



## Bal Bharati PUBLIC SCHOOL

Address : Sector – 21, Noida  
Phone : 0120-2534064, 2538533 / E-mail : bbpsnd@yahoo.co.in  
Website : <http://bbpsnoida.balbharati.org> Affiliation No: 2130422

### Workshop Feedback

**Workshop title: Capacity Building Programme-‘STEM’**

**Date: 28.06.2019**

**Venue:** Delhi Public School, Noida

**Attended by:** Ms.Indula.Mishra, Mr.Umesh.Verma & Ms. Neerja.Bhatnagar

**Resource Person :** Dr.Amitabh Sharma and his team members.

**Organizer:** CBSE

**Profile of the Resource Person:** Dr. Amitabh Sharma, PhD, CEO - STEM Academy of USA, Inc.

Under the aegis of CBSE, a one day workshop on STEM was organized at Delhi public School, Noida on 28<sup>th</sup> June 2019. It was attended by 70 TGT's and PGT's from different backgrounds of Physics, Chemistry and Biology of Noida and Ghaziabad regions. The workshop was divided into two major sessions- Pre-lunch and Post lunch sessions.

The session started with a warm welcome by the Coordinator. Dr Amitabh Sharma, the resource person emphasized on the importance of training for the teachers. Teachers need workshops to upgrade themselves in present education system especially for teaching with an integrated approach.



Bal Bharati team with the resource person

**PRELUNCH SESSION-Resource Person –Team of**

**Dr. Amitabh Sharma.**

- An introductory session was given on the interdisciplinary fully experiential learning and teaching of Science and Math interspersed with Engineering and Technology which can inspire school students to innovate by developing critical and out-of-the-box thinking.



Hands-on activity- Vital Capacity of lungs

- **Activity 1-Measuring vital capacity** -A module was screened explaining the role of lungs and how they work. This helped us to further integrate biology with Mathematics through calculation of diameter from circumference ( $C=2\pi r$ ) of an inflated balloon and then finding the radius. This helped us to calculate volume ( $V=4/3\pi r^3$ ). Then a graph was plotted against volume vs diameter.

**Research has shown that the capacity of a person's lungs is proportional to the surface area of his body and his height.**



Working on Respiratory System model

- **Activity 2-** One of the team member, Ms Deepti Agrawal, introduced an activity to prepare some innovative devices like preparing a respiratory model from plastic bottle, balloons and straws which can be very useful for Classes VI-X .These models can help us to build concepts in children leading to better understanding of topic.
- The pollutants affecting us were also discussed later with the information of PM2.5 being very harmful which is 2.5 micrometer in size. These enter our lungs and cause great damage. So a mask was designed by each team out of materials chosen from the list. Each mask was further tested by blowing dust twice and thrice over the mask.

#### **POST LUNCH SESSION-**

The session was based on the brief introduction to the new challenge “ follow Nature – Engineering Bio- Inspired Protective Gear”.

In this session Mr. Amitabh Sharma enlightened us about the injuries in surrounding area through multimedia.

He differentiated between biomimicry and bio-mimetic design and his team member Ms Deepti given an activity to learn how to incorporate bio-mimetic design into constructing a helmet. In this materials like card board , thread ,tape, foam and a boiled egg was provided. The Helmet was then tested by using a raw egg.



Experiential learning in process with STEM Team

## POST TEA SESSION –

Brief overview on the challenge:

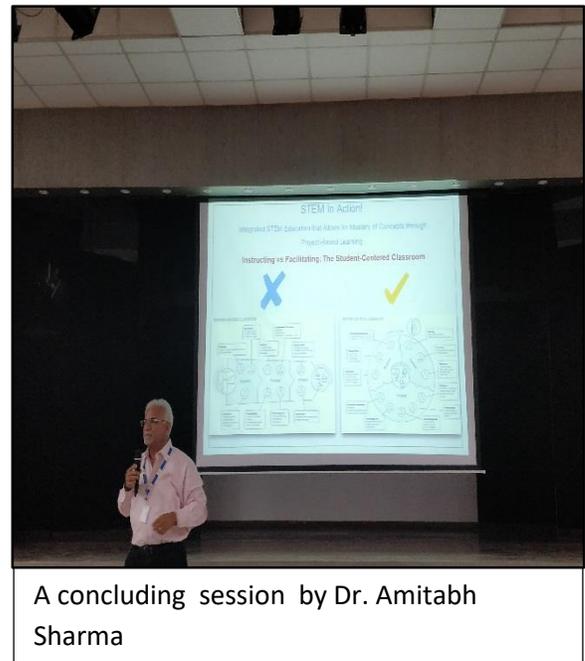
### **Automatic Street Light Control System”-**

It involved basic introduction about Voltage , Current and Resistance using circuit. Types of connections , parallel and series using circuitry. Difference between A.C. supply and D.C. supply and their applications.

Understanding of the transistor and LDR through Multimedia. Solutions of the problem using the understanding and designing of circuit. Showcasing of the circuit and understanding the scope of improvement.

Based on the above concept the following activities were undertaken

- Making a dimmable LED and fan circuit using potentiometer.
- Dark sensor using LDR and Transistor.



Overall the workshop was very informative which gave an interactive and engaging experience to support classroom-based Science, Technology, Engineering and Maths. A range of soft skills such as teamwork and communication complemented the academic elements to give learners a comprehensive overview of this exciting area. The hands-on solutions were found to be age appropriate and were designed to ignite the students natural desire to explore and discover.

The theme ‘**Educate to innovate**’ was just apt with the sessions taken. It truly sent a message across that Inspire, Explore and Innovate should be the mantra for teachers teaching the students to prepare for the future challenges of life.

Ms Indula Mishra

Mr Umesh Verma

Ms Neerja Bhatnagar