BAL BHARATI PUBLIC SCHOOL, NOIDA
FOLLOW UP WORKSHOP REPORT

Date: 30th June 2016
Venue: Physics Lab, BBPS, Noida
Objective: Follow up on "Capacity Building Programme for TGTs of Mathematics Covering Upper Primary and Secondary Classes"

Teachers Attended: Ms. Anjali Sharma PGT
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A follow up on the Workshop on Capacity Building Programme for TGTs of Mathematics Covering Upper Primary and Secondary Classes was conducted by Ms Deepika on 30th Jun 2016 at Physics Lab, BBPS Noida. Participants of this follow up discussed and deliberated in details the various topics covered during the 6-day workshop conducted at BBPS Training Centre Pitampura. The topics are summarized as below –

Mathematical Proficiency: By being proficient in mathematics it is meant that our students should have clear conceptual understanding; they should be able to develop and identify various interconnections between the concepts and derive various results using inductive and deductive reasoning.

Mensuration: The difference between the indeterminate and undefined forms in mathematics was explained. The definitions of conjectures and axioms were discussed. It was attempted to find the proofs of various conjectures and concluded that patterns could not be used always for generalizing the results as there were some patterns which failed after a few steps.

Geometry: Emphasis should be laid on creating such an environment for the children, that they can derive the geometrical results on their own. We should relate the Geometrical concepts with the surroundings of the students for their better understanding. We should use the seven skills that contribute to spatial sense and frame the questions with an objective to enhance those spatial skills. Van Hiele Stages of Geometrical Understanding were discussed to understand the child psychology and different stages through which a child goes in his/her learning of geometry.

Teaching of Number Systems: For children numbers are just symbols and they cannot relate to them unless they are able to connect the numbers with their surroundings. We should provide context from the surroundings of the child to enhance his/her understanding of mathematics.

In teaching of Number system, we follow a hierarchy, therefore before introducing the next concept; we should create such situations in the classroom that the child himself feels the need of the new number system.

Preparation of Question Paper: While preparing our Question Paper we should keep in mind the kind of Process strand we follow. Our question should be based on any one of the following Process strands:

1. Conceptual Understanding
2. Procedural Fluency
3. Adaptive Reasoning
4. Strategic Competence
5. Productive Disposition.

We should follow the Bloom's Taxonomy and make sure that our question paper is a good blend of all types of questions.

Teaching Mathematics through non routine problems: We could design an interesting activity in which students are to relate each date of the month with some interesting facts related to mathematics and also the other subjects.

For example: The number 13 can have the following properties.

13 is an odd prime.

There are total 13 Archimedean Solids.

13 is prime and so its reverse 31. Also $13^2 = 169$ and $31^2 = 961$

13 is a Fibonacci number etc.

Through such kind of problems we can encourage children to think differently and make them curious.

Rational Numbers and Their Extension: We should discuss with students such real life situation in our classes which involve use of rational numbers.

Ratio proportion, linear inequalities and equations: It was advised that instead of providing the direct formulae of Simple and Compound Interest, we should derive them with students in order to enhance their understanding. We should involve learners and ask them to frame the questions on their own.

For discussing problems related to profit, loss and discount we can use articles and advertisements from newspapers in order to relate the chapter with the surroundings of the students.

Fun and Creativity with mathematics: The first activity we did was 'Name Game' which can be used either while introducing the chapter or at the end of the chapter. In this activity we can ask students to write down their name vertically on a paper and then in front of each alphabet write mathematical terms learned in the chapter and explain it.

The second Activity we did was 'Making a Balloon Tower' using Balloons, Newspaper and Tape only. The main aim of this activity was to make student understand that the base of a building is most stable when it is triangular in shape.

At the end we tried to make various polyminos and solved puzzles based on them.

Geogebra and Desmos: These are thelatest software called Geogebra and Desmos which can help in making maths come alive.

The first software discussed was Desmos. It is an online Graphing calculator that can be used to plot different graphs involving complex equation. The software can really help in bringing out the creativity of the students.

The second software discussed was Geogebra. It can be used offline also. In Geogebra we can construct various figures and show the variations. For example: we can prove the Pythagoras theorem for n-polygons using variation in Geogebra.

Various websites we can refer to make our teaching more interesting and technology based are

www.geogebra.org
www.mathopenref.com
https://dynamath.wikispaces.com
www.learn.desmos.com

Conclusion: All the teachers agreed that most of the methodologies and tools listed above were already being followed and implemented in teaching of Mathematics in BBPS Noida. However, tools like Geogebra could be useful to make Mathematics Class more interesting and it would be an enriching experience for both the teacher and the taught.

Also a few of the topics discussed above would be used while designing FA activities and Holiday home work.

Deepika