



# Summer Fields School

**Kailash Colony, New Delhi - 110048**

## REPORT

**Workshop Title :** Capacity building Program on **Mathematics**

**Organizer :** CBSE

**Date :** 10th & 11th May ,2023

**Venue :** GOOD SAMARITAN SCHOOL, NEAR JASOLA, NEW DELHI

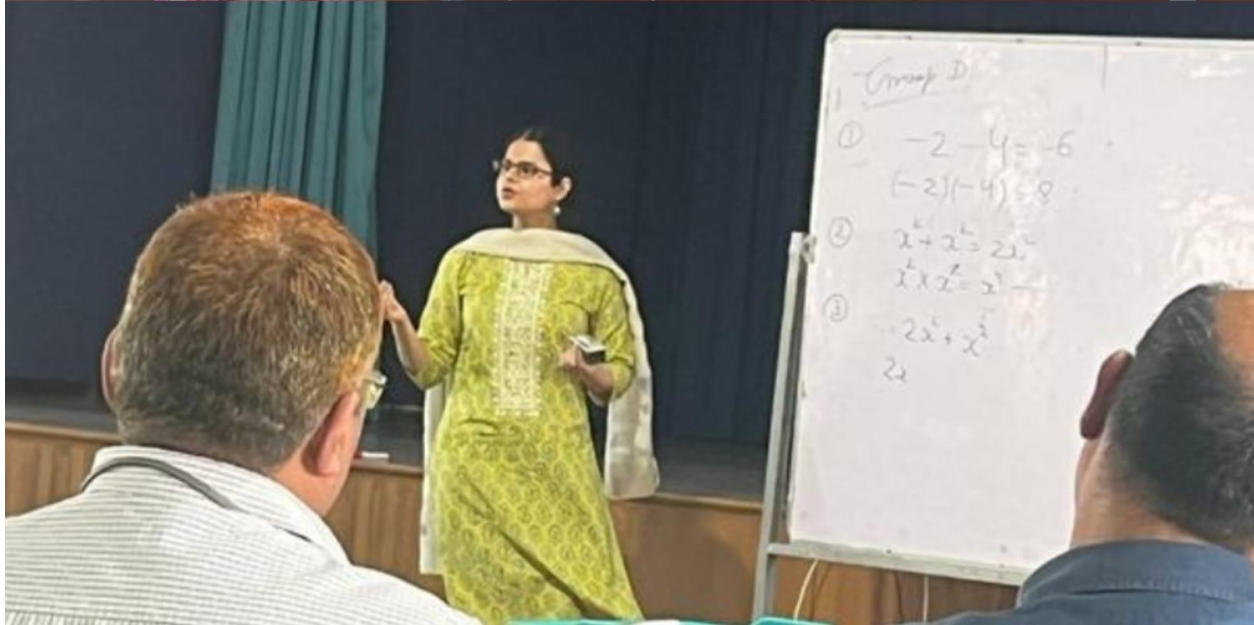
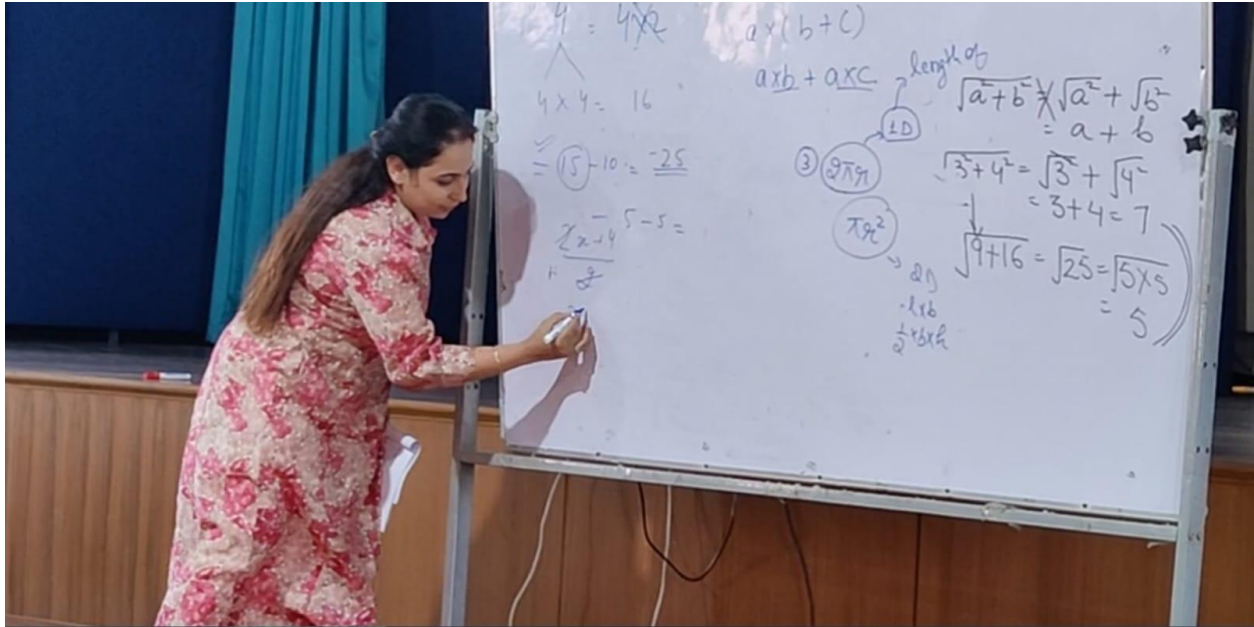
**Resource Persons :** SUBHASH RAUT ( Member of NCERT)  
RAHUL KUMAR ( Member of NCERT)

**Attendees :** NANCY, RITU SAINI, SHAILY BHATI, CHESTHA SACHDEVA, RITU KUKREJA, VEENA VYAS, RITA ARORA

**Content :** Speaking on the occasion, Mr. Subhash Raut said “With the learning, there is a strong need of unlearning, relearning how to teach the new generation students in this highly technological world. Teachers in this liquid society must be ‘a meddler in the middle’ and the process of teaching is mutual learning for both teachers and students. We should move from the attitude of ‘I do, you do’ to an effective and inclusive approach of ‘we do’.” He felt that availability of all information at the click of the mouse for the students made the 21st century teaching a very challenging one and teachers should mould themselves to the required environment. He gave some informative examples of how unlearning can be used to understand, rectify, and avert the teaching collapses to some extent.

The first session commenced with a brief presentation by Mr, Subhash Raut . He emphasized on various methods of teaching Mathematics text books in innovative and productive ways, learning outcomes in Mathematics and some common errors made by students in the mathematics learning process. All the attendees were divided into seven groups having six teachers in each group.

One member from each group had to present the common errors made by the students and the remedial ways to rectify them.



This session was followed by a challenging and creative worksheet on designing mathematical concepts with art integration . It was emphasized that topics should be taught using Heuristic Method so that the students discover various methods by inductive approach.





In the next session Mr. Rahul Kumar demonstrated an appropriate way of framing questions , especially multiple choice questions.

### Guidelines (recommendation) for MCQs

- Assess concept/skill worth assessing
- Age-appropriate language** and easy to comprehend
  - Use simple tense and active voice.
  - Avoid irrelevant information as far as possible.
- Distracters are well defined, plausible and discerning**
- The **context** used in a question is apt and something students can easily relate to and engaging. No bias
- Options are arranged in increasing or decreasing order of numbers or word length to avoid guessing.**
- Good to keep calculations as simple as possible
- Good to restrict questions with negatives (not) especially the ones of 'double negative' form. Highlight the negative term if using
- Labels in figures are NOT matching with that in options and question text.
  - Avoid labelling objects as A, B, C and D if options are labelled as A, B, C and D.
- Better to restrict use of options as –none of the above, all of the above unless capturing a misconception

### Questions should assess the concept at varying cognitive levels as per the Bloom's Taxonomy

Identical hollow cylinders are cut along a line and opened out. In the figure below the cut is along a slant line. A cylinder could be cut along a vertical line or a slant line as illustrated in the figure. What is the relationship between areas of the sheets obtained in general? The cut along what type of a line results into shapes of the sheets as congruent? Justify your reasoning.

**Create**

Tina and Rita take two identical hollow cylinders. Tina cuts her cylinder along a vertical line and opens out. Rita cuts her cylinder along a slant line and opens out. Rita says her sheet is of greater area than Tina's sheet since the slant line is longer than the vertical line along which the cuts are made. Is Rita correct? Justify your answer with detailed reasoning.

**Evaluate**

A hollow cylinder is cut along a slant line as shown and opened out. The sheet is in the shape of a parallelogram.

**Analyse**

Which of these can be found from the given information? Put a tick against. Justify

- length PQ
- length PS
- area of parallelogram PQRS
- distance between PQ and SR

**Apply**

The circumference of the circular cross-section cut horizontally in the solid cylinder below is 44 cm. Its radius is 7 cm. If the height of the cylinder is 10 cm, what is the surface area of the cylinder?

**Understand**

Find the surface area of the cylinder with the diameter of circular base as 7 cm and the vertical height as 14 cm?

**Remember**

What gives the surface area of a cylinder of radius of its circular base  $r$  units and the vertical height  $h$  units?

### CLASSICAL TEST THEORY

- Why do we analyse items?**

1. Improve the quality of items  
2. Construct a test that functions well
- What all item analysis tells us?**

1. An item is too easy or too difficult?  
2. An item is discriminating well?  
3. MCQ distracters are working?  
4. The overall test is of the right level for the students?
- What all we look at?**

### Difficulty level

Percentage of students getting the item correct

$$\text{Difficulty index} = \frac{\text{Number of correct responses}}{\text{Number of students taking a test}}$$

### Learning outcomes :

- Exposure to innovative methods for making Mathematics interesting and easy for the students so that they can learn it in a play way manner.
- Sharing interesting experiences and stories from day to day life to make the topic relevant and interesting.
- Setting up clear goals for expected learning outcomes.
- Pedagogical process should be age appropriate, inclusive and time bound.
- Practice practical classroom strategies that lead help the students to understand the concepts better ,thus leading to their success .



The whole workshop was enriching and interesting. Open discussion amongst the Mathematics teachers from various schools was very fruitful and resulted in exchange of views about the day to day problems faced by the teachers in classrooms .





Special thanks to our Principal Ma'am Ms. GEETA KARUNAKARAN.

Report submitted by : NANCY

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Principal