

MATHEMATICS 9th Class

The Syllabus in the subject of Mathematics has undergone changes from time to time in accordance with growth of the subject and emerging needs of the society. The present revised syllabus has been designed in accordance with National Curriculum Framework 2005 and as per guidelines given in Focus Group on Teaching of Mathematics which is to meet the emerging needs of all categories of students for motivating the teacher to relate the topics from real life problems and other subject areas, greater emphasis has been laid on applications of various concepts.

The curriculum at Secondary stage primarily aims at enhancing the capacity of students to employ Mathematics in solving day-to-day life problems and studying the subject as a separate discipline. It is expected that students should acquire the ability to solve problems using algebraic methods and apply the knowledge of simple trigonometry to solve problems of heights and distances. Carrying out experiments with numbers and forms of geometry, framing hypothesis and verifying these with further observations form inherent part of Mathematics learning at this stage. The proposed curriculum includes the study of Arithmetical concepts, number system, algebra, geometry, trigonometry, mensurations, statistics, graphs and coordinate geometry etc.

The teaching of Mathematics should be imparted through activities which may involve the use of concrete materials, models, patterns, charts, pictures posters games, puzzles and experiments.

OBJECTIVES

The board's objectives of teaching of Mathematics at secondary stage are to help the learners to :

1. Consolidate the Mathematical Knowledge and Skills acquired at the upper primary stage.
2. Acquire knowledge and understanding, particularly by way of motivation and visualization, of basic concepts, terms, principles and symbols and underlying processes and skills.
3. Develop mastery of basic algebraic skills;
4. Develop drawing skills;
5. Feel the flow of reasons while proving a result or solving a problem.
6. Apply the Knowledge and skills acquired to solve problems and wherever possible, by more than one method
7. To develop positive ability to think analyze and articulate logically.
8. To develop awareness of the need for national integration, protection of the environment, observance of small family norms. Removal of social barriers, elimination of gender biases.
9. To develop necessary skills to work with modern technological devices fields for its beautiful structures and patterns etc.
10. To develop interest in Mathematics as a problem-solving tool in various fields for its beautiful structures and patterns, etc.
11. To develop reverence and respect towards great Mathematicians for their contributions to the field of Mathematics.
12. To develop interest in the subject by participating in related competitions
13. To acquaint students with different aspects of mathematics used in daily life.
14. To develop an interest in students to study mathematics as discipline

Courses of Study

1. NUMBER SYSTEMS
2. POLYNOMIALS
3. COORDINATE GEOMETRY
4. LINEAR EQUATIONS IN TWO VARIABLES
5. INTRODUCTION TO EUCLID'S GEOMETRY
6. LINES AND ANGLES
7. TRIANGLES
8. QUADRILATERALS
9. CIRCLES 116
10. HERON'S FORMULA
11. SURFACE AREAS AND VOLUMES
12. STATISTICS

Detailed Syllabus

1. NUMBER SYSTEMS

- 1.1 Introduction
- 1.2 Irrational Numbers
- 1.3 Real Numbers and their Decimal Expansions
- 1.4 Operations on Real Numbers
- 1.5 Laws of Exponents for Real Numbers
- 1.6 Summary

2. POLYNOMIALS

- 2.1 Introduction
- 2.2 Polynomials in One Variable
- 2.3 Zeroes of a Polynomial
- 2.4 Factorisation of Polynomials
- 2.5 Algebraic Identities
- 2.6 Summary

3. COORDINATE GEOMETRY

- 3.1 Introduction
- 3.2 Cartesian System
- 3.3 Summary

4. LINEAR EQUATIONS IN TWO VARIABLES

- 4.1 Introduction
- 4.2 Linear Equations
- 4.3 Solution of a Linear Equation
- 4.4 Summary

5. INTRODUCTION TO EUCLID'S GEOMETRY

- 5.1 Introduction
- 5.2 Euclid's Definitions, Axioms and Postulates
- 5.3 Summary

6. LINES AND ANGLES

- 6.1 Introduction
- 6.2 Basic Terms and Definitions
- 6.3 Intersecting Lines and Non-intersecting Lines
- 6.4 Pairs of Angles
- 6.5 Lines Parallel to the Same Line
- 6.6 Summary

7. TRIANGLES

- 7.1 Introduction
- 7.2 Congruence of Triangles
- 7.3 Criteria for Congruence of Triangles
- 7.4 Some Properties of a Triangle
- 7.5 Some More Criteria for Congruence of Triangles
- 7.6 Summary

8. QUADRILATERALS

- 8.1 Properties of a Parallelogram
- 8.2 The Mid-point Theorem
- 8.3 Summary

9. CIRCLES

- 9.1 Angle Subtended by a Chord at a Point
- 9.2 Perpendicular from the Centre to a Chord
- 9.3 Equal Chords and their Distances from the Centre
- 9.4 Angle Subtended by an Arc of a Circle
- 9.5 Cyclic Quadrilaterals
- 9.6 Summary

10. HERON'S FORMULA

- 10.1 Area of a Triangle – by Heron's Formula
- 10.2 Summary

11. SURFACE AREAS AND VOLUMES

- 11.1 Surface Area of a Right Circular Cone
- 11.2 Surface Area of a Sphere
- 11.3 Volume of a Right Circular Cone
- 11.4 Volume of a Sphere
- 11.5 Summary

12. STATISTICS

- 12.1 Graphical Representation of Data
- 12.2 Summary

PRESCRIBED BOOKS

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| 1. Ganit | Published by H.P Board of School Education |
| 2. Mathematics | Published by H.P Board of School Education |