Scissors • Pencil	• Teachers will help the children to find out the relation between area of parallelograms, parallelogram and triangles on the same base between the same parallel lines.	• Able to identify the figures on the same base and between the same parallels. • Able to proof the relation of areas of parallelograms, a triangle and a parallelogram, two triangles on the same base and between the same parallels.

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MONTH : OCTOBER /NOVEMBER **NO. OF PERIODS - 16**

TOPIC:- CH:- 10 :- CIRCLES

SUB-TOPICS	METHODOLOGY	TEACHING LEARNING MATERIALS/AIDS	INTERFACE	LEARNING OUTCOME
• Review of circles and its related terms • Properties of circles • Cyclic Quadrilateral	• Activity method • Problem solving method	• Geometry Box • A_4 Sheet • Scissors • Pencil	• Teachers will help the children to learn related terms of circles, angle subtended by a chord at a point and perpendicular from the centre to a chord, equal chords and their distances from the centre, angle subtended by an arc of a circle, Cyclic quadrilateral	• Able to understand related terms of circles.. • Able to proof theorems based on properties of circles.

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CLASS: IX **SUBJECT: MATHEMATICS**

MONTH : NOVEMBER **NO. OF PERIODS - 11**

TOPIC:- CH:- 11 :- CONSTRUCTIONS

SUB- TOPICS	METHODOLOGY	TEACHING LEARNING MATERIALS/AIDS	INTERFACE	LEARNING OUTCOME
• Construction of bisector of an angle and perpendicular bisector of a line segment • Construction of angles – 30^0, 45^0, 60^0 and 120^0 • Construction of triangle when base, base angle and the sum or difference of a triangle • Construction of triangle when perimeter and two base angles are given	• Activity method • Problem solving method	• Geometry Box • A_4 Sheet • Scissors • Pencil	Teachers will help the children to • Construct bisector of an angle and perpendicular bisector of a line segment • Construction of angles – 30^0, 45^0, 60^0 and 120^0 • Construction of triangle when base, base angle and the sum or difference of a triangle • Construction of triangle when perimeter and two base angles are given	• Able to construct bisector of an angle and perpendicular bisector of a line segment, construction of angles – 30^0, 45^0, 60^0 and 120^0 and justification • Able to construction of triangle when base, base angle and the sum or difference of a triangle • Able to construction of triangle when perimeter and two base angles are given

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MONTH : NOVEMBER **NO. OF PERIODS - 06**

TOPIC:- CH:- 12 :- HERON'S FORMULA

SUB- TOPICS	METHODOLOGY	TEACHING LEARNING MATERIALS/AIDS	INTERFACE	LEARNING OUTCOME
• Perimeters and Areas of quadrilaterals • Perimeters and areas of triangles • Areas of triangles using Heron's Formula • Area of quadrilaterals using Heron's Formula	• Activity method • Problem solving method	• Geometry Box • Scissors • Pencil	Teachers will help the children to • Make a list of formulas for Perimeters and Areas of quadrilaterals, Perimeters and areas of triangles • Find the Areas of triangles using Heron's Formula and area of quadrilaterals using Heron's Formula	• Able to make a list of formulas for Perimeters and Areas of quadrilaterals, Perimeters and areas of triangles. • Able to find the Areas of triangles using Heron's Formula and area of quadrilaterals using Heron's Formula.

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CLASS: IX **SUBJECT: MATHEMATICS**

MONTH : DECEMBER/JANUARY **NO. OF PERIODS - 20**

TOPIC:- CH:- 13 :- SURFACE AREAS AND VOLUMES

SUB- TOPICS	METHODOLOGY	TEACHING LEARNING MATERIALS/AIDS	INTERFACE	LEARNING OUTCOME
• LSA and TSA of a cuboid, a cube, a right circular cylinder, a right circular cone and a sphere • Volume of a cuboid, a cube, a right circular cylinder, a right circular cone and a sphere	• Activity method • Problem solving method	• Geometry Box • A_4 Sheet • Scissors • Pencil	Teachers will help the children to derive formulas for • LSA and TSA of a cuboid, a cube, a right circular cylinder, a right circular cone and a sphere • Volume of a cuboid, a cube, a right circular cylinder, a right circular cone and a sphere	• Able to derive formulas for LSA and TSA of a cuboid, a cube, a right circular cylinder, a right circular cone and a sphere • Able to derive Volume of a cuboid, a cube, a right circular cylinder, a right circular cone and a sphere

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MONTH : JANUARY **NO. OF PERIODS - 13**

TOPIC:- CH:- 14 :- STATISTICS

SUB- TOPICS	METHODOLOGY	TEACHING LEARNING MATERIALS/AIDS	INTERFACE	LEARNING OUTCOME
• Collection and presentation of data • Graphical representation of data • Measures of Central Tendency	• Activity method • Problem solving method	• Geometry Box • Graph Sheet • Scissors • Pencil	Teachers will help the children to • To collect data and make ungrouped frequency distribution table and grouped frequency distribution table • To do graphical representation of data • To find measure of Central Tendency.	• Able to collect data and make ungrouped frequency distribution table and grouped frequency distribution table • Able to do graphical representation of data (Bar graph, Histogram and Frequency Polygon) • Able to find measure of Central Tendency

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CLASS: IX **SUBJECT: MATHEMATICS**

MONTH : FEBRUARY **NO. OF PERIODS - 09**

TOPIC:- CH:- 15 :- PROBABILITY

SUB- TOPICS	METHODOLOGY	TEACHING LEARNING MATERIALS/AIDS	INTERFACE	LEARNING OUTCOME
• Terms related to Probability (Random Experiment, Events, Impossible events, Sure events and Equally likely Events • Empirical (Experimental Probability)	• Activity method • Analytical method	• Geometry Box • A coin • A die • Pencil	Teachers will help the children to • Define the terms related to Probability (Random Experiment, Events, Impossible events, Sure events and Equally likely Events • Find empirical (Experimental) Probability	• Able to define the terms related to Probability (Random Experiment, Events, Impossible events, Sure events and Equally likely Events • Able to find empirical (Experimental) Probability