KNOWLEDGE AND AWARENESS MAPPING PLATFORM

KNOWLEDGE SESSION

2022: EPISODE 7

ORGANISED BY: KNOWLEDGE AND AWARENESS MAPPING PLATFORM

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Date: 21st July 2022 **Topic:** Withdraw the fear of mathematics with help of Vedic Maths

Organised For: Class 5th – 12th **Category:** Academic development

No. of Participants: 400+ students from different schools across India

Speaker/Presenter: Ms Kanika Chawla

Overview:

On July 21st, KAMP conducted a special workshop on "Withdraw the fear of mathematics with help of Vedic maths" by Ms Kanika Chawla. Ms Kanika is the Sr. Admin Manager, Master Trainer & Operations Head at Abacus & Vedic Arithmetics Study. She has been teaching Vedic Maths and Abacus for the last 12 years.

In this episode, Ms Kanika helped students learn simple tricks from Vedic maths and helped many students reduce their phobia related to maths. Additionally, she stated that Vedic maths will help students increase their aptitude, and confidence, develop logical reasoning and increase interest in the core subject of maths. Students can use Vedic maths to cross-check their answers in class as well as in any competitive exam.


As the name suggests, Vedic maths is derived from the Vedas. There are 4 vedas; Rig veda, Yajur veda, Sam Veda and Atharva veda. Vedic maths is derived from the Atharva Veda. It has been observed that our grandparents or great-grandparents have been quite efficient when it comes to maths. To an extent, they do not even need a calculator.

In Vedic maths, there are sutras, which are the shortcut methods/ways that help algorithmically solve any mathematical issue. Vedic maths was introduced by His Holiness Swami Bharati Krishna Tirtha Maharaj, who rediscovered these sutras and introduced us to Vedic maths.

Given below are some of the simple tricks that were explained in the workshop

- While solving any multiplication of Two digits number with 11
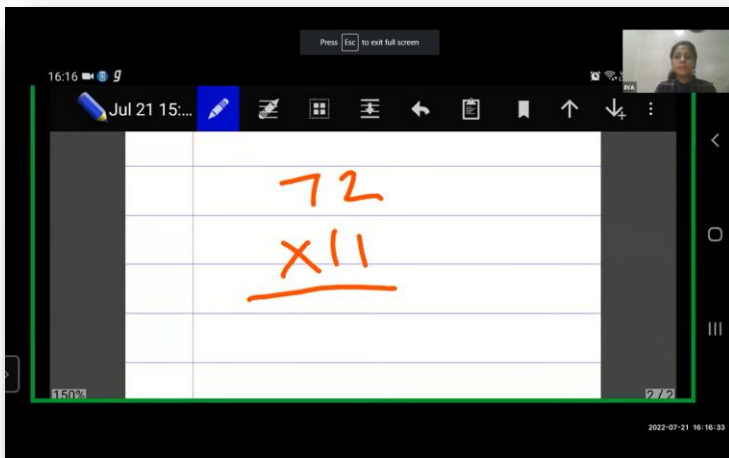
  - 43 X 11; To obtain the answer, take the first digit and the last digit of the given number (43) as they are, and in between the two digits, insert the sum of the digits in the answer. The answer will be 4 (4+7) 3 or 473.
    - For Example: 72 X 11; 7 (7+2) 2 or 792 and 35 X 11; 3 (5+3) 5 or 385

However, if we have a two-digit sum in the middle, we carry on the remainder to the left,

  - 94 X 11; 9 (9+4) 4; As 9+4 gives us a two-digit number 13, we add the tens place to our first digit in the answer, giving us (9+1) (3) (4) or 1034
  - For example: 58 X 11; (5) (5+8) (8) = (5) (13) (8) giving us 638
- Likewise, if we have a Four digit number with 11
  - 2314 X 11; To obtain the answer in this situation, we start by adding pairs from right to left and take the first and last digits as they are; so, 4+1, 1+3 and 3+2. Now placing them we get 2 5 4 5 4.
 - For example: 3432 X 11; 3 (4+3) (3+4) (2+3) 2 = 37752

- In case you have a bigger number like 429764 X 999999
  - To obtain the answer to this situation, we need to apply the two sutras given below;

    - Sutra 1: Ekanyunena Purvena. The predecessor of the number
    - Sutra 2: Nikhilam Navatashcaramam Dashatah. All from 9 and last from 10.
    - So, according to the first sutra, the first half of the answer would be 429764-1 and according to the second sutra the second half of the answer would be (9-4) (9-2) (9-9) (9-7) (9-6) (10-4) giving us 429763 570236
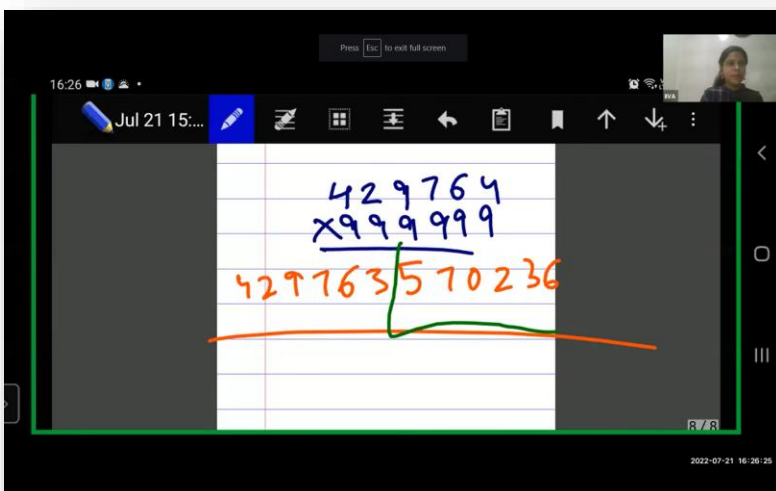
- For example: 428 X 999 = (428-1) (9-4) (9-2) (10-8) = 427 5 7 2
- The most common method used in Vedic maths is the Urdhva-Tiryagbhyam or the Vertically and crosswise method.
  - In this method, we multiply the tens place with tens and one's place with ones to get the first and last digit of the answer. Then to obtain the second digit of the answer we multiply both the digits crosswise.
  - For example: 23 X 12; right hand side to left hand side; (3X2) (3X1 + 2X2) (2X1), giving us 276
  - Another example: 42X36; (2X6) (2X3 + 4X6) (4X3); where we get 12 30 12, in this case 1 gets carried from 12 and 3 gets carried from 30, thus giving us (12+3) (0+1) (2) or 1512

Moving forward to higher-level maths, we have algebraic multiplication, which can also be solved through Vedic maths Such as $(\square+3)(\square+4)$, where we would get (4X3) (4X$\square$ + 3X$\square$) ($\square$X$\square$) through the same Urdhva-Tiryagbyhyam or the Vertically and crosswise method. The answer to this problem would then be $\square^2$ + 7$\square$ + 12.
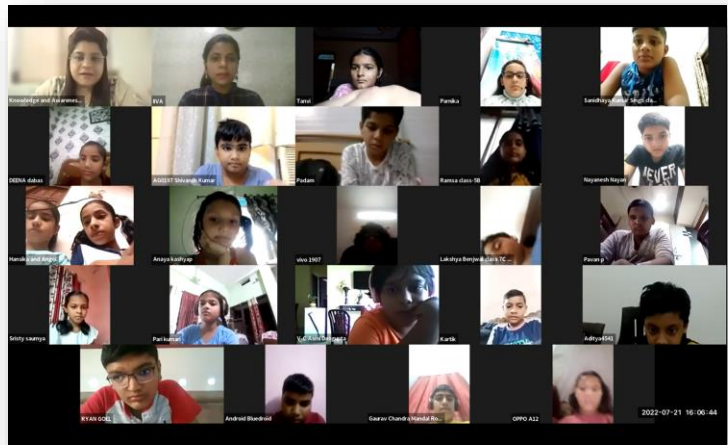
Another example: 2$\square$ + 3 X 3$\square$ + 5.
= (5X3) (3$\square$X3 + 2$\square$X5) (2$\square$X3$\square$)
= $6x^2 + 19x + 15$.

Last, but not least, we can also use Vedic maths to efficiently solve the squaring of a number or multiplying the number by itself. For Example, we all know that $5^2 = 25$, $15^2 = 225$, $25^2 = 625$, but what about $85^2 = ?$ and $105^2 = ?$

To solve this by Vedic maths we need to know the Ekadhikena Purvena sutra; which means adding one more. So, we will add on to the first digit and multiply with the first digit as it is and for the second half we take the square of the actual digit as it is. By doing this we will obtain the answer

$85^2 = (9X8)(5^2) = 72\ 25$
$105^2 = (11X10)(5^2) = 110\ 25$