

ROLE OF MATHEMATICS IN THE DEVELOPMENT OF SOCIETY

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Abstract: - Mathematics is a branch of science, which deals with numbers and their operations. It involves calculation, computation, solving of problems etc. Its dictionary meaning states that, 'Mathematics is the science of numbers and space' or 'Mathematics is the science of measurement, quantity and magnitude'. It is exact, precise, systematic and a logical subject. It may also be defined as, 'Mathematics is the study of quantity, structure, space and change; it has historically developed, through the use of abstraction and logical reasoning, from counting, calculation, measurement, and the study of the shapes and motions of physical objects.

Keywords: - Intellectual, Social, Vocational, Moral, Spiritual Development and Women Empowerment.

Introduction: - Mathematics reveals hidden patterns that help us to understand the world around us. Now, much more than arithmetic and geometry, mathematics today is a diverse discipline that deals with data, measurements and observations from science, with inference, deduction, and proof; and with mathematical models of natural phenomena, of human behavior, and of social systems. The literal meaning of mathematics is "things which can be counted" now you can think that counting has vital role in our daily life; just imagine that there were no mathematics at all, how would it be possible for us to count members of the family, number of students in the class, rupees in the pocket, runs in a cricket match, days in a week or in a months or years? On a basic level you need to be able to count, add, subtract, multiply, and divide.

Even nature also embraces mathematics completely. We see so much of symmetry-around us and have a deep sense of awareness and appreciation of patterns. Observe any natural thing and find out symmetry or pattern in it. Change of day into night, summer into winter etc. In plants there are innumerable examples of symmetry, shapes, patterns, etc. Such examples exist in animals, in objects, in pictures and other things. The sun rises and sets at specified moment. The stars appear at fixed time. Mathematics runs in the veins of natural sciences like Physics and Astronomy. This subject is inextricably incorporated with world and the natural phenomena.

Roger Bacon an English Franciscan friar, philosopher, scientist and scholar of the 13th century, once stated:

"Neglect of mathematics works injury to all knowledge, since he who is ignorant of it cannot know the other sciences or the things of the world."

A society, or a human society, is a group of people related to each other through persistent relations, or a large social grouping sharing the same geographical or virtual territory, subject to the same political authority and dominant cultural expectations. More broadly, a society may be described as an economic, social, or industrial infrastructure, made up of a varied collection of individuals.

- **Role of Mathematics in Social Development**

Man is a social animal and human life depends upon the co-operation of each other. Group work helps social skills. The ability to work together on tasks with others can build various social skills. In order to live a social life, mathematical knowledge is needed, because of the give and take process, business and industry depends upon the knowledge of mathematics. The change in the social structure with regards to the modern facilities like mode of transport, means of communication and progress in the field of science and technology is due to mathematics only. In this way mathematics has played an important role in not only understanding the progress of society but also to develop the society.

- **Role of Mathematics in Intellectual Development**

Mathematics teaching is very important for intellectual developments there is no other subject in the curriculum likes mathematics which makes students' brain active. Problem solving helps in the development of mental faculties. Mental work is needed to solve mathematical problems. If a child, has a mathematical problem her/his brain becomes active in solving that problem. Each problem of mathematics posses such sequence which is necessary for constructive and creative process. In this way, all-mental abilities of child are developed through mathematics.

Moreover, mathematics makes the man very calculating so that she/he cans economies time, money, speech, thought etc. It develops a strong will power, patience and self-reliance. It, also develop the faculty of discovery and invention.

- **Role of Mathematics in Vocational Development**

The main aim of education is to help the children to earn their living and to make them self independent. To achieve this aim mathematics is the most important subject than any other. It helps to prepare students for technical and other vocations where mathematics is applied e.g. engineering, architecture, accountancy, banking, business, even the agriculture, tailoring, carpentry, surveying, and the office work requires the knowledge of mathematics.

- **Role of Mathematics in Moral Development**

Morality is the important phase of life, which is most, affected by time, person, situation and place. As a subject, mathematics can added to students moral development since mathematical knowledge is helpful in character and personality development. It develops all those quantities which a person of strong character must possess. Child develops qualities of cleanliness, reality.

- **Role of Mathematics in Spiritual Development**

Mathematics main potential here seems to be regarding developing the skills of reflection and possibly, for the more receptive, a sense of the beauty of a solution. One gets pleasure in solving mathematical problems, especially when she/he gets the correct answers to her/his problem .At that moment every child feels satisfied, confident and self-reliance. The aesthetic quality of an elegant solution is something that may be lost on a dedicated "mathematics hater". So the child gets encouragement, satisfaction and happiness in attaining remarkable achievements. Therefore mathematics helps to develop their aesthetic sensibility, meets the varying interests and helps them in the proper utilization of their leisure time.

- **Role of Mathematics in Cultural Development**

This helps the learner to understand the contribution of mathematics in the development of civilization and culture. It has enabled her/him to understand the role of mathematics in fine arts and in beatifying human life.

- **Role of Mathematics in the Development of Education System:**

In education system, mathematics plays an important role in shaping the future probability of young people. Education is to develop an individual, to make her/him self-reliant, to make her/him wise, to make her/ him a social contributor and in our education system, for almost every subject, we study in school and university; we need to study mathematics too e.g., Physics, Chemistry, Life-Science, Economics, Business and Accountancy, Geography, History, Psychology, Architect, Designing, Computes, Statistics, Commerce etc. Also in vocational areas like Tailoring, Carpeting, Cooking, Beauticians, Sportsperson, Farming etc, mathematical knowledge is needed. Even the professions like, Conductor, Shop Keeper, Drivers, Musicians, Magicians, Cashiers etc use basic mathematical concepts.

- **Role of Mathematics in Development of Economics:**

Mathematics is of central importance to modern society. It provides the vital underpinning of the knowledge of economy. It is essential in the physical sciences, technology, business, financial services and many areas of ICT. It is also of growing importance in biology, medicine and many of the social sciences. Mathematics forms the basis of most scientific and industrial research and development. Increasingly, many complex systems and structures in the modern world can only be understood using mathematics and much of the design and control of high-technology systems depends on mathematical inputs and outputs.

- **Role of Mathematics in Development of Science and Technology:**

The "functional" aspect of mathematics stems from its importance as the language of Science, Technology and Engineering, and its role in their development. This involvement is as old as mathematics itself and it can be argued that, without mathematics, there can be neither science nor engineering. In modern times, adoption of mathematical methods in the social, medical and physical sciences has expanded rapidly, confirming mathematics as an indispensable part of all school curricula and creating great demand for university-level mathematical training. Much of the demand stems directly from the need for mathematical and statistical modeling of phenomena. Such modeling is basic to all engineering, plays a vital role in all physical sciences and contributes significantly to the biological sciences, medicine, psychology, economics and commerce. Mathematics has been successfully used in the development of science and technology in 20th–21st century.

- **The Role of Mathematics Education in Women Empowerment**

The importance of Mathematics as a tool for science and technology is continually increasing. While science and technology have become so pervasive, mathematics education has continued to dominate the school curriculum and remains a key subject area requirement in higher education and employment sector. The hue and cry which follows the publication of mathematics results has become an annual ritual. The postmortems about the results eclipse a number of areas where female students have lagged behind. This has also impacted on courses and careers sought by women in the working world. They have attributed their failure to perform to expected standards to lack of sound background knowledge of mathematics. It is this realization that the skills learnt at school have had very little if any, bearing on what society needs in terms of productive citizens. In this regard, the gender imbalances in enrolment, achievement at school level, colleges and universities and the employment sector were also issues of concern. Our societies are becoming more and more technological with a mathematical bias, more attention being focused on attainment of mathematical competencies.

- **Role of Mathematics in Cultural and Moral Development:**

Mathematics has its own intrinsic beauty and aesthetic appeal, but its cultural role is determined mainly by its perceived educational qualities. The achievements and structures of mathematics are recognized as being among the greatest intellectual attainments of the human species and, therefore, are seen as being worthy of study in their own right, while the heavy reliance of mathematics on logical reasoning is seen to have educational merit in a world where rational thought and behavior are highly valued. Furthermore the potential for sharpening the wit and problem-solving abilities fostered by study of mathematics is also seen as contributing significantly to the general objectives of acquiring wisdom and intellectual capabilities.

- **Role of Mathematics in Development of Medical Science and Agricultural field:**

Mathematics is applied to agriculture, ecology, epidemiology, tumor and cardiac modeling, DNA sequencing and gene technology. It is used to manufacture medical devices and diagnostics, and sensor technology. There are positive senses in which mathematics is special. First, by virtue of its fundamental nature as a universal abstract language and its underpinning of the sciences, technology and engineering, mathematics has a claim to an inherently different status from most other disciplines. Secondly, as we have set out above, mathematics is fundamentally important in an all-pervasive way, both for the workplace and for the individual citizen.

Conclusion: - Mathematics occupies a crucial and unique role in the human societies and represents a strategic key in the development of the whole mankind. The ability to compute, related to the power of technology and to the ability of social organization, and the geometrical understanding of space time, that is the physical world and its natural patterns, show the role of Mathematics in the development of a Society. The society consists of its members (human being), who make government and organize the natural resources to develop infrastructure. The human beings are the one who develop the society. Therefore, we will discuss the role of mathematics in the development of an individual as well as the development of the society.

Mathematics helps the man to give exact interpretation to his ideas and conclusions. It is the numerical and calculation part of man's life and knowledge. It plays a predominant role in our everyday life and it has become an indispensable factor for the progress of our present day world.

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