



## International Astronomical Union (IAU) National Outreach Coordinator (NOC) BANGLADESH

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### Introduction

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To celebrate the International Day of Women and Girls in Science, the 'Bibha' All Girls Astronomy Workshop has started its journey in 2021. The main goal of this workshop was to spread astronomy among female students all around the country. This workshop focuses to offer an educational outreach on the basics of Astronomy, especially to female mid-schoolers.

The workshop was held in the second week of February 2021. Owing to safety constraints by the regulations of preventing COVID-19, the workshop sessions were held virtually via the Google Meet's platform. From the 11<sup>th</sup> to the 13<sup>th</sup> of February, each of the sessions went smoothly, meeting the mark of expectation of both the instructors and attendees.

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### Organizer

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The workshop has been hosted by National Outreach Coordinator (NOC), Bangladesh, and jointly organized by Bangladesh Astronomical Society (BAS) and Science Popularization Society Bangladesh (SPSB).

Besides, the National Volunteers have been constantly present and contributed their energy into scheming, promoting, publication, content creation, and anchoring the whole program.

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### Platform

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The workshop has been carried out virtually considering the health constraints and maintaining the lockdown situation. For the live sessions, Google Meet has been used. A Classroom in Google was created to connect all the participants and bring them under one virtual room. Every announcement was made there and accordingly their feedback was noted with no delay. For evaluating and assigning the attendees, Google Form and Document privileges came in handy.

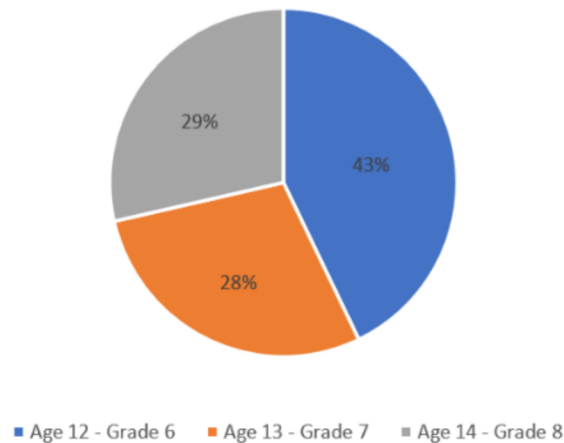
The announcement of the workshop, prior to registration was published as a Facebook public event. The everyday updates were posted there which were shared by Astronomy School as well.

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### Participants

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In response to the call for registration, a total number of 28 students registered to participate in this workshop. Female students of Grades 6, 7 and 8 (age range 12-14) joined this workshop, among them the majority number of students were from Grade 6 (age 12). The following diagrams give an idea in a glimpse of the variety of participants.



(a)

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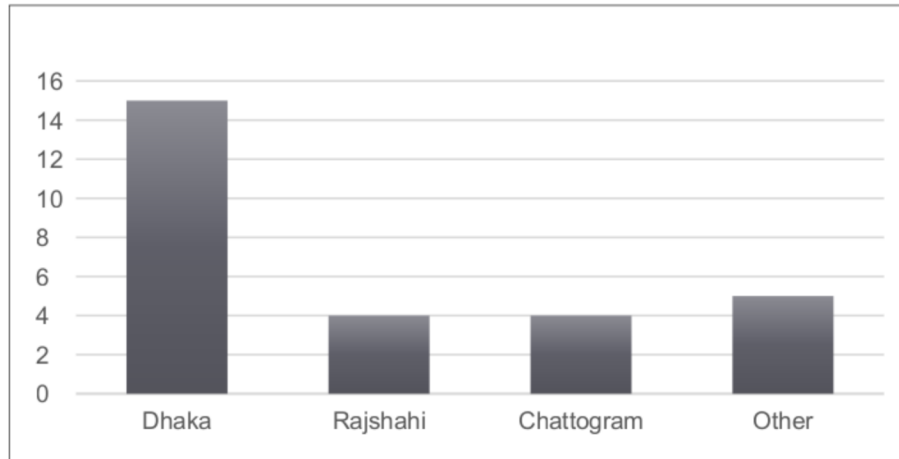
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(b)

Figure 1: (a) Pie chart of Attendees from different grade (b) Regional Stats

This diversity among participants considering different areas of the country has rather been an opportunity for us to spread Astronomy to a wider range of audiences.

To add, there was a registration fee of \$6 (~500 BDT) to join the workshop.

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### Instructors

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The workshop has been enriched by the presence of and presentation by accomplished women who are currently researching in different fields of Astronomy. The following list of the instructors of various sessions of the event is given with their respective affiliation:

1. **DR. Sultana N. Nahar**, APS fellow, Research Professor, Department of Astronomy, The Ohio-State University.
2. **DR. Tonima Tasnim Ananna**, Post-doctoral research associate, Dartmouth College, USA.
3. **DR. Lamia Mawla**, Dunlap post-doctoral fellow, Dunlap Institute for Astronomy and Astrophysics, University of Toronto, Canada.
4. **Syeda Lammim Ahad**, Ph.D. candidate, in Astrophysics, Leiden Observatory, Netherlands.
5. **NOC Bangladesh Volunteers**, [Ms. Moreom Akter, Ms. Fatema Zerine Prattasha, Ms. Sumaiya Akter, Ms. Rukaiya Binte Rashid, Ms. Ishrat Sultana Eithu]

**Topics Covered**

Throughout the three-day session, an approximate total of 13+ hours was spent presenting and demonstrating different topics by the instructors.

- Day 1 (11 February, 2021) – 4 hours
- Day 2 (12 February, 2021) – 4 hours
- Day 3 (13 February, 2021) – 5 hours

Here is a summary of the topics covered and their respective presenters.

Subject	Topic	Instructors
Introduction to universe	<ul style="list-style-type: none"> <li>✓ Big bang</li> <li>✓ Structure formation</li> <li>✓ Hubble's law</li> </ul>	Moreom Akter
<b>Prof. Farseem M. Mohammedy</b> Department of Electrical and Electronic Engineering, Bangladesh University of Engineering and Technology (B.U.E.T) Dhaka-1205, BANGLADESH Phone (+880) 2-9665650-80, ext:6560 E-mail farseemm@gmail.com	<ul style="list-style-type: none"> <li>✓ History of Galaxy</li> <li>✓ Hubble's tuning fork diagram and galaxy types</li> <li>✓ Galactic Blackholes</li> </ul>	Syeda Lammim Ahad
Introduction to Solar System, Astrophysics &	<ul style="list-style-type: none"> <li>✓ Solar model</li> <li>✓ Exploring life in the universe</li> <li>✓ Exoplanets</li> </ul>	By NOC Bangladesh Volunteers





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Though it was fully online, the workshop tried to bring in a blend of hands-on activities by allowing the participants to test their understanding through simple Q/A tutorials conducted by NOC Bangladesh academic volunteers, following the Universe Awareness, NASA Astrobiology, and Planet Hunter activity sheets and astroEDU materials.

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### Evaluation Process

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In the very first session of the workshop, an introductory quiz with very basic questions on astronomy was taken. This quiz had the minimum possible difficulty level and was taken with a view to having an idea of how much the participants are knowledgeable of. To mention, for setting the questions, the reference book in use was the IAU document, *Big Ideas in Astronomy, A proposed Definition in Astronomy Literacy, Edition January 2020* [Bengali translation].

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Throughout the days, specifically after the 2<sup>nd</sup> day of the workshop, the participants were assigned a quiz on basic astronomy.

On the final day of the workshop, another Quiz was taken with a difficulty level of a hundred times more than the first one. These quiz questions were based on the topics that were covered in the three days of the workshop and to admit, were quite tricky to answer.

The result was tabled on weighted values and accumulated afterward; 30% for the 2<sup>nd</sup>-day quiz and 70% from the final quiz. Here is some demographic view of their performance.

### Pre-workshop Introductory Quiz:

The following chart gives some insight into the attendees' performance out of 11. In terms of percentage, the *Median* score was just 72.72%.

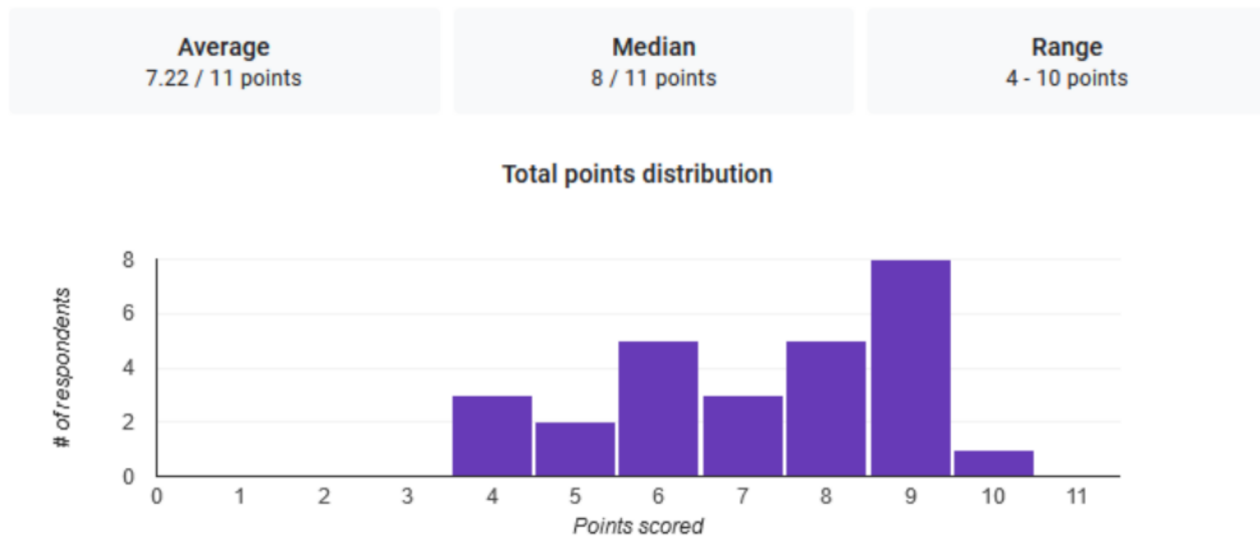


Figure 2: Bar chart of the score, Pre-workshop Quiz

### Post-workshop Introductory Quiz:

After the workshop, a similar quiz on introductory Astronomy was taken which showed some improvements.

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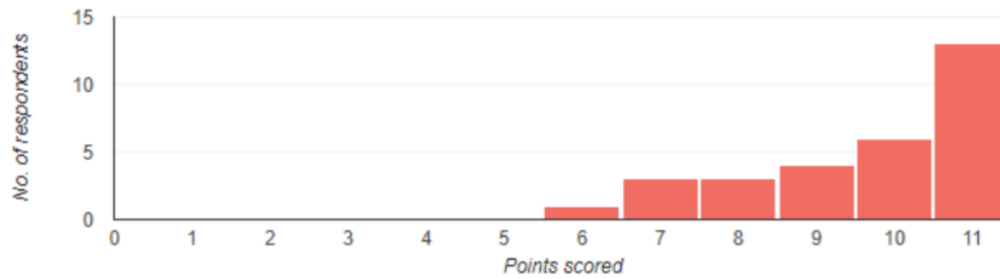
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**Average**  
9.67/11 points

**Median**  
10/11 points

**Range**  
6-11 points

Total points distribution



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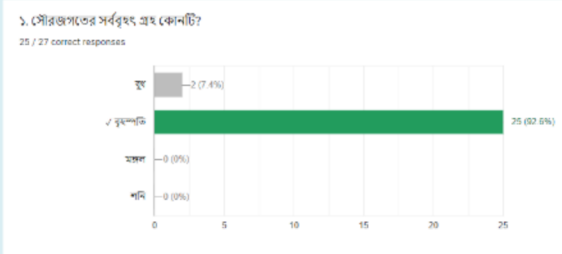
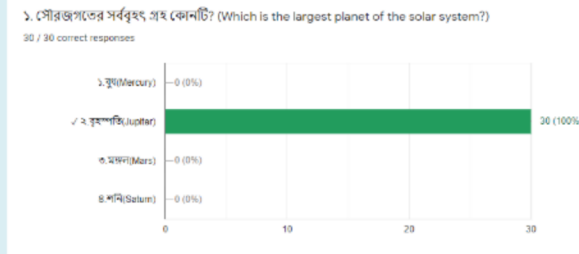
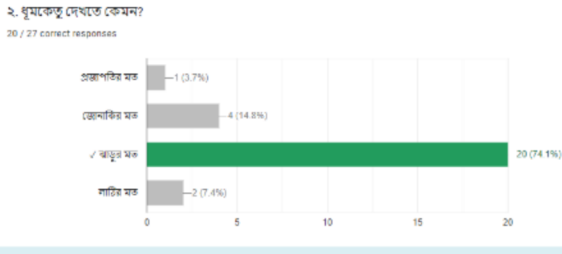
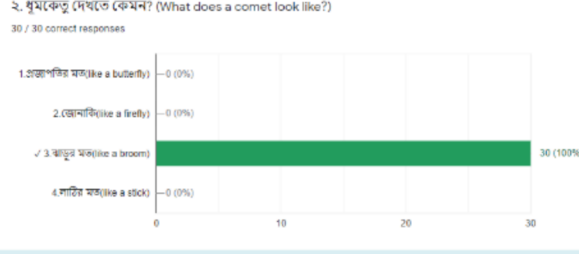
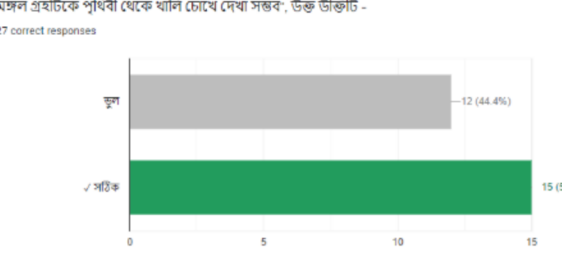
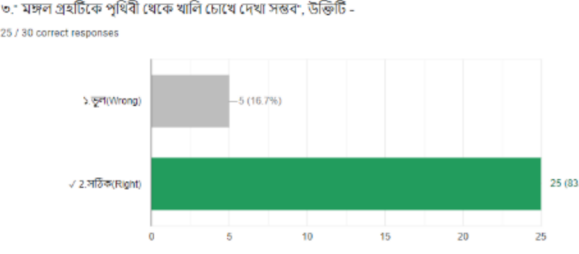




Figure 3: Bar chart of score, Post-workshop Quiz

**Comparison and Take-outs:**

Below is the demographic comparison of the rate of answering correctly to each question.

# Q	Pre-workshop Response	Post-workshop Response
1	<p>১. সৌরজগতের সর্ববৃহৎ গ্রহ কোনটি? 25 / 27 correct responses</p> 	<p>১. সৌরজগতের সর্ববৃহৎ গ্রহ কোনটি? (Which is the largest planet of the solar system?) 30 / 30 correct responses</p> 
2	<p>২. ধূমকেতু দেখতে কেমন? 20 / 27 correct responses</p> 	<p>২. ধূমকেতু দেখতে কেমন? (What does a comet look like?) 30 / 30 correct responses</p> 
3	<p>৩. মঙ্গল গ্রহটিকে পৃথিবী থেকে খালি চোখে দেখা সম্ভব; উক্ত উক্তিটি - 15 / 27 correct responses</p> 	<p>৩. মঙ্গল গ্রহটিকে পৃথিবী থেকে খালি চোখে দেখা সম্ভব; উক্তিটি - 25 / 30 correct responses</p> 
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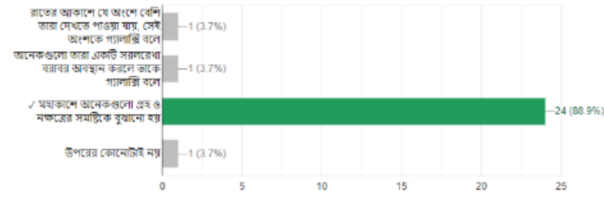
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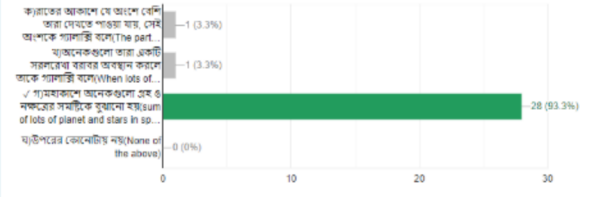
৪. গ্যালাক্সি বলতে মূলত কী বুঝানো হয়?

24 / 27 correct responses



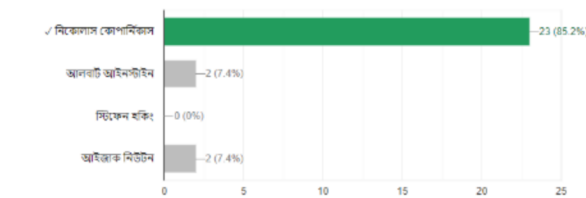
৪. গ্যালাক্সি বলতে মূলত কী বুঝানো হয়?

28 / 30 correct responses



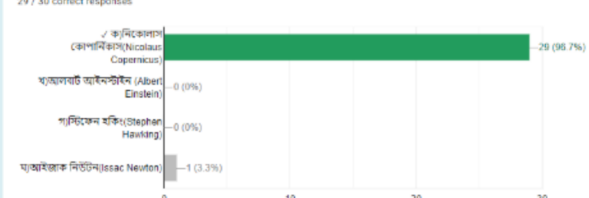
৫. পৃথিবী যে সূর্যের চারদিকে ঘুরছে তা সর্বপ্রথম কে আবিষ্কার করেন?

23 / 27 correct responses



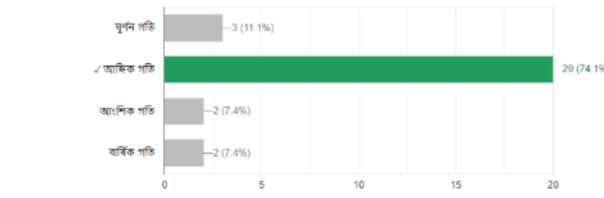
৫. পৃথিবী যে সূর্যের চারদিকে ঘুরছে তা সর্বপ্রথম কে আবিষ্কার করেন? (5. Who was the first to discover that the earth revolves around the sun?)

29 / 30 correct responses



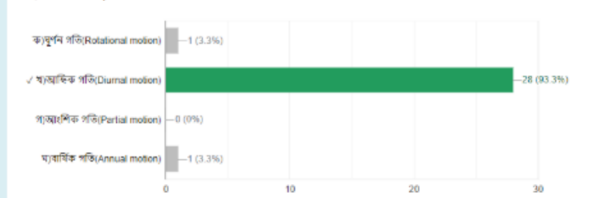
৬. নিজে অক্ষের উপর পৃথিবীর ঘূর্ণনকে কী বলা হয়?

20 / 27 correct responses



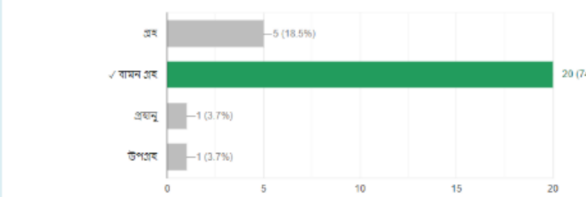
৬. নিজে অক্ষের উপর পৃথিবীর ঘূর্ণনকে কী বলা হয়?(What is the rotation of the earth on its own axis called?)

28 / 30 correct responses



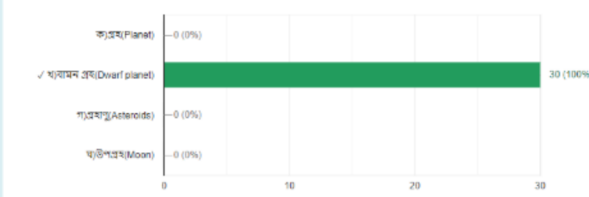
৭. প্লুটো হল একটি -

20 / 27 correct responses



৭. প্লুটো হল একটি -

30 / 30 correct responses



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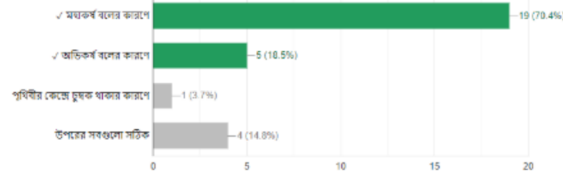
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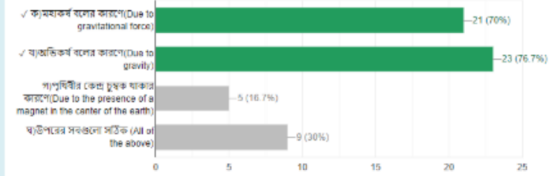
১৮. পৃথিবী সূর্যের চারদিকে খুব দ্রুতগতিতে ঘুরছে, তা সত্ত্বেও আমরা পৃথিবী পৃষ্ঠ থেকে ছিটকে যাই না কেন?

2 / 27 correct responses



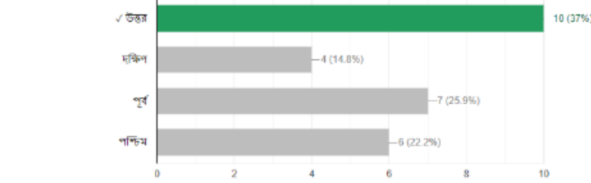
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15 / 30 correct responses



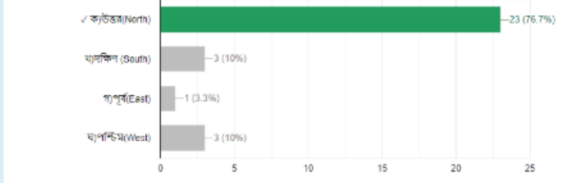
৯. গ্রন্থতারা আকাশের কোন দিকে উদিত হয়?

10 / 27 correct responses



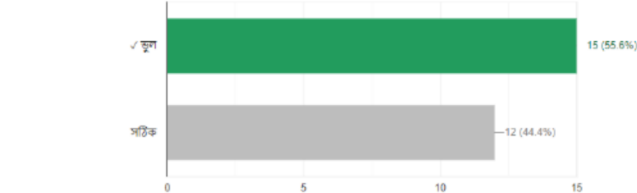
৯. গ্রন্থতারা আকাশের কোন দিকে উদিত হয়?

23 / 30 correct responses



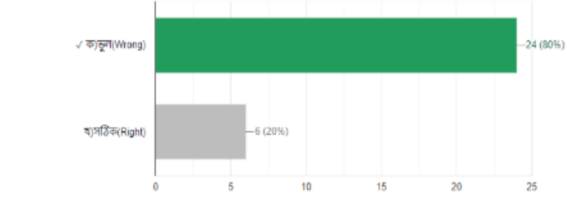
১০. "পৃথিবীর মত সকল গ্রহেরই একটি করে উপগ্রহ রয়েছে"। উল্লিখিত উক্তিটি -

15 / 27 correct responses



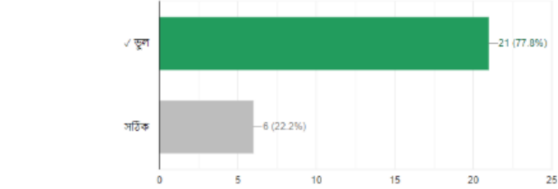
১০. "পৃথিবীর মত সকল গ্রহেরই একটি করে উপগ্রহ রয়েছে"। উল্লিখিত উক্তিটি -

24 / 30 correct responses



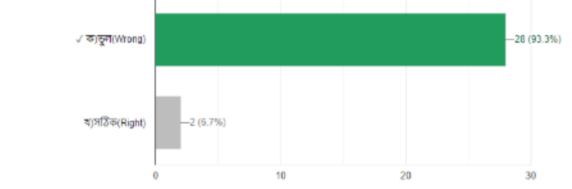
১১. "মহাকাশে সূর্যই একমাত্র নক্ষত্র"। উল্লিখিত উক্তিটি -

21 / 27 correct responses



১১. "মহাকাশে সূর্যই একমাত্র নক্ষত্র"। উল্লিখিত উক্তিটি -

28 / 30 correct responses



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The performance status (as recorded and plotted by Google Form) shows conspicuous development in the literacy level of the participants. This is evident that after attending the workshop, the participants have become more knowledgeable of the facts and basics of Astronomy.

### Conclusion

Confronting a lot of challenges including Lockdown, Publicity, Bandwidth Issue, Limited time, and so on, the workshop has been launched and successfully carried on. Our utmost gratitude remains to all the instructors from home and abroad, the hosting Organizations. We believe that our prime success is inscribed with the growing interest of the participants, and this little adding up to their knowledge to make them a bit more eager to learn Astronomy has made our effort worthwhile. This journey is still on the run and hopefully, we will organize better events following the trek and enhancing hereafter.

### Acknowledgment

The NOC Bangladesh wishes a Thank You to the following:

1. NOC BD volunteers
2. Ms. Rukaiya Binte Rashid, Coordinator, Bibha All-Girls' Astronomy Workshop.
3. Ms. Fatema Zerine, Academic and Hands-on coordinator, Bibha All-Girls' Astronomy Workshop.
4. BAS and SPSB officeholders.

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*(This report is prepared by NOC BD volunteers Ms. Fatema Zerine, Ms. Sumaiya Akhter, Ms. Israt Sultana and Ms. Rukaiya Binte Rashid)*

## Workshop Photos

### 1. Main Banner of the Workshop

INTERNATIONAL DAY OF WOMEN AND GIRLS IN SCIENCE

'BIBHA' ALL GIRLS  
ASTRONOMY WORKSHOP 2021  
A tribute to Bibha Chowdhury

Class 6 to 8  
11-13 February, 2021  
Virtual Workshop

Registration Link: <https://forms.gle/S1gvCbRhonCNvfeY8>

BAS SPSB UNIVERSE AWARENESS

## Prof. Farseem M. Mohammedy

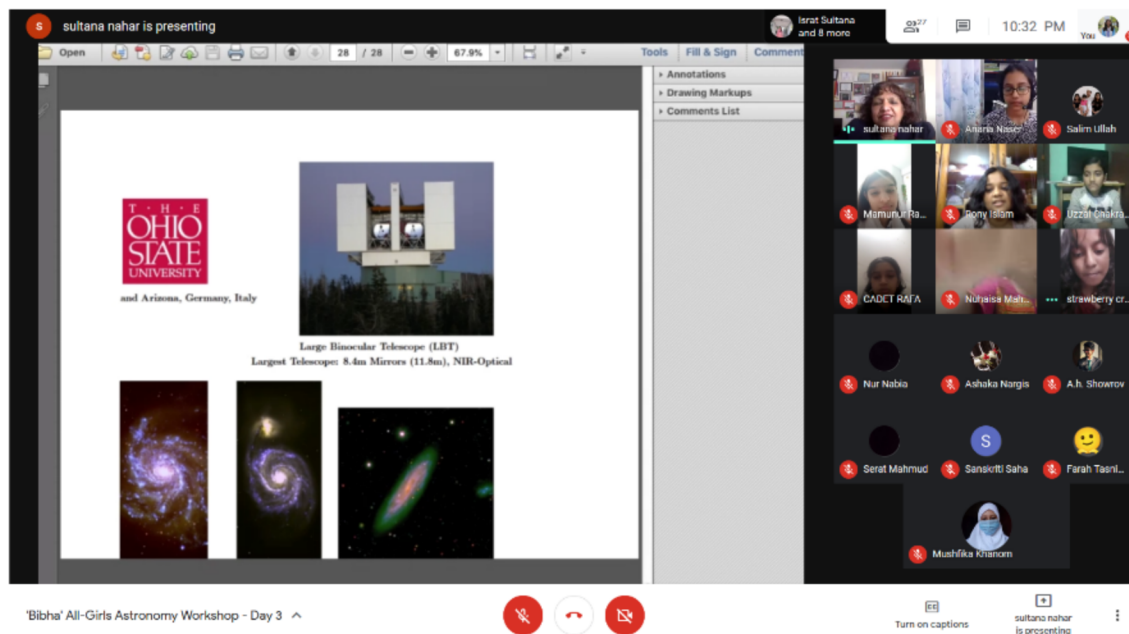
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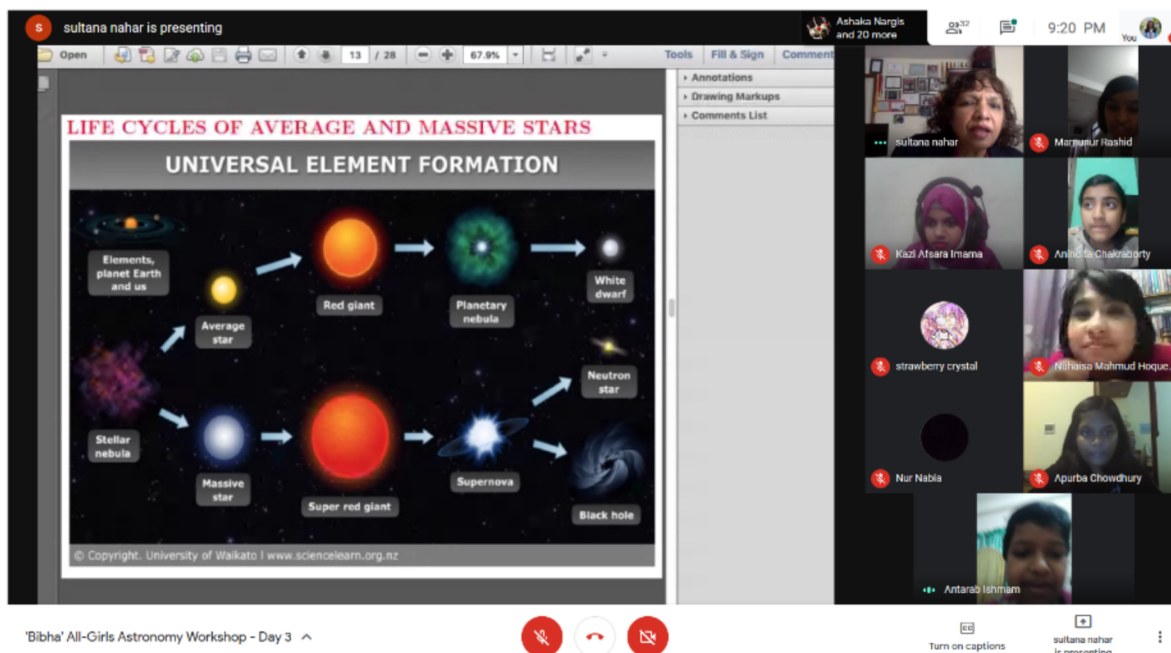
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2.1 'Lecture on stars' session with Dr. Sultana N. Nahar



2.2

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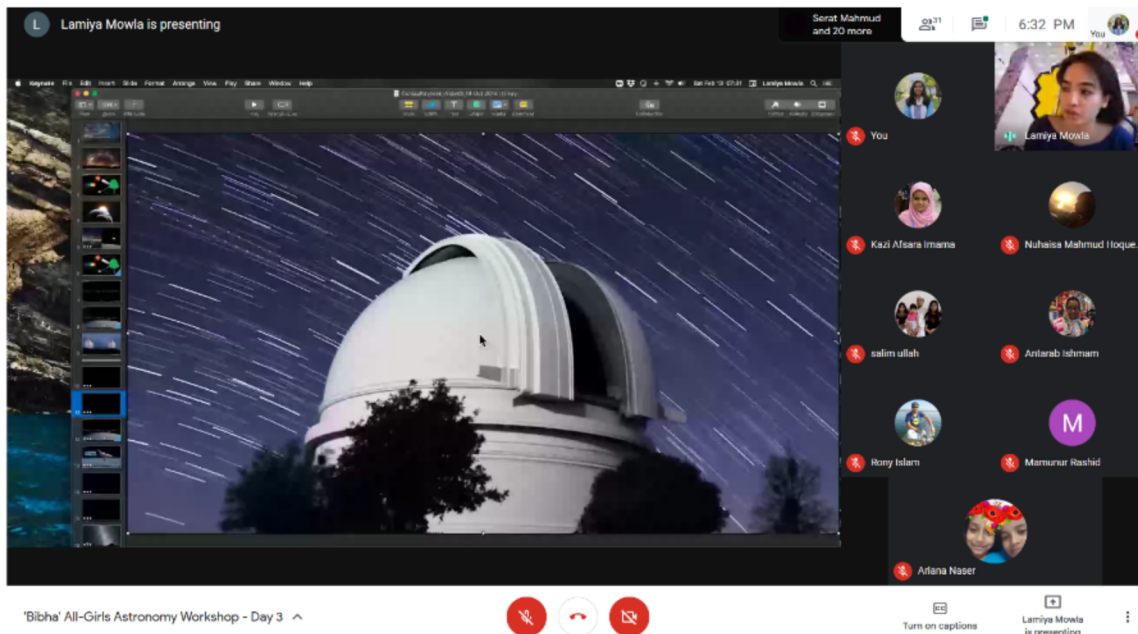
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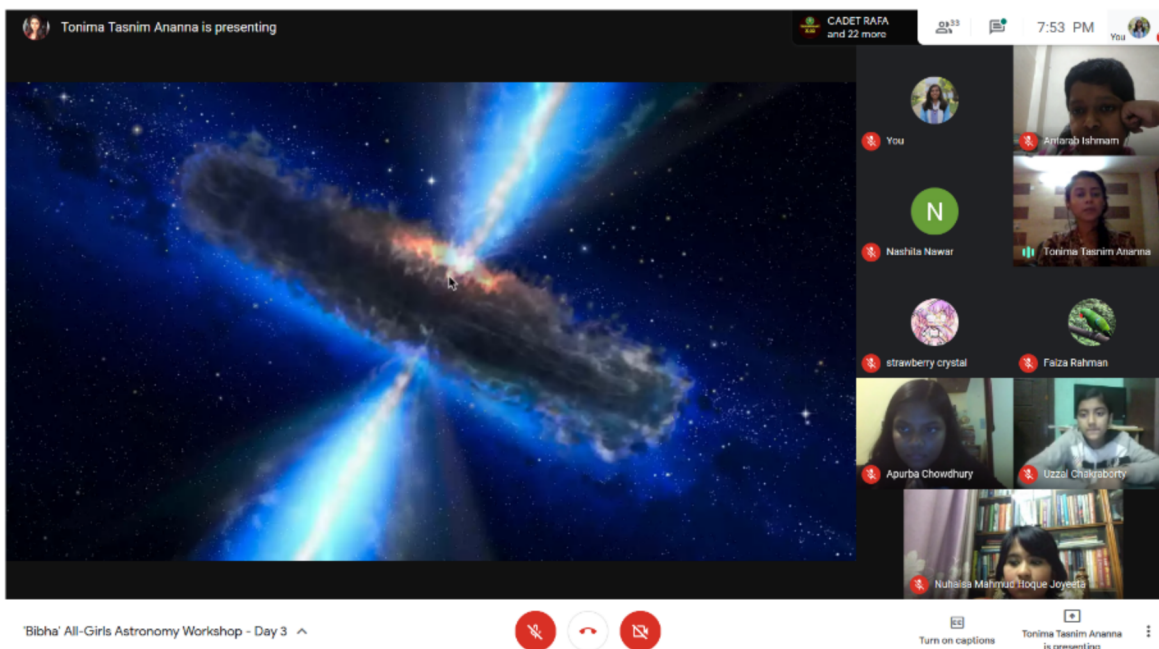




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3. 'Observational Astronomy' session with Dr. Lamiya Mowla



4. 'Blackholes and AGN' session with Dr. Tonima Tasnim Ananna

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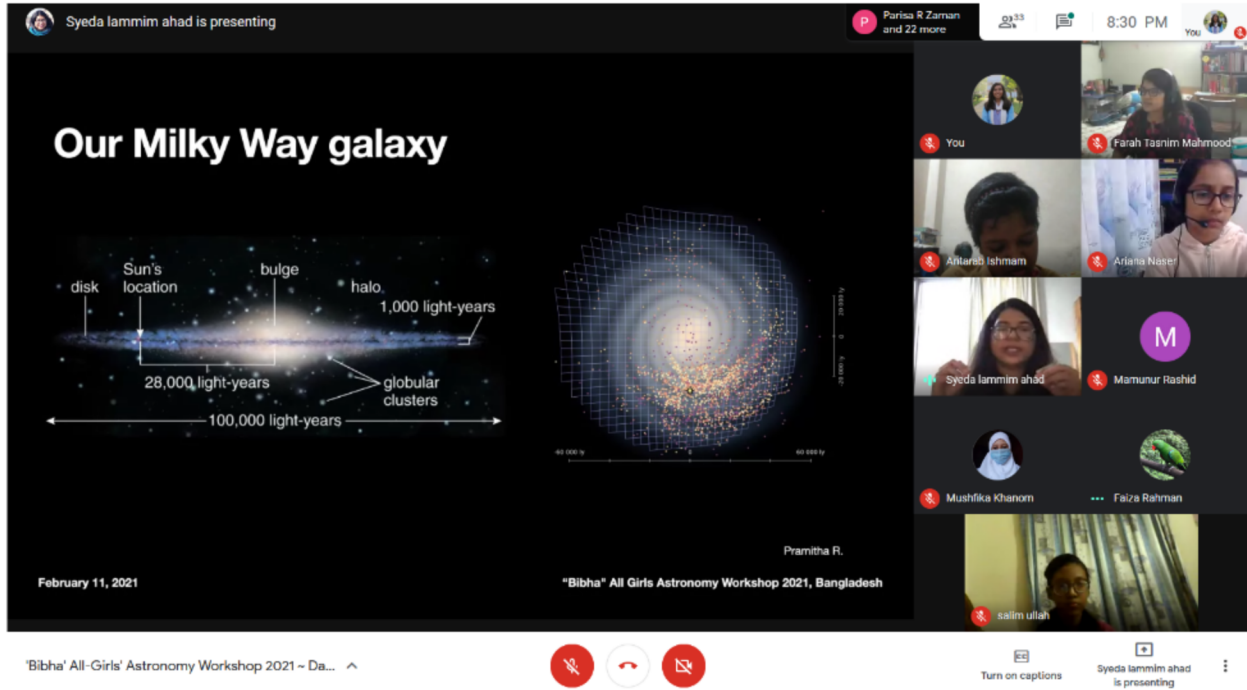
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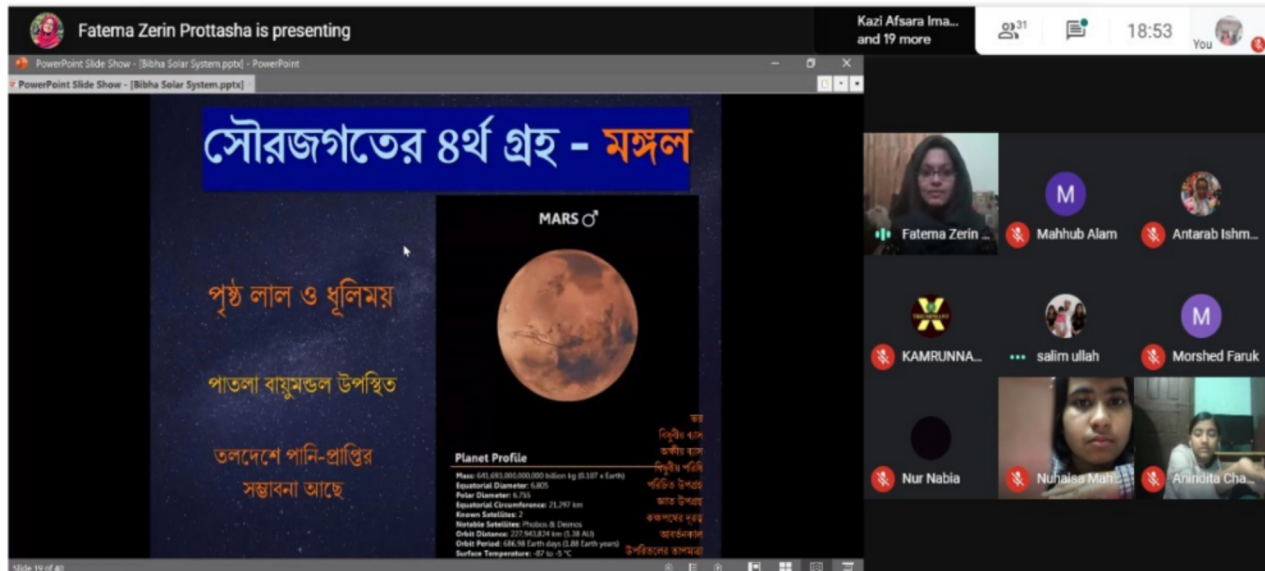
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5. 'Galaxy' session with Syeda Lammim Ahad



6. 'Introduction to solar system' session with Ms. Fatema Zerir

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