



Workshop Feedback Form

Workshop : Mathematics workshop for grades 6 to 10.

Workshop Date :18/08/18

Venue : BBPS Training Centre, Pitampura

Attended by : Mr. Anoop Dixit (PGT Mathematics)

Ms. Subha Renakumar(TGT Mathematics)

Resource Person: Prof. Inder K Rana

Organizer : BBPS Training Centre, Pitampura

Profile of the Resource Persons: Professor

Dept.of Mathematics

Indian Institute of technology Bombay

Powel ,Mumbai

1.Content of the Workshop: **Session-I**

Topic: Number system

The session started with an introduction of Various Number system and the history of number system. The one to one correspondence which exists in Number system was very well explained with the help of Pigeon Hole Principle. The same was supported by a PPT presentation. Discussed about the evolution of Integers, Fraction and Rational numbers. Detailed discussion was done on Integers and the famous quote” God made Integers and rest is work of man. He modified definition of Rational numbers as $Q = \{ m/n, m \in Z, n \in N \}$. Professor also emphasized the need of encouraging the students for Abstract Thinking, which is very much a part of the subject as many things in Maths we cannot show physically like negative integers , $2/-3$ etc.

Session-II

Topic-II : Irrational Numbers

Professor started this session with the history of Irrational numbers and the contribution of Richard Dedekind and George Cantor in the evolution of a unique number system “ Irrational numbers “ in the year 1842. He also talked about the completeness property of Rational numbers by taking the area of a region enclosed by a unit circle.

In this session, he emphasized the need of finding a best approximation for the Irrational number π as it is very much required to calculate area of any non rectilinear figures. Professor encouraged the teachers for more technology based teaching in the class room. He also insists the usage of the software **GEOGEBRA**, specifically for teaching geometry related topics. He also demonstrated the use of the software by taking the following examples

- i) how to find out a better approximation of π by finding area of a polygon enclosed in a unit circle.
- ii) To find out the figure obtained by joining mid points of a quadrilateral. Using this software we can show the resulting figure by taking the points in different planes which is not possible in a black board.

Professor explained a few interesting alternate methods for proving the Irrational numbers $\sqrt{2}$ and $\sqrt{3}$.

Session III

Topic: Sets and Co-ordinate geometry

In this session professor discussed about Finite and Infinite sets. Explained an interesting one to one correspondence between Integers and Natural numbers to show the number of elements in both infinite sets are same.

Professor introduced Coordinate Geometry by taking examples from real life situation. He also specified that Coordinate axis could have been taken as non perpendicular lines too.

Session IV

This was an activity session. Teachers were given the following activities to perform.

- i) Converting a 2D figure into a 3D figure by paper folding and to see the amount of paper wastage in the process.(making a paper box without any cutting of the paper)
- ii) Making a cone with maximum capacity.
- iii) Creating a word problem or a story from a given equation.
- iv) Identification of all possible Polyminoes(an arrangement of adjoining square pieces) ie; Monomino, Domino, Tromino and Pentomino etc using two, three, four and five square pieces.
- v) Making Time and Distance graphs from a given situation.

2. Learning outcomes (Knowledge and Information) from the workshop?

- History of number system and the contribution of great Mathematician in the process.
- Alternative methods which we can be adapted in the class room to prove Irrational numbers.
- The need of a better approximation for the value of Pie.
- The importance of hands on activity to make the Mathematical concept more clear.

3. Which topics or aspects of the workshop did you find most interesting or useful and can be applied to the classroom teaching?

- The one to one correspondence between different number system.
- The Alternative method to prove Irrational numbers.
- The abstract nature of the subject .
- Application of Coordinate Geometry in Defence, Geography etc.
- The software GEOGEBRA and its usage in Geometrical topics.

4. How will you implement the knowledge & techniques acquired to your subject?

- More alternative methods to prove Irrational numbers can be discussed in the class room
- Students are to be encouraged to do more Hands on activity to verify some important concepts.
- More questions based on creative thinking to be included In the syllabus.
- Students are to be encouraged for more technology based learning.

5. Comments and suggestions (How do you think the workshop/Seminar could have been made more effective?)

The workshop was very well planned and indeed an enriching experience for the teachers who are teaching middle and secondary classes.

6. Was the advance briefing about the workshop/Seminar appropriate?

Yes, the advance briefing was completely appropriate.

GENERAL FEEDBACK	YES	NO	NOT SURE
• The workshop/Seminar was applicable to my job	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
• I will recommend this workshop/Seminar for other faculty members.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
• The program was well paced within the allotted time	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
• The material was presented in an organized manner	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
• The resource person was a good communicator	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
• The resource person was knowledgeable on the topic	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
• I would be interested in attending a follow-up, more advanced workshop/Seminar on this same subject	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
• I will be able to conduct follow up workshop for the benefit of fellow Staff Members	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

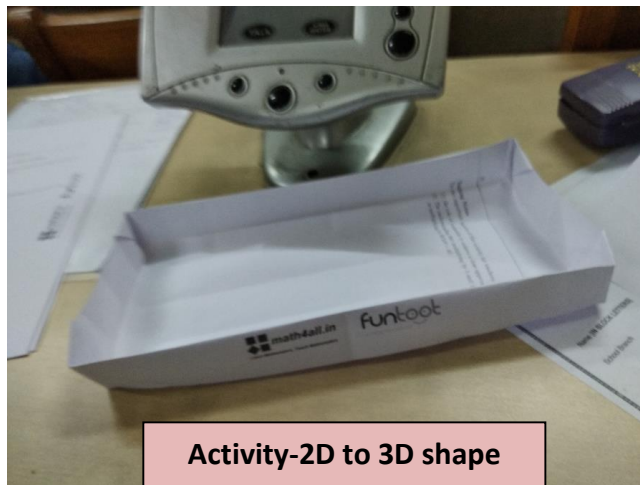
GLIMPSES FROM THE WORKSHOP



Presentation by Resource Person



Workshop in Progress



Activity-2D to 3D shape

Compiled by : S.Renakumar & Anoop Dixit