

REPORT OF THE FIVE-DAY CAPACITY BUILDING PROGRAMME AT IIT GANDHINAGAR

Schedule of the Programme

- **Date: 25.9.2023 to 29.09.2023**
- **Destination: IIT-Gandhi Nagar, Gujrat**
- **Stakeholders: Maths and Science TGTs of DOE**
- **No. of Participants attended: 100 (TGT Maths & Science, Officers of DOE & 2 DIET faculties**
 - **Coordinators: Dr. Laxmi Dagar, Asstt. Prof. DIET RK Puram & Dr. Ruchi Sharma, Asstt. Prof. DIET Rajinder Nagar**

Day 1 (25/09/23)



Our today's session at IIT GANDHI NAGAR started today after breakfast around 9:40 AM at academic block AB- 2 /101, Near JasuBhai Auditorium.

* Session began with mindfulness and chanting of Gayatri mantra by one of our colleagues. After that ABHIJEET Sir (Coordinator) began the session by showing an activity of how to arrange cards showing various alphabets sequentially in the fastest way by using the concept of binary numbers.

*After that the session was taken over by Mr MANISH JAIN sir who is the head of CCL (Centre for Creative Learning). He gave an introduction about CCL and showed us the processes of simple calculations and their necessity, like divisibility rules.

- * At 12 pm after a small tea break JAY THAKKAR Sir took over the session where he shown us some interesting activities like using a straw to produce whistle sound and another activity using a straw to produce whistle and a fountain.
 - * After lunch at 2:00 pm. ADITI started the session with an energizer. She discussed how around 75000 students of KGBV of UP learnt through online training sessions to develop Critical thinking among students to understand science in every aspect.
 - * Space filling curve activities by using paper Jhaller cutting, making equilateral triangles, paper puzzles and similar activities were undertaken.
 - * Final session was taken by JAY Sir again where he discussed the basics of Arithmetic and science behind the sound production by the straw and the session concluded with the discussion on the outline of a 5 days training program.
- Some Homework were assigned as -
- #Why A4 sheet length has length and breadth 29.7cm and 21.0 respectively?
 - #equilateral triangle out of a sheet.
 - # How can we make the largest equilateral triangle from a paper?
 - #Some sheets were given to fold them in a way to cut different figures out of them by cutting through a single line.



DAY- 2(26/09/2023)



* Our today's session at IIT GANDHI NAGAR started today after breakfast around 9:40 AM at academic block AB- 2 /101, Near Jasu Bhai Auditorium.

* Session began with chanting of Ganesh Vandana by one of our colleagues. After that Sir Nisha Ma'am and Shrisha Bhatt Sir began the session by showing an activity of Electrochemical Cell and Electrolysis along with the story of Luigi Galvani about movement of frog legs due to animal electricity.

* After lunch at 2:00 pm Mr. Shanu and Ms. Astha started the session with an energizer. Firstly Ms. Astha introduced the participants with Activity on the making as well as reasons behind the working of DC Motor and BLDC Motor. Which was a very interesting as well interactive session. Then Mr. Shanu explained the topic in detail and also shown us the various instruments and devices he made.

* Final session was taken by JAI Sir again where he discussed the basics of GeoGebra and. Concept of Cylinder and Since Wave Area.

Home Work -

Is it possible to get a pentagon, hexagon and other shape from a cube of potato by a single cut?



DAY-3(27/09/23)



1) Our day began with an experiment guided by Abhijeet sir. He gave us a cresol red solution which turned pale yellow by blowing carbon dioxide gas into it through a straw. On adding small discs of money plant leaves it turns red again after 3 to 4 hours. Reason was the removal of carbon dioxide by the bits of leaves.

2) Next was an experiment with spinach leave discs and syringes Sreesha sir demonstrated to remove the air trap inside the leaves by creating partial vacuum and decreasing the surface tension of water. Next we saw the fluorescence in molecules of chlorophyll and other pigments and then we did an experiment of chromatography to separate various pigments found in a leaf using acetone and hexane mixture.

3). Next experiment was the Vaseline polybag experiment where we demonstrated transpiration in leaves and after those experiments there was a tea break and then the next session was in a computer lab where we used a GeoGebra app to write a simple program or code for a falling ladder. Neha mam taught us the basics of that app and then Jai sir explained how physics and mathematics are getting married by giving various examples.

4). Next session was again in the CCL lab where Rashmi mam discussed about astronomy in daily life, especially Equinox which led to a long discussion on rotation and revolution of planets around the Sun. Our final session was in the learning room where Dhiraj Bhatia sir talked about cancer and how the team here in IIT Gandhinagar is developing technology to diagnose it in early stages.



DAY -4(28.09.2023)

Day 4 of our training started with the gayatri mantra

First session was conducted by Rashmi mam on astronomy in our daily life

We got to know about seven stars, story behind Arundhati and Vashist rishi

Some websites like cellarium web and Nasa eyes for the best experience of stars and astronomical world

We discussed solar system and the distance between planets and sun and how we can represent it in class

Then we got answers of some questions like what if earth wasn't tilted? And there after effects, changes in seasons etc.

After tea break Jai sir summarized the whole day plan and other activities

Then Sirisha sir and Nisha mam discussed day 3 experiments and their results

Then we got to know behind the amazing chemistry behind the burning of candle

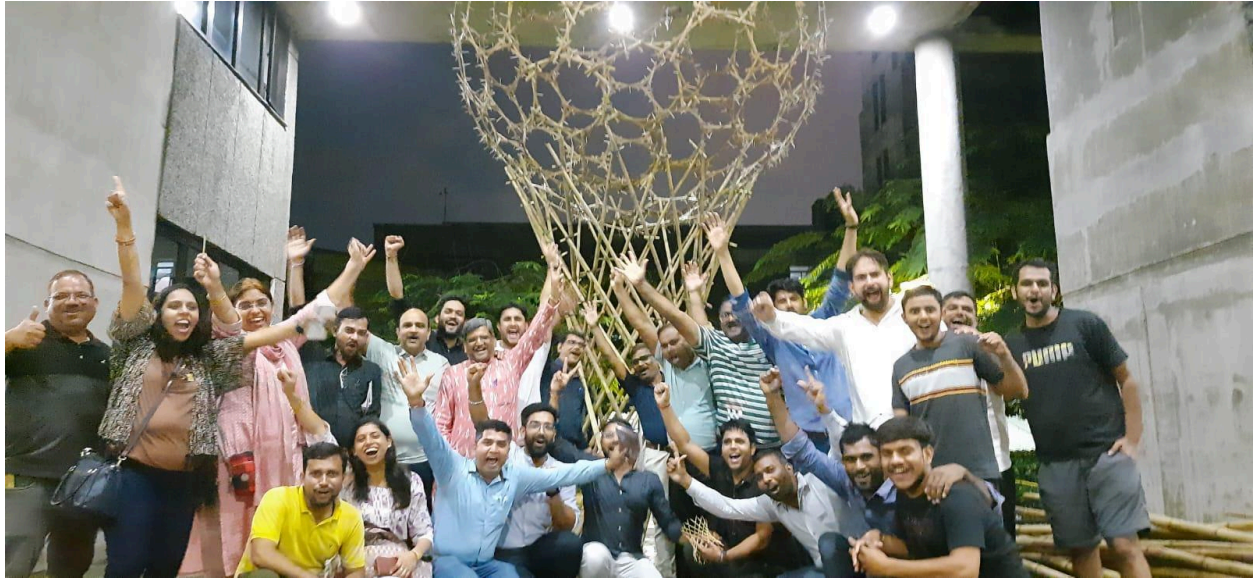
Many cases were discussed about candle,

We discussed different waxes candles are made of, what burns in a candle, formation of vapor wax, different temperatures of flames, two candle and three candles' experiments

We were given homework to find the volume of O₂ used in tumbler

An activity of turning lime water milky was also performed .Then we did the tasty lunch

After lunch Sh. Manish Jain sir took the session and motivated us and guided towards the right way of learning, and how we can reflect it to students and how much it is important to have curiosity inside us , to ask questions and to seek the reasons behind every thing Sir cleared the divisibility rule of number 3 and gave the homework for number 11. After second tea break Shilpa mam took the session and we all made some contribution towards the learning of these 5 days We all made our structures and a big exhibit was made by the team . It was a very joyful day and we all enjoyed the sessions and activities that took place



DAY-5(29/09/2023)



The day starts with morning assembly and after the assembly Mrs. Nisha starts the lecture with the topic named as Platonic and Archimedean Solids. An Activity was performed where we made different shapes with paper cutouts. Explaining the Topic Mrs. Nisha marked some important points like Platonic Solid are made up of the same shape and are strictly convex structures. There are only five Platonic Solids. Archimedean Solids are formed by combining different Platonic Solids. Then Mr. Manish Jain continued the lecture with the topic Calendar. He focused on the variations observed and differences between Indian Calendar and Modern Calendar. He continued by explaining about the Swaminathan story of wheat where we discussed the wheat MSP estimation and also about Swaminathan proposing 50% profit for farmers. Then Mr. Abhijit took over the lecture by performing various activities each having a unique physics behind it like lie detection machine based on density concept, sound toys made up of pipe and card, Sparrow toy making sound with water, Shankh made up of bottle head, rubber pipe and straw, maglev train concept, thermometer made with liquid and glass tube, concept of swinging of ball in cricket, centrifugal force, syringe generator, tip top puzzle, different mechanics performed on cycle. Then Mrs. Shilpa continued the lecture explaining the probability of getting the correct time in a clock which has similar hands for hour, minute and second. Then **Dr. Ashoke Sen, a renowned** theoretical physicist, made a special guest appearance and had a little chit-chat with us. After that graduation ceremony was performed by making different types of caps with the help of newspapers. At the end a group photo was taken leaving everyone with an unforgettable memory.

