

Top 5 Mental Math Methods in the World

By Gaurav Tekriwal Today you can define mental math in various different ways. Some would say, memorizing times table and remembering the solutions can form the part of mental mathematics. Some would say ability to perform simple calculations in your head can be mental mathematics. The web dictionary defines mental mathematics as "Computing an exact answer without using pencil and paper or other physical aids." Today there are five methods available to learn and practice mental mathematics. Let's begin with the first one called 'Learning by Heart' or better known as the rote memorizing method where your teachers ask you to mug up boring multiplication tables. It not only kills the interest of the child in mathematics but also makes sure that he develops hatred towards the subject for the rest of the years he studies it. This system gives its ardent devotee some degree of success initially as he is able to answer easy problems but then when the supposedly bigger application problems come the steam is almost over. The second one gives you a good degree of success and I would highly recommend it to the younger lot out there. It hails from China and is popular by the name of The Abacus (also known as the Soroban in Japan). An abacus is a calculating tool, often constructed as a wooden frame with beads sliding on wires. With the use of this tool one can perform calculations relating to addition, subtraction, multiplication and division with ease. Gradually one practices with the tool in one's hand and later on when experienced he learns to do it without the tool. This tool is then fitted into the mind mentally and he can then add, subtract multiply and divide in seconds. This tool also enhances a child's concentration levels. The main drawback of this system is that it focuses only on the 4 mathematical operations. Concepts beyond these operations such as Algebra, Square Roots, Cubes, Squares, Calculus, and Geometry etc cannot be solved using it at all. Also one needs a longer time to be able to fully get a grasp of the system hence you see courses in the abacus stretching to over 2 years which leads the child to boredom and then quitting from the course. Another Chinese system mainly collected from the book The Nine Chapters on the Mathematical Art lays out an approach to mathematics that centers on finding the most general methods of solving problems. Entries in the book usually take the form of a statement of a problem, followed by the statement of the solution, and an explanation of the procedure that led to the solution. The methods explained in this system can hardly be termed mental and they lack speed to top it all. The Chinese were definitely the most advanced of the civilization thanks to the Yangtze and Yellow Rivers but if I were to choose out of the two methods given by this culture It would be the abacus. If wars have a 99.99% downside, sometimes they can have an upside too for they give birth to stories of hope and creativity. The next mental math system was developed during the Second World War in the Nazi Concentration Camp by a Ukrainian Mathematician Jakow Trachtenberg to keep his mind occupied. What resulted is now known as the Trachtenberg Speed System of Mathematics and consists of Rapid Mental Methods of doing Mathematics. The system consists of a number of readily memorized patterns that allow one to perform arithmetic computations very quickly. It has wider applications than the Abacus and apart from the four basic operation methods it covers Squares and Square Roots. The method focuses mostly on Multiplication and it even gives patterns for multiplication by particular number say 5,6,7 and even 11 and 12. It then gives a general method for rapid multiplication and a special two finger method. After practicing the method myself I realized that the multiplication was a very applicable mental method but the other methods covered to solve division and square roots were not very friendly and were impossible to be done mentally. I was in search of a much better wholesome method where I could easily perform other operations also. Another drawback of this system was that it too like the abacus failed to have a wider scope i.e to encompass other fields like Algebra, Calculus, Trigonometry, Cube Roots etc A Recommendation by a friend of mine from America introduced me to what is known as the Kumon Math Method. It was founded by a Japanese educator Toru Kumon in 1950s and as of 2007 over 4 million children were studying under the Kumon Method in over 43 different countries. Students do not work together as a class but progress through the curriculum at their own pace, moving on to the next level when they have achieved mastery of the previous level. This sometimes involves repeating the same set of worksheets until the student achieves a satisfactory score within a specified time limit. In North American Kumon Centers, the mathematics program starts with very basic skills, such as pattern recognition and counting, and progresses to increasingly challenging subjects, such as calculus, probability and statistics. The Kumon Method does not cover geometry as a separate topic but provides sufficient geometry practice to meet the prerequisites for trigonometry, which is covered within the Kumon math program. I was much impressed with the glamour around Kumon but a glimpse of its curriculum deeply disappointed me. It is not mental at all. It does not offer any special methods to do mathematics and one does not improve one's speed by doing Kumon Math. There is a set curriculum of worksheets which one does till one achieves mastery in the subject. So say for example a sheet on Division- one would continue to do division by the conventional method till he gets a satisfactory score and then he moves on to a higher level. This certainly doesn't make division any faster and the process is certainly not mental. A deep thought on the reason of its tremendous popularity in America led me to conclude was the lack of a franchisee business model of the abacus and the Trachtenberg speed system in the 1950s. The franchisee model was essential in taking the course from country to country. This is where Toru Kumon thrived. Dissatisfied with other cultures in the world, my search made me look in my own Indian culture. What I found astonished and amazed me so much that I fell in love with the system and started coaching neighbourhood students in it. This is easily the World's Fastest Mental Mathematics System called High Speed Vedic Mathematics. It has its roots in Ancient Indian Scriptures called the Vedas meaning 'the fountain head of knowledge'. With it not only you can add, subtract, multiply or divide which is the limiting factor of the abacus but you can also solve complex mathematics such as algebra, geometry, Calculus, and Trigonometry. Some of the most advanced, complex and arduous problems can be solved using the Vedic Maths method with extreme ease. And all this with just 16 word formulas written in Sanskrit. High Speed Vedic Mathematics was founded by Swami Sri Bharati Krishna Tirthaji Maharaja who was the Sankaracharya (Monk of the

Highest Order) of Govardhan Matha in Puri between 1911 and 1918. They are called "Vedic" as because the sutras are contained in the Atharva Veda - a branch of mathematics and engineering in the Ancient Indian Scriptures. High Speed Vedic Mathematics is far more systematic, simplified and unified than the conventional system. It is a mental tool for calculation that encourages the development and use of intuition and innovation, while giving the student a lot of flexibility, fun and satisfaction . For your child, it means giving them a competitive edge, a way to optimize their performance and gives them an edge in mathematics and logic that will help them to shine in the classroom and beyond. Therefore it's direct and easy to implement in schools - a reason behind its enormous popularity among academicians and students. It complements the Mathematics curriculum conventionally taught in schools by acting as a powerful checking tool and goes to save precious time in examinations. The Trachtenberg Method is often compared to Vedic Mathematics. Infact even some of the multiplication methods are strikingly similar. The Trachtenberg system comes the closest to the Vedic System in comparison and ease of the methods. But the ease and mental solvability of the other method especially division, square roots, cube roots, Algebraic Equations, Trigonometry, Calculus etc clearly gives the Vedic System an edge. Even NASA is said to be using some of this methods applications in the field of artificial intelligence. There are just 16 Vedic Math sutras or word formulas which one needs to practice in order to be efficient in Vedic Math system. Sutras or Word Math Formulas such as the Vertically and Crosswise, All from Nine and Last from ten helps to solve complex problems with ease and also a single formula can be applied in two or more fields at the same time. The Vertically and Crosswise formula is one such gem by which one can multiply, find squares, solve simultaneous equations and find the determinant of a matrix all at the same time. If either of these methods is learned at an early age, a student aged 14 can perform lightening fast calculations easily during his examinations and ace through them. Vedic Mathematics is fast gaining popularity in this millennium. It is being considered as the only mental math system suited for a child as it helps to develop his numerical as well as mental abilities. The methods are new and practical and teach only Mental Rapid Mathematics. The system does not focus on learning by repetition as in the Kumon Method. The system focuses on improving intelligence by teaching fundamentals and alternate methods. The purpose is not limited to improving performance in the school or tests, but on providing a broader outlook resulting in improved mathematical intelligence and mental sharpness. To know more about the Vedic Mathematics Sutras - The World's Fastest Mental Math System you can visit <http://www.vedicmathsindia.org> This Article is by Gaurav Tekriwal,, The President of the Vedic Maths Forum India who has been conducting High Speed Vedic Math Workshops for the last five years and has trained over seven thousand students across the world in the field. He is the author of the best selling DVD on the subject which contains over 10 hours on the subject. He is an expert in the field and revolutionizes the way children learn math.

About the Author

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