MATHEMATICS

Class-10

2024-25

State Council of Educational Research and Training Chhattisgarh, Raipur

Note for Teachers.......

You would have taught the class nine book by now and experienced the nuances of this book. You would have also noticed that the confidence in children has increased and they are now able to solve problems better. You would have also noticed that children can read the book and attempt to understand and solve problems on their own. They may not always succeed but they have greater confidence and desire to make the effort themselves. This is a great success facilitated by the manner you have used the book. You would have also seen that the discussions they have amongst themselves have improved and they are now able to listen to each other and make useful points. We are also sure that you would have noticed that you have a better understanding of what they are doing when you move around as they are working in groups. It would have helped you to recognise the areas that they are having difficulty with and support them in learning. These practices would need to be continued in class X and in fact intensified as students will now be more confident of working in groups, reading the book themselves, attempting to solve the questions below the form of 'Try these' and the exercises in the book. Class X is also an important because it is the year children would have the board exam. The board exams for this book would follow the pattern that has been emphasised. It will not for example have questions that are largely from the exercises itself.

In this book,there is emphasis on the ways of verifying mathematical statements sothat students may prove mathematical statements instead of accepting it obviously ,understand the logic behind it and understand difference between proof and verification.So you give opportunities in the classrooms to the students to write new statements and to find their own way to prove it or to understand the previous theorems by reading them.

In secondary level it is expected that student can read mathematical language,can make new mathematical statements by using their signs and symbols.More opportunities are there in this book where they will find answers by inferring the mathematical statements. By keeping this facts in mind in this

book several new symbols have been introduced and along with generalisation is emphasized.More practice is necessary for this.

Conceptual and procedural knowledge are linked in the chapters like geometry, ratio proportions, banking and taxation. There is emphasis on making procedures purposeful and meaningful example: in coordinate geometry.

There are strong linkages within the chapters like similarity, ratio proportion and height-distances; graphs with one variable and two variable equations.

Chapters like Mensuration are not written just as formula based chapters. Use of net to understand/find out meaning of S.A, volume. So teachers can encourage students to draw nets and explore. Here the nets on cube and cuboid are included.

We hope that you and children will enjoy the problems and activities which is given in the book.Share yourexperiences and make change in questions of the book,this is necessary to keep it alive so give new problems to students and send it to us also sothat we may add it in next edition.Your suggestions and questions will help us to make textbook more better.

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Director

State Council Of Educational Research

And Training Chhattisgarh, Raipur

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Syllabus

Class-10 ,Subject- Mathematics

External Evaluation-75 Marks   Internal Evaluation-25

Unit -1 Algebra

Chapter-1   Polynomials

Division of Polynomials, Remainder Theorem, Factor Theorem, Factoring of Polynomials, Factoring of Polynomials of form by splitting middle term,Value and zero of quadratic Polynomials, Relation between coefficient and zero of Polynomials

Chapter-2   Linear Equations In Two Variables

Making equations from statements,Solution of Simultaneous equations-Graphical Method, Elimination, Substitution, Finding types of solution by Inspection, Finding value of unknown coefficient of variables, Making statement from equations.

Chapter-3   Quadratic Equations In One Variable

Quadratic equations, Roots of equations,Verification of roots, Methods of solving quadratic equations- by factoring, by making complete square, by formula, Discriminant of Quadratic equations, Nature of roots,Finding coefficient constant of quadratic equations, relation between roots and coefficient of quadratic equations, Making quadratic equations using roots.

Chapter-4   Arithmetic Progression

Arithmetic Progression, n-th term of arithmetic progression, Arithmetic Mean of two quantities, Making arithmetic progression between two quantities, Sum of n-th term of arithmetic progression.

Chapter-5   Ratio And Proportion

Ratio, Use of ratio in behaviour, distributing two or more parts, distributing any quantity in any ratio, Proportion, middle, ratio, fourth ratio, third ratio, continuous ratio, K-Rule, Inverse ratio.

Unit -2 Coordinate Geometry

Chapter-6 Coordinate Geometry

Introdution to Kartesian coordinates, Presentation of a point on a plane, Finding distance between two points, Slope of interval, Slope of line, Intercepts of line

on axex, equation of lines in form of gradeint and intercept.

Chapter-7 Graph

Looking relations between two quantities in graph, Graphical representation of relations between two quantities, Reading and making decision of graphs of different context.

Unit -3 Commercial Mathematics

Chapter-8 Banking and Taxation

Banking, Calculation of interest on Recurring deposit, Calculation of interest on fixed deposit, Income tax, calculation of income tax.

Unit -4 Trigonometry

Chapter-9 Trigonometrical equations and Identities

Relation between trigonometrical ratio, Expressing in a trigonometrical ratio taking all trigonometrical ratios,Trigonometrical identities, equations with solutions trigonometrical

ratio of supplymentry angles.

Chapter-10 Height And Distance

Angle of Elevation, Angle of Depression, Exercises based on height and distance.

Unit -5 Geometry

Chapter-11 Similarity in Geometrical Shapes

Scaling, Test of similarity in different geometrical shapes, Theorem on similarity.

Chapter-12 Circles And Tangents

Chord, Arc, Sector, Segment, Congruent circle, Theorems, Tangents of circle , Theorems

Chapter-13 Geometrical Constructions

Construction of Similar Polygons, Construction of Similar quadrilateral, Construction of incircle and circumcircle.

Unit -6 Proof Of Mathematical Statements

Chapter-14 Proof of Mathematical Statements

Basics of proving Mathematical Stetements, Proof by Deductive Logistics, Use of Mathematical Language in proving statements, Methods for proving statements.

Unit -7 Mensuration

Chapter-15 Surface Area and Volume of Solid Shapes

Surface Net of Cube and Cuboid, Diagonal of Cube and Cuboid, Surface Area and Volume of Cylinder, Surface Area and Volume of Cone, Surface Area and Volume of Spheres

Unit -8 Statistics

Chapter-16 Data Analysis

Analysis of Data of Graphs, Arithmetic Average, Median, Mode and understanding of its uses, Interpolation and Extrapolation.

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