

Relevance of Vedic Mathematics in Elementary Education

Ms. Syeda Shehnaz Akhtar,

Admission Coordinator
Apex Professional University,
Pasighat Smart City, Arunachal Pradesh

Abstract

Vedic mathematics is an ancient Indian mathematical system of education which includes mathematical calculation like addition, subtractions, multiplication, division, geometric algebraic, trigonometric problems. It is defined with 16 Vedic Sutras and 13 Sub Sutras with simple rules and concepts. The concepts of Vedic mathematics should be taught at the early stage of childhood as they can grasp the calculation easily in their mind. The New Education Policy, which intends to implement the Indian knowledge System in terms of education, defines the importance and practice of Vedic mathematics in early schooling. The idea of Vedic mathematics at an early stage can assist towards better development for students by improving the quality of computation which is already ingrained in our ancient knowledge.

Keywords: *Vedic mathematics, Indian Knowledge System, Education, Elementary education, conventional mathematics*

Introduction: Globally we are facing resentment in math education as there is a juvenile phobia among pupils, in addition to which we are facing significant reduction of interest and interested teachers in the subject. Mathematics is always considered as a tough subject as compared to any other subject and therefore it is being taught from early childhood so that the child could grasp the calculation easily. From the primary stage a child can mould his/her learning towards arithmetic by showing them various calculations and also they have a strong capturing power. A child can shape his or her learning toward mathematics from the primary stage onward by demonstrating various computations to them, and they also possess a great grasping power. Nowadays learners consider it as a dry subject because they feel bored with some calculation time. Therefore, it is the responsibility of the teachers to make mathematics education accessible, fun, and affordable for all students. Mathematics is the mother of all sciences as it is crucial to everyone's existence. It is quite challenging to survive in life without the usage of mathematics. Everybody uses mathematics in some capacity in daily life. Our ancestors comprehended all of these riddles and created some straightforward methods or procedures for resolving mathematical issues. Our ancestors employed certain methods in a number of sectors, including the building of temples, medicine, science, astrology, etc. As a result, we could proudly declare that India became an intellectually rich nation in the world through its Indian Knowledge. Vedic mathematics has its important role as it is focused on a universal framework of mathematics that is revealed through a unique approach to problem- solving and other human endeavours.

Vedic mathematics is more user-friendly, quicker to learn, and less error-prone than conventional approaches. Additionally, Vedic Mathematics methodologies help students not only solve certain mathematical issues but also foster creativity, logical reasoning, and intuition. Vedic mathematics describes a logic and arithmetic system which has a fundamental principle and rule that is based on 16 Sutras and 13

sub-Sutras that helps students to solve the mathematical equations easily. Both modern and antiquated mathematical systems are the foundation of the Vedic mathematical method. Each of the sutras explains its own conceptual technique that can be used to address a number of mathematical issues.

Historical overview of Vedic Mathematics: India has one of the world's oldest civilizations. Before being recorded in a written script, the older information was not formalized and was instead transmitted orally for generations. The Indian sages verbally transmitted their collected works utilizing codes that unlock numerous layers of significance from one generation to the next. The verbalised knowledge was compiled into four Sanskrit scriptures called the Vedas, which literally translates as “knowledge” and refers to the texts. The earliest of the four Vedas, the Rig Veda, contains hymns to nature and is one of the four Vedas. While the Atharva Veda has a collection of spells, incantations, and speculative chants, the Yajur Veda, Sam Veda, and other Vedas also feature chants honoring the Gods of nature.

In Indian tradition, mathematics and astronomy have a close link. Without the current understanding of mathematics, many of the calculations and derivations found in the Vedic architecture and astronomy would not have been conceivable. The Vedas are incredibly old and have obscure writing. One of the Vedas, the Sthapatya Veda, is rich in information on architecture, while Vedang Jyotish, a significant portion of the Vedas, deals with astrology and astronomy, subjects that call for a thorough understanding of mathematics. Therefore, we can conclude that Vedic Mathematics originated exclusively from Vedas, however decoding Sutras from Vedas was a challenging task. Finding the Vedic mathematics Sutras in their current form was a laborious task. Sri Bharati Krishna Tirthaji Maharaj rediscovered Vedic mathematics from ancient Indian texts between 1911 and 1918 by intuitive revelation. It is possible to solve any type of mathematical complexity utilizing the sixteen Vedic Sutras, also known as aphorisms, and the thirteen Atharva Vedic Sub-Sutras, which are actually recreated on the basis of spontaneous revelation in the form of word formulae. The sixteen Sutras, which are innovative ideas presented orally or in writing in a brief and memorable manner. Sutras & Sub-Sutras are based on logical ideas even if it is stated that Sri Bharati Krishna Tirthaji developed them intuitively.

Features of Vedic Mathematics: Vedic Mathematics shines and exhorts everyone to practice mental calculations, which when done correctly can aid pupils in completing more difficult tests and also solve more challenging exams. Vedic mathematics is simple to understand and may be learned quickly. Once a pupil starts to grasp the fundamental ideas, they can be more inventive in their approach. As a result, their comprehension advances. It can be used by students of all ages and is adaptable. Students may have a competitive advantage in tests by using Vedic math in competition. As there is some features in Vedic Mathematics-

1. Integrity: Each of the sixteen sutras is connected to the others in a way that it facilitates understanding; one sutra can be utilised to apply a single rule to the solution of many arithmetic operations.
2. Creativity: The best method to address any problem is to consider every angle that calls for creativity and recognise that there are multiple solutions, which motivates students to come up with original solutions.
3. Simplicity: Our ancestors came up with a solution to the most challenging multiplication issues that require more than five steps since simplicity is the best approach to save time and boost productivity in this fast-paced world. Vedic mathematics is distinctive in that it solves issues in a single, straightforward process.

4. Let's look at a two-digit number's product as an example: 42×21

Common mathematical operations include multiplying the whole amount by units, adding the tens separately, and then adding them all together.

Modern Mathematics	Vedic Mathematics
$ \begin{array}{r} 42 \times 21 \\ 42 \\ 84 \\ \hline 882 \\ \hline \end{array} $	$ \begin{array}{r} 42 \\ \times 21 \\ \hline 882 \\ \hline \end{array} $ At first multiply the units vertically ($2 \times 1 = 2$); then multiply and add them crosswise ($2 \times 2 + 4 \times 1 = 8$); multiply the tens vertically ($4 \times 2 = 8$), all the calculations are done mentally.

4. Algebraic connections: It is simpler for an individual to use these math strategies for arithmetic calculations based on the Vedic Maths method of learning when they have practiced them.

5. Innovation: Vedic Maths encourages additional academics and mathematicians to apply these techniques with increased inventiveness and come up with new mathematical techniques for modern mathematics.

Difference between Vedic Mathematics and Conventional Mathematics

1. Vedic mathematics originated from the ancient Indian education system. Whereas conventional mathematics originated from ancient Greece in 6th century BC.
2. Krishna Tirathji uncovered and studied the ancient Indian math method known as Vedic math, which has gained enormous popularity due to its superiority to conventional math.
3. Vedic math differs from traditional math in that it is coherent and leverage its coherence to solve problems rather than using various methodologies for various problems.
4. Vedic math helps to sharpen their analytical abilities, whereas it is not possible in conventional mathematics
5. Vedic mathematics enables students to mentally complete difficult arithmetic problems in much less time, which is extremely beneficial for competitive exams.
6. Vedic mathematics helps pupils increase their computation speed while taking up less time than the conventional method does.

7. Vedic mathematics helps pupils develop their arithmetic skills and develop a sense of confidence, which is beneficial for individuals who dislike math.
8. It is more flexible and methodical than traditional math, and Vedic math encourages students to come up with their own original and creative methods of problem-solving rather than pressuring them to follow a set approach.
9. It is suggested that Vedic maths can assist pupils become more adept at current arithmetic if used in conjunction with conventional math and truly complementing it.

Conclusion:

The article comes to the conclusion that Vedic mathematics is crucial for a complete grasp of mathematics. Vedic mathematics is a simple form of mathematics, but it is carried out in a more clever way. It has a promising future and will provide students with precise explanations to help them study mathematics more completely. Numerous researchers examine and assess mathematical procedures using Vedic mathematics. In the future, Vedic Mathematics will be given less weight than conventional mathematics because it is still an unexplored subject that is not included in mainstream education and is not open to the general population. Additionally, this has not received much attention or use, but it has a useful application, as shown by the various exam preparation tools.

The study mentioned above leads us to the conclusion that one-way calculation instruction in the present day is stiff and tedious. Both general and numerous particular case approaches are found in Vedic mathematics. Often, these computations can be performed without regard to direction or orientation. This flexibility allows pupils to adopt their own strategy, which fosters creativity and intuition. As opposed to calculations based on conventional mathematics, complex and time-consuming computations can be completed with more precision and in less time by applying Vedic Sutras. Additionally, Vedic Mathematics enhances memory and raises mental attentiveness therefore Vedic math should be given importance in the present curriculum and be given the option to the students to opt for it with that of conventional mathematics and it should be included in the New Education Policy.

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