

# **Objectives of Teaching Mathematics**

## **National Policy of Education (1986)-**

At the end of high school stage, a pupil should be able to –

- Acquire knowledge and understanding of the terms, concepts, principles, processes, symbols and mastery of computational and other fundamental processes that are required in daily life and for higher learning in mathematics.
- Develop skills of drawing, measuring, estimating and demonstrating.
- Apply mathematical knowledge and skills to solve problems that occur in daily life as well as problems related to higher learning in mathematics or allied areas.
- Develop the ability to think, reason, analyze and articulate logically.
- Appreciate the power and beauty of mathematics.
- Show an interest in mathematics by participation in mathematical competitions, and engaging in its learning, etc.
- Develop reverence and respect towards great mathematicians, particularly towards great Indian mathematicians for their contributions to the field of mathematical knowledge.
- Develop necessary skills to work with modern technological devices such as calculators, computers, etc.

## **According to New Curriculum Document (2000)**

The learners-

- Consolidate the mathematical knowledge and skills acquired at the upper primary stage.
- Acquire knowledge and understanding of the terms, symbols, concepts, principles, process, proofs, etc.
- Develop mastery of basic algebraic skills.
- Develop drawing skills.
- Apply mathematical knowledge and skills to solve real mathematical problems by developing abilities to analyze, to see interrelationship involved, to think and reason.
- Develop the ability to articulate logically.
- Develop awareness of the need for national unity, national integration, protection of the environment, observance of small family, norms, removal of social barriers, and elimination of sex biases.
- Develop necessary skills to work with modern technological devices such as calculators, computers, etc.

- Develop interest in mathematics and participate in mathematical competitions and other mathematical club activities in the school.
- Develop appreciation for mathematics as a problem-solving tool in various fields for its beautiful structures and patterns, etc.
- Develop reverence and respect towards great mathematicians, particularly towards the Indian mathematicians for their contributions to the field of mathematics.

On the basis of the above points, the objectives of teaching mathematics at the secondary state may be classified as under:

- A. Knowledge and Understanding objectives
- B. Skill objectives
- C. Application objectives
- D. Attitude objectives
- E. Appreciation and Interest objectives

### **A. Knowledge and Understanding Objectives**

The student acquires knowledge and understanding of:

1. Language of mathematics i.e., the language of its technical terms, symbols, statements, formulae, definitions, logic, etc.
2. Various concepts i.e., concept of number, concept of direction, concept measurement.
3. Mathematical Ideas, like facts, principles, processes and relationships.
4. The development of the subject over the centuries and contributions mathematicians.
5. Inter-relationship between different branches and topics of mathematics etc.
6. The nature of the subject of mathematics.

### **B. Skill Objectives**

The subject helps the student to develop the following skills:

1. He acquires and develops skill in the use and understanding of mathematical language.
2. He acquires and develops speed, neatness, accuracy, brevity and precision in mathematical calculations.
3. He learns and develops technique of problem-solving.
4. He develops and ability to estimate, check and verify results.
5. He develops and ability to perform calculations orally and mentally.
6. He develops and ability to think correctly, to draw conclusions, generalizations and inferences.
7. He develops skills to use mathematical tools, and apparatus.

8. He develops essential skill in drawing geometrical figures.
9. He develops skill in drawing, reading, interpreting graphs and statistical tables.
10. He develops skill in measuring, weighing and surveying.
11. He develops skill in the use of mathematical tables and ready references.

**C. Application Objectives:**

The subject helps the student to apply the above-mentioned knowledge and skills in the following way:

1. He is able to solve mathematical problems independently.
2. He makes use of mathematical concepts and processes in everyday life.
3. He develops ability to analyze, to draw inferences, and to generalize from the collected data and evidence.
4. He can think and express precisely, exactly, and systematically by making proper use of mathematical language.
5. He develops the ability to use mathematical knowledge in the learning of other subjects especially sciences.
6. He develops the students' ability to apply mathematical in his future vocational life.

**D. Attitude Objectives:**

The subject helps to develop the following attitudes:

1. The student learns to analyze the problems.
2. Develops the habit of systematic thinking and objective reasoning.
3. He develops heuristic attitude and tries to discover solutions and proofs with his own independent efforts.
4. He tries to collect enough evidence for drawing inferences, conclusions and generalizations.
5. He recognizes the adequacy or inadequacy of given data in relation to any problem.
6. He verifies his results.
7. He understands and appreciates logical, critical and independent thinking in others.
8. He expresses his opinions precisely, accurately, logically and objectively without any biases and prejudices.
9. He develops self-confidence for solving mathematical problems.
10. He develops personal qualities namely, regularity, honesty, objectivity, neatness and truthfulness.
11. He develops mathematical perspective and outlook for observing the realm of nature and society.

**E. Appreciation and Interest Objectives:**

The student is helped in the acquisition of appreciation and interest in the following way:

1. He appreciates the role of mathematics in everyday life.
2. He appreciates the role of mathematics in understanding his environment.
3. He appreciates mathematics as the science of all sciences and art of all arts.
4. He appreciates the contribution made by mathematics in the development of civilization and culture.
5. He appreciates the contribution of mathematics with field and other branches.
6. He develops the interest in the learning of the subject.
7. He feels enter by mathematical recreations.
8. He develops act interest in the activities of mathematics clues.
9. He develops act interest inactive library reading, mathematical projector.
10. He appreciates the aesthetic nature of mathematics by observing symmetry,  
Similarity, order and arrangement in mathematical facts, principles and processes.
11. He appreciates the contribution of mathematics in the development of other branches of  
knowledge.
12. He appreciates the recreational values of the subject and learn to utilize it in his leisure time.
13. He appreciates the vocational value of mathematics.
14. He appreciates the role of mathematical language, graphs and tables in giving  
Precision and accuracy to his expression.
15. He appreciates the power of computation developed through the subject.
16. He appreciates the role of mathematics in developing his power of acquiring  
Knowledge.
17. He appreciates mathematical problems, their intricacies and difficulties.
18. He develops interest in the learning of the subject.
19. He feels entertained by mathematical recreations.
20. He takes an active interest in the activities of mathematics club.
21. He takes an active interest inactive library reading, mathematical projects, and doing  
practical work in mathematics laboratory.