



# DON BOSCO INSTITUTE OF TECHNOLOGY

Premier Automobiles Road, Kurla West, Mumbai - 400070

ISHRAE  
Thane Chapter

## Department of Mechanical Engineering Report on – K12 Activity

**Title: Science Land**

**Date: 08<sup>th</sup> September 2023**

**Time: 10:00 AM to 12:00 PM**

**Venue: Mumbai Utkal School**

**Target Audience: Students of 5<sup>th</sup>, 6<sup>th</sup>, 7<sup>th</sup>, 8<sup>th</sup> Std**

**No. of Participants Present: 70**

**Resource Person: Mrs. Mousami Parija**

**Organization of Recourse Person: Mumbai Utkal School**

**Organizing Department / Committee / Authority: ISHRAE DBIT Student Chapter**

**Faculty Coordinator: Prof. Cleto Pereira**

### Objectives:

- ❖ To encourage students to ask questions, make hypotheses, and engage in the scientific method to develop problem-solving and critical thinking skills.
- ❖ To help students grasp scientific concepts by demonstrating them in a tangible, real-world context.

### Outcomes

- ❖ Making the students aware of areas of scientific concepts.
- ❖ Getting hands-on learning experience.

### Detailed Report:

“Science Land”, a K12 activity was held on 8th September 2023 at 10.00 AM. The activity was conducted by ISHRAE DBIT Student Chapter and ISHRAE faculty Advisor, Prof. Cleto Pereira. The activity was conducted offline with the students of Mumbai Utkal school, Kurla (West). The activities performed by the council members was to demonstrate how scientific principles are applied in everyday life and various fields, emphasizing the relevance of science and inspiring students to implant an interest in STEM (Science, Technology, Engineering, and Mathematics) fields by showcasing the excitement and opportunities they offer. So, to make the event more appealing and to grab the attention of small children, we – the student council of ISHRAE DBIT Chapter – came up with a thought-provoking idea of experiments related to science.

Omkar Ghole (K12 Head) commenced the activity with an introduction speech and gave students the glance of experiments which are to be performed and how those can be beneficial in their academic and extra-curricular assignments.

We kept two sessions of one hour each for 1. 5th/6th std and 2. 7th/8th std. Our council members performed and explained the planned physical experiments as below:

## First experiment conducted by VILAS KODAM (Co K12 Chair)

### Capillary Action

Vilas Kodam asked questions about the term Capillary to students. He further explained capability of liquids and getting absorbed by specific materials. The motion of water molecules to the available path.

Vilas Kodam arranged the required apparatus for experiment: Ink mixed in water in transparent glass and long tissues.

Following procedure followed by Vilas Kodam to conduct the experiment.

1: Put one end of tissue paper in the ink water and place the other end in other empty glass. Students will be able to know about capillary action that is flow of liquid through porous material started dripping in other glass. Many household and daily life examples were given to students for easy understanding of capillary action concept. Some examples are as cotton carrying oil in lamp, sketch-pens. Other application which can be used at home for watering plants when no one is present at home. Learning objective: Students were able to know about capillary action that is flow of liquid through porous material.



## Second experiment conducted by ANKIT KSHIRSAGAR (Sports Chair)

### Tyndall effect

Ankit Kshirsagar interacted with students and asked some questions regarding the knowledge of Tyndall effect. He explained students the small and fine particles carry light.

Procedure as followed:

Pass Laser light from all three glasses one by one.

1-Salt water: Beam of laser light can be seen completely without scattering.

2-Chalk powder: Some Light will scatter

3-Milk: more light will scatter.

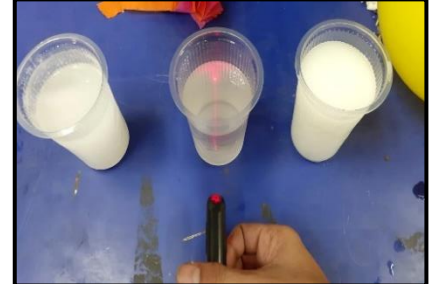


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Ankit Kshirsagar explained the conclusion as in the mixture where particles are not mixed in water the laser light scattered accordingly. More examples and applications were also explained to students such as the scattering of sun rays.



## Third experiment conducted by OMKAR GHOLE (K12 Chair)

### The Mighty Balloon

Omkar Ghole interacted with students asking them that a balloon is strong enough to lift some weight then try this interesting balloon and glass experiment to see how a balloon can lift a glass several times its weight.

Following procedure followed by Omkar Ghole to perform the experiment.

- 1: Inflated the balloon and tied the end.
- 2: Light a matchstick and put it inside the glass bottle.
- 3: Covered the mouth of the glass with the balloon, immediately.

There was observation by some of the students that some fumes escape around the sides of the bottle and the balloon gets sucked inside the bottle opening a little. Omkar tried lifting the balloon a little carefully and it seems that the bottle opening seems glued to the balloon and the balloon has indeed lifted the glass. Learning objective: Students were able to learn that when the piece of lighted paper is put inside the glass, it heats up the surrounding air. The air becomes lighter and it tends to move up. When the mouth of glass gets covered by the balloon, this hot air tries to escape through the gaps around the balloon. This creates a slightly lower pressure inside the glass, and the balloon gets sucked inside. The gaps around the edge of the glass are sealed tight. So, your balloon can easily lift the glass which is much heavier than itself.

Lastly after interactive session with students we took feedback from students regarding the flow and conducting of session. Omkar Ghole as K12 Chair given vote of thanks to Principal of Utkal School and supporting staff.

Therefore, the motive of making the students aware of areas of light properties, material properties and its application in day-to-day life was explained. Also, the members of ISHRAE student chapter got an opportunity to organize and manage a creative event for small children. The members participating were Omkar Ghole, Sahil Jadhav, Vilas Kodam, Ankit Kshirsagar, Jae Hindalekar and Ved Yemitkar. Active participation of students and team work of the student chapter members made this session a huge success.



## Snapshot of the Event:





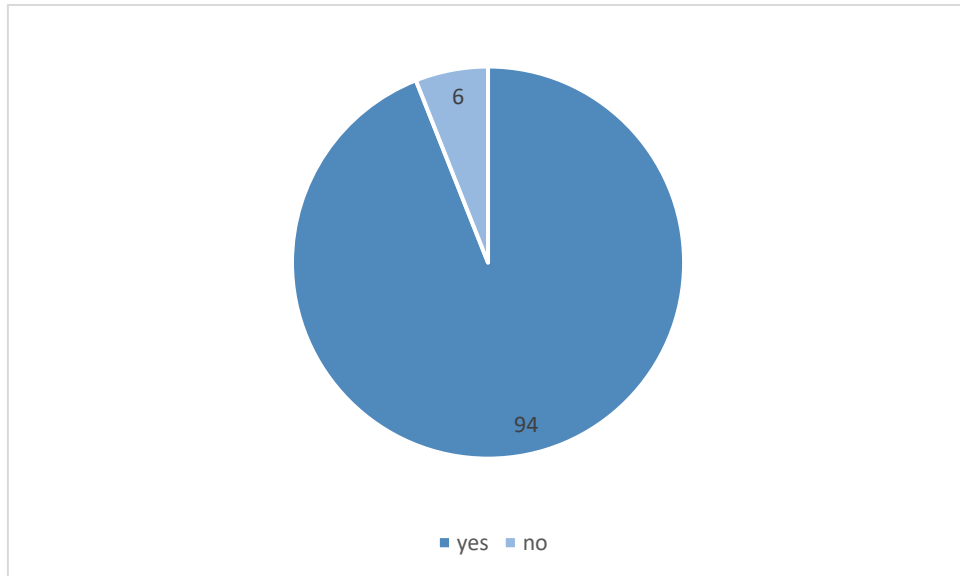
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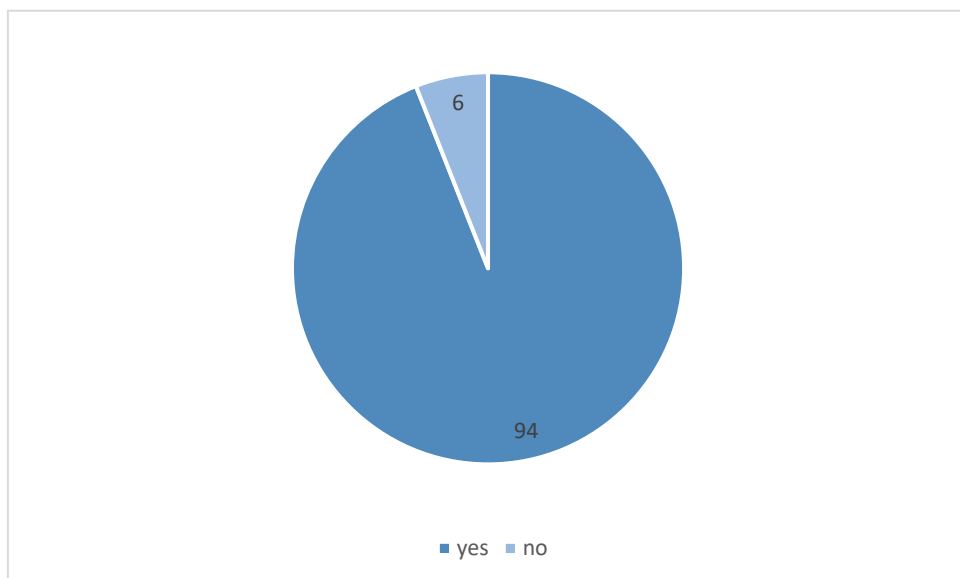
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## Feedback Analysis:

Did you enjoy the event?



Want more events to be conducted like this?





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Event Poster:

**DON BOSCO INSTITUTE OF TECHNOLOGY**  
DEPARTMENT OF MECHANICAL ENGINEERING  
ISHARE STUDENT CHAPTER  
PRESENTS  
**K-12 ACTIVITY**  
**SCIENCE**  
**LAND**  
*For students of Utkal school*  
**Demonstration of Science**  
**Experiments and Fun activities**  
8 Sept, 2023  
9 to 11 am  
Utkal school,  
Kurla  
For more details contact  
Omkar Ghole : 8108688942  
K12 Chair  
Faculty Advisor  
Prof. Cleto Pereira

List of ISHRAE attendees for the event.

S. No.	Name	Position
1	Omkar Ghole	K12 Chair
2	Vilas Kodam	Co K12 Chair
3	Sahil Jadhav	Secretary
4	Jaee Hindalekar	Environment Chair
5	Ankit Kshirsagar	Sports Chair
6	Ved Yemitkar	President Elect

**Report Prepared By:** Vilas Kodam

**Name of the Student:** Vilas Kodam

**Post of the student:** Co K12 Chair

**Report Approved By:** Prof. Cleto Pereira

**Name of the Faculty:** Prof. Cleto Pereira

**Post of the Faculty:** Faculty Coordinator