School Outreach, Frazer Town

Date: 19th August 2017
School: Government Urdu Higher Primary School, Frazer Town
Students: 60+ (9th & 10th)
Time: 9:30 AM to 12:45 PM.

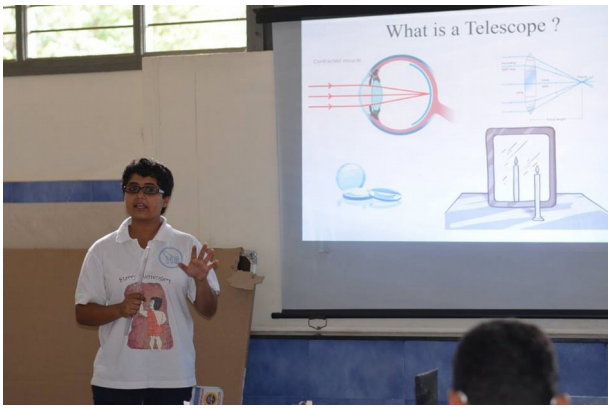
Program Outlines:
In this outreach we conducted following events:
a) Interactive Talk : Introduction to different scales in our universe
b) Telescope explanation
c) Demonstrations: 1) Waves 2) Solar Eclipse and Black Holes
d) Telescope Session.

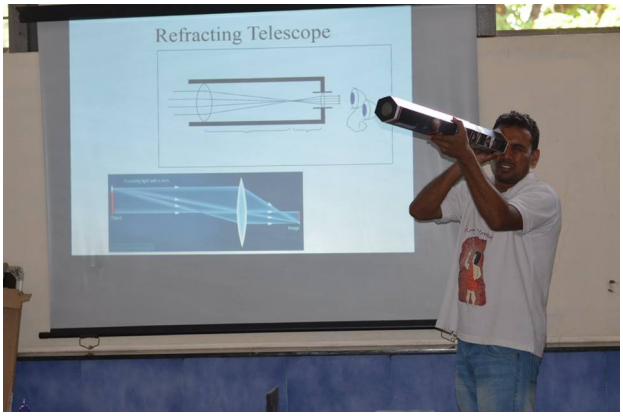
Events (b) and (c) were conducted in parallel.

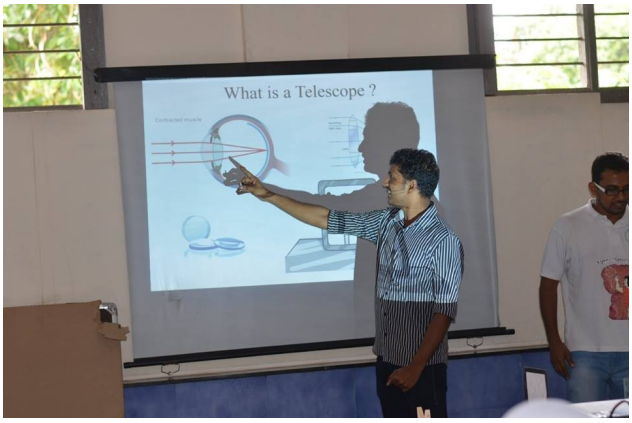
Details:
9:45 AM to 10:30 AM:
a)Interactive Talk : Introduction to different scales in our universe
We started with interactive talk which was presented by Akanksha. In this talk she made students to have virtual journey from Sun; Planets in our Solar System; Solar System; Other Stars in our galaxy, Groups of Stars; Other Galaxies; Clusters of Galaxies and then finally to large scale structures of the Universe. She also made a good sense of analogy so that student can connect with terrestrial objects like sizes of planets with different sizes of fruits, vegetables etc.

10:45 AM to 12:15 PM:
During this time we had two major parallel sessions each conducted for 45 minutes twice.

b) Telescope Explanation(Ramya, Nirmal and Varun) : In this session we showed images taken by Hubble space telescope and asked whether they are real images. Further we asked “how we make take these images ?” They replied correctly by saying “Telescope”. Then we explained basic definition of image formation showing image formation in the eye which was demonstrated using candle and convex lens. Then we further showed how to make galileon telescope using lenses with a example of the gyano kit provided by Navnirmati. We also explained how newtonian telescope works using laser and 4 inch newtonian telescope, further this was explained using short videos also. For explaining the concept of light pollution and atmosphere affect we showed them images taken from ground based and space based telescope. For which they correctly pointed out that images from space based telescopes are much clear. This was demonstrated with a small experiment which used candle, water beaker and convex lens. We showed launching of hubble telescope. We also showed images of Astrosat which is lauched by ISRO in 2015. In the end we finished by showing video of all the beautiful images taken by Hubble Telescope.







c) Experiment Demonstrations:

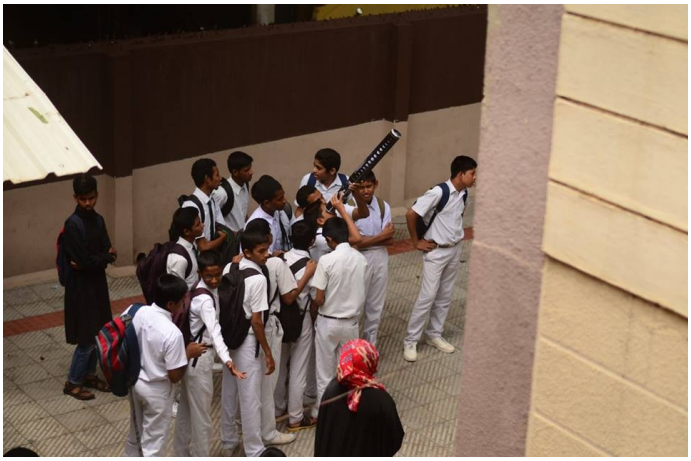
This session had 2 sub parallel demonstration which were conducted twice within one major parallel session.

1) Waves Demonstrations(Sandeep, Stabdwa and Panini): In this demonstration we started with showing wave like patterns in a setup which has 10 pendulum with different wave students were explained to basics of waves starting with the question “where they see waves in normal life ? ”. Then we explained the difference between transverse and longitudnal waves using a slinky. Further we make them experience through electromagnetic spectrum ranging from radio waves to gamma rays with their application in our terrestrial life. It was really fascinating for them to know we can not communicate if we don’t have waves.

2) Solar Eclipse and Black Hole(Megha, Suman, Soumya and Pratyusha): In this demonstration we demonstrated the nature of black hole. We used arvind gupta's toy model for this demonstration which has a curved paper having hole in the center that pulls the ball bearings to the center and eats them up. Students were enjoyed while playing with this toy model. Then we explained how the black hole are made and its mass etc. Students were very curious to know about this object. In the mean time we took opportunity to explain about solar eclipse using our solar toy model. This was with the aim to make them aware about 21st August Solar eclipse in US.

12:15 PM to 12:45 PM:

d) Telescope Session(Panini and Varun): Finally we had the session for which students are always eager. In this students were shown nearby objects through 4" newtonian telescope and 2" Galelion telescope.



In the end we donated 2" inch Galelion telescope to the school so that more and more students will be motivated the instrument which gives us power to look our unlimited universe.

Student Experiences:

It was a good experience visiting a government schools which looks and maintained like a private school. Kids were really interactive and it was fun. It is also important to take the feedback from the kids and the school regarding the outreach session. It helps a lot. Earlier we use to give a feedback form to all the kids and collect it after two days or the school use to send us. So some arrangement should be made to know their feedback.

Ramya Manjunath

The experience was good overall, but I felt that we should have had a careful look at the syllabus in science books of the classes we teach. For example since refraction of light is used again and again to explain telescopes or twinkling of stars, it was difficult for some kids to understand. We must give some basic and fundamental science concepts talk, a very short one, before we go on to the astronomy related talks or for that matter even side by side experimentation is fine like it was done in the optics talk

Akansha Kapahtia

It was an another wonderful experience to explain basic of waves to the students. Everyone was amazed to know difference between sound and light waves. Thanks

Satabdwa/Panini for assistance during explanation. In the end it was fun to answer amazing questions from the students side like “Why pluto is blasted off ?”“How does rocket flies ?”, “does cockroach has ears ?” and many more. I think we can make our sessions more efficeint and interesting with the new ideas which are coming from our discussions. Finally I will thank to first year students who showed their genuine interest in this event.

Sandeep Kumar

Friends Romans and countrymen lend me your ears.. Firstly I am glad that I was a part of this unparallel event which needs no lexicographic ornaments to add to its glory. It was complete fun and privilege to make an impact on those fresh minds. I think during our school days we have all felt how tough it was to get someone who could teach fundamental physics well , and in this context I cannot agree more with Akansha. Lets take up 2 or 3 basic fundamental physics topic , teach them and at the end motivate them with some cool relevant presentation.

Stabdwa

The number of students this time were handy that without struggling much we were able o handle them all. Students were really enjoying and kept their curiosity intact till the nd. Every time I attend the outreach I feel like it is a self learning and it is improving our explaining skills too. At the end of the day it brings self satisfaction and can’t explain that feeling by words. Also lastly I have to appreciate our new students. They quickly understood our theme and responded very well. Thanks for all.

Megha

I had a lot of fun during the outreach. However, while explaining the concepts to the students, I had no clue how much they know and if I should explain a certain concept in more detail. That was something I found more troubling. I agree with Megha’s suggestion to make it more systematic. Maybe then, the students can relate to what we are trying to explain and the class could be more interactive.

Pratyusha

It was a nice experience to be among school students again. I both enjoyed and got motivations. We should start every new season with fundamentals of astronomy (and not astrophysics), then demonstrate some simple experiments (like black hole experiment in last season), then give them a motive talk.The motive talk should comprise a very recent or advanced field of research, but caution should be taken to keep concepts up to their level. It’s just like saying a simple history, saying about new possibilities, and let them get new ideas and ask questions.

Suman Saha

I feel very happy to go such outreach programs. Although I didn’t directly interact with students by teaching them but I found it is very interesting to give them a good

presentation and to know how they think about the world. Its very nice to think from their aspects.

Soumya

Group Photo with school students

Students Team who participated in this School Outreach

1st Row from left to right: Satabdwa, Pratyusha, Megha, Ramya, Akanksha,Panini,Nirmal.
2nd Row from left to right: Varun,Soumya,Suman,Sandeep

"Educationists should build the capacities of the spirit of inquiry, creativity, entrepreneurial and moral leadership among students and become their role model."

A. P. J. Abdul Kalam