

**One Day Orientation Program
On
Plant Morphology, Plant Anatomy, Primary Health Care and Biodiversity
Conservation for the students of Government School, Bangalore**

1st and 8th December 2017



**Organized by
TransDisciplinary University, Bangalore (TDU)
(Supported by Infosys Foundation, Bangalore)**

**74/2, Jarakbande Kaval, Via Yelahanka, Attur P.O., Bangalore – 560106, Karnataka, India
Ph: 91 80 28568006**

One Day Orientation Program for School Students of Government School, Yelahanka, Old Town

Introduction

Cities have been witnessing an erratic urbanization, which has led to rapid diminishing of green cover. As a result of this, our cities are experiencing the incidences of increase in temperature, reduction in air quality, water scarcity, urban floods, etc. Hence, there is an urgent need to maintain an ecological balance, a truth not sufficiently felt and understood in the sphere of urbanist advocacy. Cities developed in harmony with beauty and function of nature would certainly help building a healthy urban ecosystem.

In this context, it has become important that young minds have to be informed more about various biotic components in the urban ecosystem. This could happen through simply taking them close to nature and making them understand its importance. It would bring forth a future generation with environmental consciousness, which can build a sustainable urban environment.

The TransDisciplinary University (TDU) with the support of Infosys Foundation, Bangalore has developed a unique one-day orientation program for the students pursuing their secondary education, to give them an opportunity to learn the basics of plant taxonomy, anatomy, primary health care and biodiversity conservation. This program has been designed in line with their school curriculum. It is expected that this program will broaden their understanding about the nature specifically plants and help them develop their interest in the urban nature conservation.

This could be a precursor to any environment education program that government likes to introduce at the school level.

Introductory Session

Dr. M. Abdul Kareem, Associate Professor and Course Coordinator gave an overview on the TDU and Ms. Amrita. G gave a brief introduction about the Program. Around 84 students from class 9th Standard participated in the program accompanied by one teacher in two batches.

Session: 1: Plant Morphology

Students were taken to ethno medicinal garden which comprises of over 1500 taxa of medicinal plants, and the nursery has 450 taxa with green house and mist chambers for propagation. Ms. Nandini D, Consultant, TDU explained about characteristics of plants like habitat, structure and shape of leaves, size of fruits, branching patterns and uses of medicinal plants. Students explored the garden with the plants and tree species such as orchids, *Centella asiatica*, lemon grass, aquatic plants, *Garcinia indica* etc. They were taken to nursery garden where could see various medicinal plants along with their uses.



Session:2: Anatomy and Herbarium

Dr. Noorunnissa Begum gave hands on training on plant anatomy. She demonstrated the preparation of anatomy slides by taking sections of a monocot (*Penicium* species) and dicot stem (*Tinospora cordifolia*) and staining technique. Students were asked to take the sections and observe the specimen through the microscope and examine the xylem, phloem, epidermis, and cortex. The students were then asked to form a group of five each and prepare similar slides. They were also shown herbarium sheets and its techniques to prepare them. Ms. Preethi, Research Fellow, Ms. Sridevi guided them in conducting the session



Session: 3: Primary Health Care

Dr. Subramanya Kumar, Assistant Professor defined primary health care and explained about the importance being healthy. He emphasized on the intake of nutritious food that can keep mind and body strong and fit. He explained about the pyramid that shows the quantity of food to be taken like green vegetables in more and sugar in less quantity. He also showed some important remedies that are easily prepared at home to cure common diseases such as cold, fever, cough, indigestion, headache etc. few examples like usage of dry skin of pomegranate, *Tinospora cordifolia*, *Centella asiatica* etc. were also mentioned. Students were enthusiastic to interact and ask more questions related to remedies to cure common health problems.



Session: 4: Biodiversity Conservation

Mr. Vrijulal, CEE, Bangalore took over the session for the first batch students on 1st December 2017. He discussed with the students on formation of river and the linkage of every species with each other in the trophic web. He conducted an activity called as Nest Building. This activity was basically conducted to make them aware of wise usage of natural resources through building nests. With this they are assured to observe nature and biodiversity wherever they go.



Session: 5: Functional Unit of Life

Dr. Balasubramani, Assistant Professor and Mr. Deepak, Research Scholar explained the concept of "Central Dogma" of cell and molecular biology was introduced to the students. Basic structure and organization of the DNA and chromosomes were taught.

- The Theory and principle of DNA separation using Agarose gel electrophoresis was explained and demonstrated using the electrophoresis apparatus.
- Method for documenting the gels was also exhibited using gel documentation system (BioRad) and students visualized the DNA bands



The program was culminated with the feedback of the students and distribution of certificates to the students by Ms. Nandini. D, Consultant, TDU.



Learnings:

It was a general perception among students that only a few plants are medicinal. However, they found that most of the plants have medicinal value after undergoing this orientation program. The practical sessions on anatomy were very useful particularly for those students who like to pursue a career in life sciences. A basis understanding of uses of medicinal plants for primary health care was also notable. A fun activity on making nest also thought some creativity skills and importance of nature to protect the habitat of the flora and fauna. Exploring the garden thought wide range flora in the country and its key characteristics and features.

Feedback:

Students were asked to fill up a questionnaire to analyse the flow of the program, its content and also to understand as to how far the students were able to grasp the subject. It will also enable the organizers to get the vibe of students and make necessary corrections. Students expressed their feelings of attending such program conducted for the students of government school. It is great exposure to them as they are exposed to various fields such as plant identification, anatomy home remedies, understanding the importance of conservation through activity and having an overview about the functional unit of life such as DNA. Students liked all the session conducted them for a day. They were very happy to come to campus and explore the nature and see many plants and understand the importance associated with it. Following graph depicts the feedback obtained from the participant in each batch.

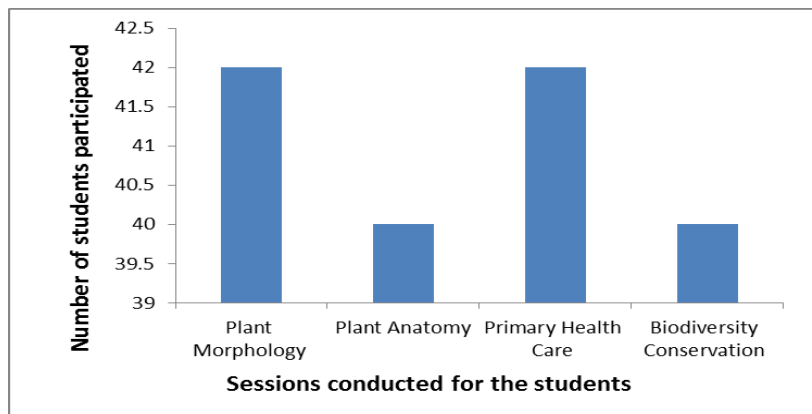


Fig. No.1: Graph depicting the number of students liked the program on 1st December 2017

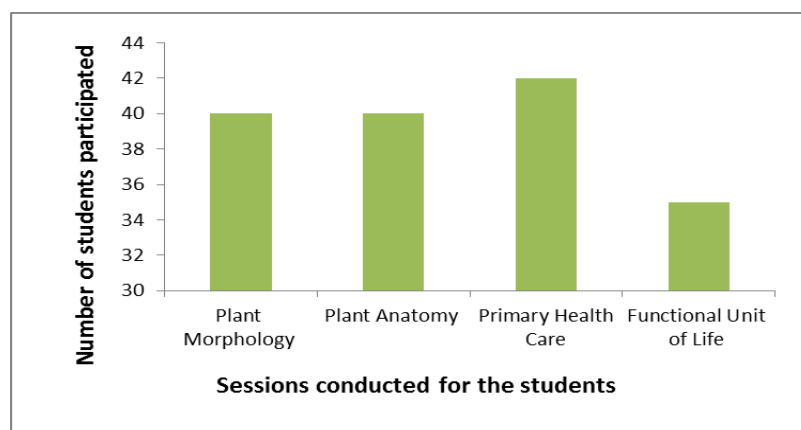


Fig. No.2: Graph depicting the number of students liked the program on 8th December 2017

List of Faculty:

1. Dr. M. Abdul Kareem, Associate Professor and Course co-ordinator, TDU
2. Dr. Noorunnissa Begum, Associate Professor, TDU
3. Dr. S.P. Balasubramani, Assistant Professor, TDU
4. Ms. Nandini D., Consultant, TDU
5. Dr. Subramanya Kumar, Assistant Professor
6. Mr.Vrijulal, CEE, Bangalore
7. Mr. Deepak, Research Fellow, TDU
8. Ms. Preethi, Research Scholar, TDU
9. Ms. Anu V., Senior Research Fellow, TDU
10. Ms. Amrita G., Research Fellow, TDU

List of Participants:

9th Standard Students- 1st December 2017

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|----------------|------------------|
| 1. Lavanya | 22. Ramya. B |
| 2. Shilpabai.C | 23. Afreen Taj |
| 3. Nandini . N | 24. Kavya. M |
| 4. Anjali | 25. Shwetha. S |
| 5. Sahana M.R | 26. Mubarak |
| 6. Harshitha | 27. Tabasum Taj |
| 7. Hemavathi | 28. Shailaja M.N |
| 8. Shirisha | 29. H.N. Lakshmi |
| 9. Sindhu | 30. Pooja. R |
| 10. Sandhya | 31. Poornima. K |
| 11. Lavanya P | 32. Jhansi. N |
| 12. Deepa. B | 33.Mamatha. G.R |

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|-------------------|--------------------|
| 13. Geetha. M | 34. Rajni. N |
| 14. Arathi. A.K. | 35. Khusham Fareen |
| 15. Shravani | 36. Aishwarya. R |
| 16. Shwethabai | 37. Hemalatha |
| 17. Varsha C.V | 38. Renu kumari |
| 18. Radhika. K.A | 39. Anusha. R |
| 19. Saritha. D | 40. Chona.S |
| 20. Sindhya K | 41. Pavithra. M |
| 21. Aishwarya A.S | 42. Shobha |

9th Standard Students- 8th December 2017

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|-----------------|-------------------|
| 1. Durgappa | 22. Eranna |
| 2. Kiran | 23. Eshwar. M |
| 3. Naveen Kumar | 24. Ashoka. R |
| 4. Mehboob | 25. Ganesha |
| 5. Simadhri | 26. Naveen.S |
| 6. Chowdesha | 27. Sahib |
| 7. Muthanna.E | 28. Adapala Gopi |
| 8. Ramesha | 29. Rakesh |
| 9. Tejas Kumar | 30. Vijay.A |
| 10. Ali Pheer | 31. Saisri Harsha |
| 11. Mustafa | 32. Shivakumar. J |
| 12. Pradeep | 33. Kishore. N |

13. Kantharaju

14. Gnanesha

15. Vasanth

16. Joshua

17. Naveen.M

18. Naveen Kumar

19. Bharat

20. Siddhappa

21. Sharath. K

34. Arun

35. Hemanth. S

36. A.N. Mohan

37. Pavan.H

38. Chethan

39. Venkatesh

40. Dayanand

41. ShivaKumar

42. Mohan. M

Program Schedule-1st December 2017

Time	Topic and Objective	Resource Person	Venue
10.15- 10.30.AM	Introduction to the program	Dr. M. Abdul Kareem Associate Professor Ms. Amrita G. Research Fellow	Training Hall Patanjali Block
10.30 – 11.30AM	Exploring the University through identification and morphology of plants	Ms. Nandini. D Consultant	Field
11.30 – 12.30 AM	Plant Anatomy and Herbarium	Dr. Noorunnisa Begum Associate Professor	Herbarium (Vagbhata Block)
12.30 -1.00 PM	LUNCH		
1.00 – 2.00PM	Primary Health Care	Dr. Subramanya Kumar Assistant Professor	Training Hall Patanjali Block
2.00-3.00	Basics of Biodiversity <ul style="list-style-type: none">• What is biodiversity• Basics of biodiversity	Mr. Vrijulal CEE, Bangalore	Field
3.00-3.30 PM	Valedictory Ms. Anu.V Senior Research Fellow		

Program Schedule - 8th December 2017

Time	Topic and Objective	Resource Person	Venue
10.15- 10.30.AM	Introduction to the program	Dr. M. Abdul Kareem Associate Professor Ms. Amrita G. Research Fellow	Training Hall Patanjali Block
10.30 – 11.30AM	Plant Anatomy and Herbarium	Dr. Noorunnisa Begum Associate Professor	Field Herbarium (Vagbhata Block)
11.30 – 12.30 AM	Functional Unit of Life	Dr. Balasubramani Assistant Professor	Lab (Nagarjuna Block)
12.30 -1.00 PM	LUNCH		
1.00 – 2.00PM	Primary Health Care	Dr. Subramanya Kumar Assistant Professor	Training Hall Patanjali Block
2.00-3.00	Exploring the University through identification and morphology of plants	Ms. Nandini. D Consultant	Field
3.00-3.30 PM	Valedictory Ms. Anu.V Senior Research Fellow		