

Report on Vedic Mathematics Workshop w.e.f. 19th June to 22nd June, 2019



Venue- IIT Mandi Kamand, District Mandi H.P.

Organized by

Himachal Pradesh Council for Science Technology & Environment (HIMCOSTE) In collaboration with NCSTC, DST, GOI New Delhi

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1. Background

Vedic Mathematics is the name given to a supposedly ancient system of calculation which was "rediscovered" from the Vedas between 1911 and 1918 by Sri Bharati Krishna Tirthaji Maharaj (1884-1960). According to Tirthaji, all of Vedic mathematics is based on sixteen sutras, or wordformulae. For example, "Vertically and crosswise" is one of these Sutras. These formulae are intended to describe the way the mind naturally works, and are therefore supposed to be a great help in directing the student to the appropriate method of solution. None of these sutras has ever been found in Vedic literature, nor are its methods consistent with known mathematical knowledge from the Vedic era.

The simplicity of the Tirthaji system means that calculations can be carried out mentally, though the methods can also be written down. There are many advantages in using a flexible, mental system. Pupils can invent their own methods; they are not limited to one method. This leads to more creative, interested and intelligent pupils.

Interest in the Tirthaji's system is growing in education, where mathematics teachers are looking for something better and finding the Vedic system is the answer. Research is being carried out in many areas including the effects learning the Tirthaji system has on children; developing new, powerful but easy applications of these Sutras in arithmetic and algebra.

The real beauty and effectiveness of the Tirthaji system cannot be fully appreciated without practicing the system. One can then see why its enthusiasts claim that it is the most refined and efficient calculating system known.

"Vedic Mathematics" refers to a technique of calculation based on a set of 16 Sutras, or aphorisms, as algorithms and their upa-sutras or corollaries derived from these Sutras. Its enthusiasts advance the claim that any mathematical problem can be solved mentally with these sutras.

In April 2019, HIMCOSTE Shimla planned to organize a 5 days state level workshop on Vedic Mathematics for teachers and students of the state with the objective to popularize mathematics by adopting innovative methodology in teaching learning process among the teachers and students. The Teacher Training Incharge of DIET Mandi, faculties of mathematics and BRC's were also involved in the workshop with the objective to strengthen the mathematics training through DIET.

The workshop on Vedic mathematics was organized to create interest to study the mathematics among students. Vedic Mathematics has Techniques/Sutras to solve mathematical arithmetic in easy and faster way. It consists of 16 Sutras (Formulae) and 13 sub-sutras (Sub Formulae) which can be used for problems involved in arithmetic, algebra, geometry, calculus, conics.

Using regular mathematical steps, solving problems sometimes are complex and time consuming. But using Vedic Mathematic's General Techniques, Specific Techniques and numerical calculations can be done very fast.

About 150 students & teachers of District Mandi were benefitted by the organization of this workshop. This workshop was organized under the overall guidance of Sh. D.C. Rana, Member Secretary, HIMCOSTE, Shimla.

Objective:

- Eradicates the fear of Mathematics and instills confidence
- Improves calculation speed and numerical skills
- Sharpens the brain
- Is an aid to crack scholarship and entrance exams
- Facilitates a habit of analytical thinking and measured approach towards any problem
- Provides an insight into ancient Indian mathematics
- Is useful for everyone students, professionals, teachers, parents, and the young and old
- To reduce dropouts in Mathematics.

Vision:

The vision behind organizing the workshop was to lay a strong foundation for basic mathematics and to get rid of math phobia from students mind.

Distinguished Resource persons:

All India Ramanujan Maths Club has the main purpose of promoting Mathematics at all levels. All through these years, The Club has received immense support from Mathematics Fraternity both in Gujarat and all Over India. The Club is an inclusive Maths enrichment program that provides club leaders with the resources and materials needed to run a math club.

Dr. Chandramouli Joshi is the Chairperson of Ramanujan Maths Club and Sh. Dhanraj Kantilal Thakkar is the Joint Secretary Ramanujan Maths Club were the main resource persons for the 5 days workshop on Vedic Mathematics at IIT, Mandi.

Sh. Mehul Harsora, Sh. Sanjay Kumar and Sh. Sidharth also assisted the resource persons in this workshop.

Participants: 100 students & 63 teachers of District Mandi were benefitted by the organization of this workshop.List of Participants attached at **Annexure-A**.

Technical Schedule of Four Days Vedic Mathematics Workshop for Maths Teachers and Students of Distt. Mandi



Organized by:

Himachal Pradesh Council for Science, Technology & Environment (HIMCOSTE) in collaboration with NCSTC, DST, GoI Schedule

Date: 19th - 22nd June, 2019Venue: IIT Kamand MandiSpeakers: Dr. Chandra Mauli Joshi, Dr. Satyavir Singh and Sh. Dhanraj Kantilal Thakaar

Programme Schedule for "Vedic Maths Workshop"

Day 1		19 th June, 2019		
Time	Programme			
10:00AM-10:30AM	Registration			
10:30AM-11:00AM	Introduction with Participants			
11:00AM-01:00PM	HOD, Mathematics, IIT Kamand Mandi			
01:00PM-02:00PM	Lunch Break			
02:00PM-05:00PM	2:00PM-05:00PM Dr.Satyavir Singh, Principal SNI College, Pilana, Baghpat, UP			
Day 2		20 th June, 2019		
09:30AM-10:00AM	Prayer			
10:00AM-01:00PM	First Session: Vedic Maths PowerPoint Presentation-Part-1			
01:00PM-02:00PM	Lunch Break			
02:00PM-03:15PM	Second Session :Tricks for easy maths			
03:15PM-05:00PM	Third Session: Maths 3D Model Workshop Part-2			
Day 3 21 st June. 2019				
09:30AM-09:45AM	Prayer			
09:45AM-10:30PM	Revision of vesterday session			
10:30AM-01:00PM	First Session: Vedic Maths PowerPoint Presentation			
01:00PM-02:00PM	Lunch Break			
02:00PM-03:15PM	Second Session :Magic with Maths and Puzzle			
03:15PM-05:00PM	Third Session: Maths Lab Wor	rkshop		
Day 4		22 nd June, 2019		
Time	Programme			
09:30AM-09:45AM	Prayer			
09:45AM-10:00AM	Revision of yesterday's Session			
10:00AM-11:15AM	First Session: Vedic Maths PowerPoint Presentation			
11:15AM-12:15PM	Second Session: Fun with Maths			
12:15PM-01:00PM	Third Session: Maths Quiz Workshop			
01:00PM-02:00PM	Lunch Break			
	Valedictory Sess	ion		
Time	Particulars	Speakers		
2:10 PM -2:15 PM	Welcome Address & Report	Sh. Sanjeev Thakur, District Science		
	of Workshop	Supervisor Mandi		
2:15 PM-2:50PM	Feedback by Participants			
2:50 PM -3:30 PM	Address by:-	(1) Dr. Chandra Mauli Joshi		
3:30PM-3:45PM		(2) Dr.Satyavir Singh		
3:45PM-4:00PM		(3) Sh. Dhanraj Kantilal Thakaar		
4:00PM-4:15PM	Address by:-	Speech by Chief Guest		
4:15PM-4:50PM	Certificate and Activity Kit Distribution by Chief Guest			
4:50PM-5.00 PM	Vote of Thanks	Sh.Ramesh Thakur		
		Sr. Scientific Assistant, ATC Sundernagar		

Vedic Mathematics Workshop Day-1

The workshop started with registration of participating teachers and students at 10.00 am sharp on 19th June 2019. At 11:00 a.m. started the introduction session. All members took a great interest in the introduction due to various views on gratitude given by all the participants. Fifty number (50) of students from three nearby schools GSSS Kataula, GSSS Kamand and GHS Nalan joined the workshop on first and second day.

Glimpses of Opening Ceremony through eye of Camera





Two separate sessions were made after introduction i.e. one for teachers and another for students. The teacher's session was carried out by Sh. Sanjay Kumar from All India Ramanujan Club and second session was taken by Sh. Sidharth Kumar from All India Ramanujan Club. Both the session was introductory sessions on Vedic mathematics during the first half and in the afternoon the advanced topics were covered.

Mr. Sanjay Kumar started the teacher's session with "Pythagoras Theorem". In which teaching learning strategies were discussed and various kinds of feedback was sorted from the teachers.



In the second half, students from local schools visited the labs of IIT Mandi and the students get exposure of the IIT Labs.

Students visiting IIT Labs



During the visit of Laboratories of IIT Mandi the students get the insight of advanced instruments - their importance and functioning.

The resource persons made four groups of teachers and give them some Vedic mathematics problems to solve with some innovative models brought out along with them.

All groups were given TLMs to discuss in the group for 15 minutes and to represent it with CAMAL (Combined Activities for Maximizing Learning). Group wise presentations were made by each groups and group 2 gave its presentation on the TLM which included different Colored and Shaped Magnetic strips.

Presentation made by resource persons was interactive and informative as all the topics were covered with the help of these innovative experiments and which were creative and easy to learn mathematics for the students.



In the afternoon session the workshop started at 2:45 p.m. with the "Throw ball" activity - a very funny activity done by all members.

Critical Analysis of group 2, presentation was discussed with more positive points to make the TLM more effective.

The "Happiness Period" of Delhi schools was also discussed in which readiness activities to all students are organized everyday with a new activity, e.g. Mindfulness. Some of the activities of Happiness period were explained by the resource persons. Some of the activities explained are as follows:

Activity, Storytelling activity, throwing ball, Clapping, Fruit salad & Pen activity etc.

Group 1 presented on the Congruence of Δ , Shapes of rectangle, square etc. Meanwhile, Bhaskaracharya, Pythagoras Theorem proof was discussed by Mr. Sanjay to enhance the utility of the TLM.

Feedback was given to every group on the basis of, (i) Collaboration, (ii) Creativity, (iii) Critical Thinking, (iv) Problem Solving and (v) CitizenshipGroup-3 gave presented on "Fractions" of numbers and angles in which we can find out Pattern- increasing & decreasing, Area of sector, Length of arc, Addition and subtraction of fraction etc.

Group-4 gave presentation on "Clinometers" which is used to measure angle of depression and elevation and a set of cone & cylinder, which explained that the volume of cone is $\frac{1}{3}$ volume of the cylinder.

Sh. Mehul Kumar Harsora gave his presentation on the topic "Mathematical Problem solving using Vedic Mathematics". This session included very interesting activities like, Tangram, Different shapes, Postcard Activity, Pyramid of numbers, Area formula by Origami, Area of triangle, Relation of Central angles with angles on the circles, Value of π , & Nilkantha series etc.



Vedic Mathematics Workshop Day-2

Second day of workshop on Vedic Maths started at 9:45 a.m. with welcome of Dr. Chandramouli Joshi, Chairman, All India Ramanujan Society, Gujarat and Mr. Dhanraj Thakkar, Secretary, All India Ramanujan Society, Gujarat. Participant Girls form the adjacent schools recited Gayatri Mantra, which creates devotion and peaceful atmosphere. After that Dr. Joshi started with PPT, which he gave the brief introduction and achievements of All India Ramanujan Maths Club, Gujarat. Dr. Joshi interacted with teachers and students gave them a warm welcome and regards. He started with "How to make Mathematics easy", "Remove Maths's phobia", "Make Mathematics interesting & bring more marks in Mathematics".

Mr. Joshi said that Puri's Shankaracharya "Sh. Krishna Bharti" had tried to make Maths easy by Vedic Maths. In 1971, Krishna Swami had given 16 formulas on Vedic Maths which have been approved by "Worlds Parliament". Some of the examples Dr. Joshi explained are as follows:

1. Ekadhikena Purvena – One more than the Previous

This method is used to Square of Numbers which ends with 5. Square of Such Numbers = Number before 5 x next number (Left Side) / 5^2 (Right Side)

For example 25^2

The number before 5 is 2, and the number next to 2 is 3, therefore

 $25^2 = 2 \times 3 / 25$ = 625

65²

The number before 5 is 6, and the number next to 6 is 7, therefore

 $65^2 = 6 \ge 7 / 25$ = 4225

2. Nikhilam Navatascharam Dastah – All from 9 and last from 10.

This method is used for multiplication of numbers with the Base 10, 100, 1000, 10000 etc. The number of digits in right side is equal to the number of zeros in the Base.

For Example: 98 X 92. The nearest base is 100 having 2 zeros.

98 is 2 less and 92 is 8 less to the base 100. Add/Subtract crossly

98-8 = 92-2 = 90, this becomes the left side of answer.

Multiply the deviations to the base 2X8 = 16, this having two digits- which are equal to number of zeros in the base 100, becomes the right side of answer.

98\2 -2

 $\frac{X 927}{90 / 16}$ Therefore 98 X 92 = 9016.

Another example can be taken of 9988 X 9989. The nearest base is 10000 having 4 zeros.

9988 is 12 less and 99892 are 11 less to the base 10000. Add/Subtract crossly

9988-11 =9989-12 =9977, this becomes the left side of answer.

Multiply the deviations to the base 12X11 = 132, this having three digits- which is one less to number of zeros in the base 10000, so this will become the right side of answer by putting one zero before this.

9988 → -12 <u>X 9989 ⊅ -11 X ↓</u> 9977 / 0132

Therefore 9988 X 9989 = 99770132.

Another example can be taken of 1018 X 1013. Here both numbers are higher than the base. The nearest base is 1000 having 3 zeros.

1018 is 18 more and 1013 is 13more to the base 1000. Add/Subtract crossly 1018+13 = 1013 + 18 = 1031, this becomes the left side of answer.

Multiply the deviations to the base 18X13 = 234, this having three digits- which are equal to number of zeros in the base 1000, so this becomes the right side of answer.

1018\sum +18

<u>X 1013⊅ +13 X ↓</u>

1031 / 234

Therefore 1018 X 1013 = 1031234.

Let's finish with one example where one number is more and the other less to the base.

10183 X 9995

The nearest base is 10000 having 4 zeros.

10183 is 183 more and 9995 is 5 less to the base 10000. Add/Subtract crossly

10183-5 = 9995 + 183 = 10178, this becomes the left side of answer by subtracting 1.

Multiply the deviations to the base 183X5 = 915, so this becomes the right side of answer after subtracting from the Base 10000.

10183 → +183 X 9995 7 -5 X ‡

10178-1 / Base – 915

10177 / 10000-915

10177 / 9085

Therefore 10183 X 9995 = 101779085.

3. Urdhva Tiryagbhyam - Vertically and Crosswise

The above multiplications of two numbers can be easily done by Vertical and Cross Multiplication.

For example 98 X 92 : It can be done by multiplying vertically the Tens and Units places and cross multiplication of tens and Units : (1) Tens: 9X9 = 81

(2) Tens & Units Cross Multiplication and Addition:	9X2+9X8 = 18	3+72 = 90		
(3) Units: $8X2 = 16$ 9 8	Tens /	Tens / Tens & Units / Units		
	81	/ 90	/ <mark>1</mark> 6	
<u>X 9 2</u>	81	/90+ 1	/6	
9016	81	/ <mark>9</mark> 1	/6	
of three or more digit numbers also.	81+9	/1	/ 6	
	I 9016			

- 4. Paravartya Yojayet -- Transpose and Apply
- 5. Sunyam Samyasamuccaye The summation is equal to zero
- 6. Anurupye Sunyamanyat If one is in ratio, other one is zero
- 7. Sankalana Vyavakalanbhyam By completion and non completion

45x

'By addition and by subtraction'

It can be applied in solving a special type of simultaneous equations where the x - coefficients and the y - coefficients are found interchanged.

68x - 68y = 204,

(45x - 23y) + (23x - 45y) = 113 + 91

Subtract one from other

(45x - 23y) - (23x - 45y) = 113 - 91

22x + 22y = 22 , 🖂 x + y = 1

Repeat the same sutra again i.e. Add &

Subtract the new equations.

x - y = 3

Example

23x - 45y = 91

X=2, y=-1

Example 2 :

Solving on same lines we get

X=2 , y=3.

8. Calana - Kalanabhyam - Sequential motion

9. Puranapuranabhyam -By completion and non- completion

10. Yavadunam - The deficiency

This sutra means whatever the extent of its deficiency, lessen it still further to that very extent; and also set up the square of that deficiency. The sutra is very handy in calculating squares of numbers near (lesser) to powers of 10.

Let's take the example of 98^2 :

$98^2 = 98-2 / 2^2$	-The nearest power of 10 to 98 is 100. Therefore, let us take 100 as our base.	
= 96 / 04	-Since 98 is 2 less than 100, we call 2 as the deficiency.	
= 9604.	- Decrease the given number further by an amount equal to the deficiency. i.e., perform (98-2) = 96. This is the left side of our answer .	
	- On the right hand side put the square of the deficiency, that is 04.	

: 3

2

Let's take another example of 103^2 :

102^2 102.2/2 ²	The nearest power of 10 to 103 is 100. Therefore, let us take 100 as our base.
$103^{-} = 103 + 3 / 3^{-}$	
= 106 / 09	- Since 103 is 3 more than 100, we call 3 as the surplus.
= 10609.	- Increase the given number further by an amount equal to the surplus. i.e., perform (103+3) = 106. This is the left side of our answer .
&	- On the right hand side put the square of the surplus, that is = 09.
1009 ² = 1018081.	- Append the results from step 4 and 5 to get the result. Number of digits in right side of answer should be the same as in the Base. Hence the answer is 10609.

11. Vyastisamastih -Whole as one and one as whole

- 12. Sesanyankena Caramena– Remainder by last digit
- 13. Sopantyadvayamantyam Ultimate and twice the penultimate
- 14. Ekanyunena Purvena -- By one less than the previous one
- 15. Gunitasamuccayah The whole product is same.

16. Gunakasamuccayah - Collectivity of multipliers.

Square root of Irrational Number =

Example 1: Find the square root of 79?

Solution: - Perfect square approaching 79 is 81. Deviation = 79 - 81 = -2 $\sqrt{79} = \sqrt{81} - 2$ $2 \times \sqrt{81}$ $= 9 - \frac{1}{9} = 9 - 0.999 = 8.001$



Students were given many questions to solve and they learnt about the easy way of doing multiplication and other mathematical operations.

Find the square root of 187?

Solution: - Perfect square approaching 187 is 196. Deviation = 187 - 196 = -9 $\sqrt{187} = \sqrt{196} - 9$ $2 \times \sqrt{196}$ $= 14 - \frac{9}{28}$ = 14 - 0.32= 13.67

Example: Find the square root of 47

Solution: - Perfect square approaching 47 is 49.

Deviation =
$$47 - 49 = -2$$

 $\sqrt{47} = \sqrt{49} - 2$
 $2 \times \sqrt{49}$
 $= 7 - \frac{1}{7} = 7 - 0.14 = 6.86$

Example : Find the square root of 174

Solution: - Perfect square approaching 174 is 169

Deviation = 174 - 169 = 5

$$\sqrt{174} = \sqrt{169} + 5/2 \times \sqrt{169}$$
$$= 13 + |5/26|$$
$$= 13.192$$

These formulas are very useful to make Maths easy. With the help of these formulas, toughest calculation is very easy to do even by weaker students.

After that Dr. Joshi gave simple Maths problems for students and teachers separately. All of us solved them with interest. Prize and appreciation was given to "quick solver". Further he taught how to solve various Maths problems without using formula. He gave lots of interesting examples.

He also taught us "Ekadhindeno Pubeno" and "Param Mitra" trick, how to multiply by 999, 99999,... by 11, find square of numbers, touch and answer and many more. After that students' and teachers' were taken separately. Students lecture was taken by Mr. Mehul and Dr. Joshi continued with us.

Dr. Joshi taught us "Base Method" for quick multiplication, it included Base-10, Base-20, Base-30, Base-100, Base-200, Base-300, Base-400 etc. All of us learnt it with great enthusiasm.

After lunch, Dr. Joshi entertained the participants with different kind of interesting "Puzzles". He gave some gadgets to the participants to solve. The fellow teachers who solved them were given prize and appreciation.

He distributed two mathematics kits among all the pariticipants. These kits were sponsored by HIMCOSTE. The participants used those kits at the venue and found them very useful for classroom teaching.

After tea break, Dr. Joshi told about National Level Mathematics Fair. He also gave detailed information about Best Teacher Award and IYMC, i.e. International Young Mathematician Competition. He motivated teachers to participate in such kind of competition along with their students.

After that, Sh. Mehul Kumar was on the dais. He continued with his PPT. He taught different kind of tricks to make Maths interesting for students.

Workshop ended up at 6:00 p.m. with the discussion on factors of zero.



"Vedic Mathematics Workshop" Day-3

All the teachers and the students of three schools i.e. GSSS Katindhi, GSSS Nishoo and GHS Riyagari reported sharp at 10:00 a.m.

Sh. Sanjeev Thakur Science Supervisor discussed about the upcoming event i.e. Children Science Congress (CSC) and informed the teachers to start preparing for the different activities. Science supervisor also informed the teachers that from this year the schools have to register themselves for CSC once the web- portal gets ready for which the schools will be intimated accordingly.

At 10:30 a.m., the session started by Dr. Chandramouli Joshi by a small prayer and the Shaloka from a Veda by Vivekananda. Dr. Joshi motivated all the participants by a well known quotation of Swami Vivekananda, I quote "Arise, Awake and Stop not till the Goal is reached". Dr. Joshi taught how to solve mathematical problems by using the Vedic Sutra. The session with Dr. Joshi was very lively and three of our teachers were awarded with the Gold medal. Mr. Naresh Thakur of GMS Sumanidhar, presented the mathematics magazine which is published by GMS Sumanidhar to the officials of Sh. Ramanujan Math Club. After lunch at 3.00 pm the second session was carried out by Sh. Dhanraj Kantilal Thakkar who focused on solving the squares of different term by using the concept of Vedic mathematics. During the session the teachers were actively participating and were coming up with so many queries which were solved by Sh. Thakkar. After tea break the presentation was made by Mr. Mehul Kumar, who started the session with some interesting games, to solve the math's problems. He taught us how we can teach the trigonometry in simple way to the students.

Some of the examples discussed by Sh. Mehul Kumar are as follows:

Case 2:- Multiplying two numbers from 6×6 to 10×10

Rule: - Suppose you have to multiply two numbers x and y where $6 \le x \le 10$ and $6 \le y \le 10$ then the rule will be as follows.

• Mark the finger with numbers 6 to 10 in both the hands.



- Touch the corresponding finger and bent fingers below the touched fingers.
- Count the number of unbent fingers. This will tell you the digit to be put at ten's place.
- Multiply the bent fingers of both the hand to obtain the digit at the one's place.

Multiplying 9 by 8





Unbent finger = 4 + 3 = 7 Bent Finger = 1 x 2 = 2 9 x 8 = 72



Unbent finger = 3 + 3 = 6Bent Finger = $2 \times 2 = 4$ $8 \times 8 = 64$

13 x 12 = ?



- Number of unbent fingers in both the hands are 3 and 2 respectively. As the rule says ; we multiply the number of unbent fingers by 10. = 5 x 10 = 50
- Multiply the number of unbent fingers. $= 3 \times 2 = 6$
- Add 100 to the previous two results to get the final result Hence, 13×12 = 100 + 50 + 6 = 156

Case 4:- Multiplying two numbers from 16×16 to 20×20

- Mark the finger with numbers 16 to 20 in both the hands.
- Touch the corresponding finger and bend fingers below the touched fingers.
- Count the number of unbent fingers. Multiply it by 20.
- Multiply the bend fingers of both hand.
- Add 200 to the previous two results to obtain the final answer.



• Multiply the number of unbent fingers with 20.

 $5 \times 20 = 100$

- Product of bent fingers on both hands = 4 × 1 = 4
- Add 200

$$16 \times 19 = 200 + 100 + 4 = 304$$

Trigonometry



Trigonometry



Sin 30 = \vee Finger to the left /2 = 1 / 2 Cos 30 = \vee Finger to the right / 2 = \vee 3 / 2 Tan 30 = \vee (left / right) = \vee 1/3 = 1 / \vee 3



Trigonometry

Sin 45 = V Finger to the left /2 = $\sqrt{2}$ / 2 = $1/\sqrt{2}$ Cos 45 = VFinger to the right / 2 = $\sqrt{2}$ / 2 = $1/\sqrt{2}$ Tan 45 = $\sqrt{(left / right)}$ = $\sqrt{1/1}$ = 1

Glimpses of Workshop through eye of Camera













Honoring Ceremony for Dr. Chandermauli Joshi was organiesed at 5:30 pm as Dr. Joshi has to leave on 22nd June morning. Sh. Ramesh Kumar, Sr. Scientific Assistant officials from HIMCOSTE presented a Himachali Topi and Shawl to Dr. Joshi. Dr. Joshi also donated the different TLM to the participants to use them for the betterment of the students and has given Vedic Mathematics' shorter, quicker and easy to remember techniques which would enable students and teachers to do calculations faster than they would with conventional methods.

"Vedic Mathematics Workshop" Day-4

The concluding day of the workshop started at 10.00 am. The students of GSSS Katindhi, GSSS Nishoo and GHS Riyagari also joined for the second day. About 15 students and two teachers of one more school GSSS Kot Tungal also joined the last day voluntarily after knowing about the workshop through news papers.

The session of Sh. Mehul Kumar Harsora started with brainstorming mathematical problems, Geometrical shapes and angles. Mr. Mehul discussed about the use of technology in teaching of mathematics. Different Apps are available on the Play Store which are very useful for making the subject lively and interesting to the students. The Play Store applications for Physics, Chemistry and other subjects were also shared.

Student's session was conducted by Sh. Dhanraj Kantilal Thakkar. The students also solved the mathematical problems in the groups using Charts, different shapes and learning by doing to understand the subject.

Some of the examples are explained as follows:



Add 18 to the month in which you were born?

January = 1.... **July** = 7

and December = 12

Multiply the result by 25

Subtract 333 from the previous result

Multiply it by 8.

Subtract 554 from your result

Divide it by 2

Add your birth day to the previous result

Multiply your result by 5

Add 692 to it

Multiply it by 20 Add the last two digit of the year, you were born. 75 for 1975 83 for 1983 Wait is over Wait for ever Is it a 5 or 6 digit number? Subtract 32940 from the result. Is it a 5 or 6 digit number? Let the number obtained is xy ab cd Month Date Year

Is it your Date of Birth?

The Valedictory session started after lunch at 2.30 PM.

Sh. Ashok Kumar Sharma, Deputy Director Higher Education Mandi was the Chief Guest on this occasion and Sh. Purshotam Chand Rana, Deputy Director Elementary Education Mandi was the Guest of Honour. Sh. Ashok Kumar Sharma, Deputy Director Higher Education Mandi was honoured by Sh. Ramesh Kumar, Sr. Scientific Assistant, ATC, HIMCOSTE by offering Bouquets, Himachali Topi and Shawl. Sh. Purshotam Chand Rana, Deputy Director Elementary Education Mandi was honoured by Dr. Rajender Kumar Ray, Associate Prof., IIT Mandi by offering Himachali Topi and Shawl.

Sh. Sanjeev Thakur, Science Supervisor Mandi presented the brief report of the 4 days Vedic Mathematics workshop and welcomed the Guests, Resource Persons Sh. Dhanraj Kantilal Thakkar and Sh. Mehul Kumar Harsora, Sh. Rajender Kumar Ray of IIT Mandi, Group of 5 Volunteer Students of the IIT Mandi who worked hard to make the workshop a grand success and all participants in the valedictory session.

In the feedback session of the workshop it was felt by all that such type of Workshop should be organized for Primary Teachers so that the Math Phobia can be minimized right from the beginning. Dr. Rajender Kumar Ray of IIT Mandi declared full support on the part of IIT Mandi to provide knowledge and resource material for benefitting the students in the schools.

The Deputy Directors asked the participants to start and popularize "Mathematical Laboratory" in their own schools, which can be then established in other Schools by the Department. They also directed the DIET officials to take the services of participants of this workshop as a Resource Person in the Trainings of SSA/RMSA.

Participation Certificates and Kits were distributed to the participants and volunteers by the Chief Guest and Resource Persons.

Sh. Ramesh Thakur Senior Scientific Assistant ATC, HIMCOSTE concluded the workshop with Vote of Thanks at 4.00 PM.

Glimpses of valedictory Ceremony through Camera Eye





Feedback

Feedback is the process in which part of the output of a system is returned to its input in order to regulate its further output, and should be an essential part of education, training and personal development. Without proper feedback a vacuum is created which may result in poor grades, lack of interest and loss of strategy and direction. So the feedback of participants has been taken during the workshop on the basis of which graphical analysis has been made. Feedback forms are attached at **Annexure B**.

1) Feedback of Participants of main resource persons Dr. Chandramouli Joshi, the Chairperson of Ramanujan Maths Club.



2) Feedback of Participants of Sh. Dhanraj Kantilal Thakkar, Joint Secretary Ramanujan Maths Club



3) Feedback of Participants for Dr. S. Singh, who assisted the main speakers of the workshop.



OVERALL FEEDBACK OF THE WORKSHOP:



Learning Outcomes

- It eradicates fear of Math completely. So if your child has Math-Phobia High Speed Vedic Math is a Fun-Filled way to do Math and arises interest in your child.
- Sharpens your mind, increases mental agility and intelligence.
- Increases your speed and accuracy. Become a Mental Calculator yourself.
- Improves memory and boosts self-confidence.
- Cultivates an Interest in your for numbers.
- Develops your left and right sides of your brain hence using intuition and innovation. It has been noted that Geniuses have been using the right side of the brain to achieve exceptional results.
- Easy to master and apply. Much Improved Academic Performance in School and Instant Results.

Media Coverage of Vedic Maths Workshop

आइआइटी मंडी में वैदिक गणित पर कार्यशाला शुरू

जागरण संवाददाता, मंडी : हिमाचल प्रदेश विज्ञान प्रौद्योगिकी एवं पर्यावरण परिषद शिमला की ओर से गणित शिक्षकों, बीआरसी, शिक्षक प्रशिक्षण प्रभारी डाईट मंडी और मंडी जिला के छात्रों के लिए चार दिवसीय वैदिक गणित कार्यशाला का आयोजन आइआइटी मंडी में एनसीएसटीसी, डीएसटी भारत सरकार के सहयोग से आयोजित कर रहा है। डॉ. चंद्रमौली जोशी अध्यक्ष एआइआरएमसी गुजरात, डॉ. सत्यवीर सिंह प्रधानाचार्य एसएनआइ कॉलेज पिलाना बागपत उत्तर प्रदेश, धनराज कांतिलाल ठक्कर संयुक्त सचिव अखिल भारतीय रामानुजन समिति गुजरात कार्यशाला के वक्ता हैं। डॉ. चंद्रमौली जोशी गणित जीनियस अवार्डी हैं। वैदिक गणित गणितीय अंकगणित को आसान और तेज तरीके से हल करने के लिए सुत्रों का एक संग्रह है। इसे भारतीय गणितज्ञ जगद्गुरु भारती कृष्ण तीर्थजी द्वारा खोजा गया था। कार्यशाला आसान और रुचिकर तरीकों से गणित की समस्याओं को हल करने के उद्देश्य से आयोजित की है। कार्यशाला में 150 הוא בלד ביותי שווים ליום ליו

22 जून तक आयोजित होगी कार्यशाला

मंडी। हिमाचल प्रदेश विज्ञान प्रौद्योगिकी और पर्यावरण परिषद शिमला ञणित के शिक्षकों, बीआरंसी शिक्षक प्रशिक्षण प्रभारी डाइट मंडी और जिला मंडी के छात्रों के लिए चार दिनों की वैदिक गणित कार्यशाला 19 से 22 जून तक आईआईटी कामंद, मंडी में एनसीएसटीसी एडीएसटी भारत सरकार के सहयोग से आयोजित कर रहा है। डॉ. चंद्र मौली जोशी अच्यक्षए एआईआरएमसी गुजरात, डॉ. सत्यवीर सिंह, प्रिंसिपल एसएनआई कॉलेज, पिलाना, बागपत, यूपीए धनराज कांतिलाल टकर, संयुक्त सचिव, अखिल भारतीय रामानुजन सोसायटी, गुजरात कार्यशाला के वक्ता होंगे। डॉ चंद्र मौली जोशी, गणित जीनियस अवार्डी और अध्यक्ष, अखिल भारतीय रामानुजन सोसायटी, गुजरात कार्यशाला के प्रमुख वक्ता होंगे। वैदिक गणित गणितीय अंकगणित को आसान और तेज तरीके से हल करने के लिए सूत्रों का एक संग्रह है, जिसे भारतीय गणितज्ञ जगदुरु भारती कृष्ण तीर्थजी द्वारा खोजा गया था। यह कार्यशाला आसान और रुचिकर तरीकों से गणित की समस्याओं को हल करने के उद्देश्य से आयोजित की जा रही है। इस कार्यशाला से मंडी के लगभग 150 छत्र और शिक्षक लाभान्वित होंगे। यह कार्यशाला सदस्य सचिव डीसी राणा, हिम्कोस्ट, शिमला के मार्गदर्शन में आयोजित की जा रही है।



गणितीय समस्याओं का किया समाधान

आई.आई.टी. कमांद में वैदिक गणित कार्यशाला शुरू

मंडी, 20 जून (स.ह.): आई.आई.टी. कमांद में वैदिक गणित कार्यशाला दूसरे दिन सुबह 10 बजे वक्ताओं अध्यक्ष रमण साइंस एंड टैक्नोलॉजी फाऊंडेशन डा. चंद्रमौली जोशी और अखिल भारतीय रामानुजन मठ क्लब के संयुक्त सचिव धनराज कांति लाल ठकर के संयागत और संक्षिप्त परिचय के साथ संजीव टाकुर विज्ञान पर्यवेक्षक मंडी ने शुरू की। माध्यमिक पाठशाला करसोग की रेखा ने पहले दिन की गतिविधियों की रिपोर्ट प्रस्तुत की तथा डा. चंद्रमौली जोशी द्वारा सरकारी वरिष्ठ माध्यमिक पाठशाला कमांद के 9वीं कक्षा के



मंडी: आई.आई.टी. कमांद में आयोजित वैदिक गणित कार्यसाला के दौरान हिस्स लेते शिक्षक व छात्र।

छात्र मास्टर जतिन और सरकारी मार्ध्यामक पाठशाला घ्राडता के टी.जी.टो. संदीप कुमार को गणितीय समस्याओं के त्वरित समाधान के लिए छात्रों और शिक्षक की श्रेणी में बैज और रामानुजन मठ क्लब की सदस्यता से सम्मानित किया।

इस कार्यशाला में 50 गणित शिक्षक, आई.आई.टी. कमांद के गणित विभाग और सरकारी वरिष्ठ माध्यमिक पाठशाला कमांद, कटौला व नालन के 50 छात्रों ने भाग लिया। छात्रों ने आई.आई.टी. कमांद की प्रयोगशालाओं का भी दौरा किया। कार्यशाला के तीसरे दिन सरकारी वरिष्ठ माध्यमिक पाठशाला कटिंडी, निशु और सरकारी माध्यमिक पाठशाला रियागढ़ी के 50 छात्र भाग लेंगे।