Lab to School - Best Practice

1. Title of the Practice

"LAB TO SCHOOL: Bridging the Gap Between Advanced Scientific Learning and School-Level Education"

2. Objectives of the Practice:

- **To Enhance Understanding of Basic Physics Concepts:** Provide school students with hands-on experience to strengthen their understanding of fundamental physics concepts.
- **To Encourage Scientific Curiosity:** Inspire and cultivate an interest in science among students through practical demonstrations.
- **To Facilitate Knowledge Transfer:** Utilize the advanced knowledge and skills of M.Sc.and B.Sc Physics students to benefit younger students in the community.
- **To Promote Interactive Learning:** Move beyond theoretical learning to an interactive, demonstration-based approach that enhances student engagement.

3. The Context:

The "LAB TO SCHOOL" program is an initiative by the Department of Physics and Electronics at Government College (A), Rajamahendravaram, aimed at improving science education in local schools. The program addresses the gap in practical science education at the school level, where students often lack access to advanced laboratory facilities and demonstrations that are crucial for a deeper understanding of scientific principles. By bringing college-level laboratory experiments to schools, the program aims to make science more accessible and exciting for school students.

For the academic year 2024-25, the program was conducted at SBMM ZPH SCHOOL, VEDULLAPALLI, SEETANAGARAM MANDAL on 30th December 2024. The primary participants were VI to XII class students, with demonstrations conducted by the staff and M.Sc. Physics students from Government College(A), Rajahmundry.

4. The Practice:

On this whole day from morning to evening, The Department of Physics conducted a series of experiments and demonstrations that covered essential physics concepts. The key experiments included:

1. **Demonstration of Wave Concept:**
    - **Objective:** To illustrate the properties of waves, such as frequency, amplitude, and wavelength.
    - **Experiment:** Using a model wave creator , the students demonstrated how waves propagate, interact, and reflect, helping school students visualize wave behavior.

2. **Periscope:**
    - **Objective:** To explain the principle of reflection of light.
    - **Experiment:** The construction and use of a simple periscope were demonstrated, showing how light can be redirected using mirrors to see objects not directly in view.
3. **Wind Turbine Model:**
    - **Objective:** To introduce the concept of renewable energy and the working principle of wind turbines.
    - **Experiment:** A laboratory-scale wind turbine model was used to demonstrate how wind energy is converted into electrical energy, emphasizing the importance of sustainable energy sources.
4. **Solar Cell Characteristics:**
    - **Objective:** To explain how solar cells convert sunlight into electricity.
    - **Experiment:** Students were shown how to measure the output of a solar cell under different lighting conditions, illustrating the efficiency and practicality of solar energy.
5. **Various Light Experiments:**
    - **Objective:** To explore the properties of light, including reflection, refraction, and diffraction.
    - **Experiment:** Multiple setups, such as prisms, lenses, and diffraction gratings, were used to demonstrate how light behaves under different circumstances.

Each experiment was followed by a Q&A session, allowing school students to clarify their doubts and engage actively in the learning process. Both M.Sc. and the staff provided detailed explanations and guided the school students through the experiments, ensuring a comprehensive understanding.

5. Evidence of Success:

The success of the "LAB TO SCHOOL" program was evident through several indicators:

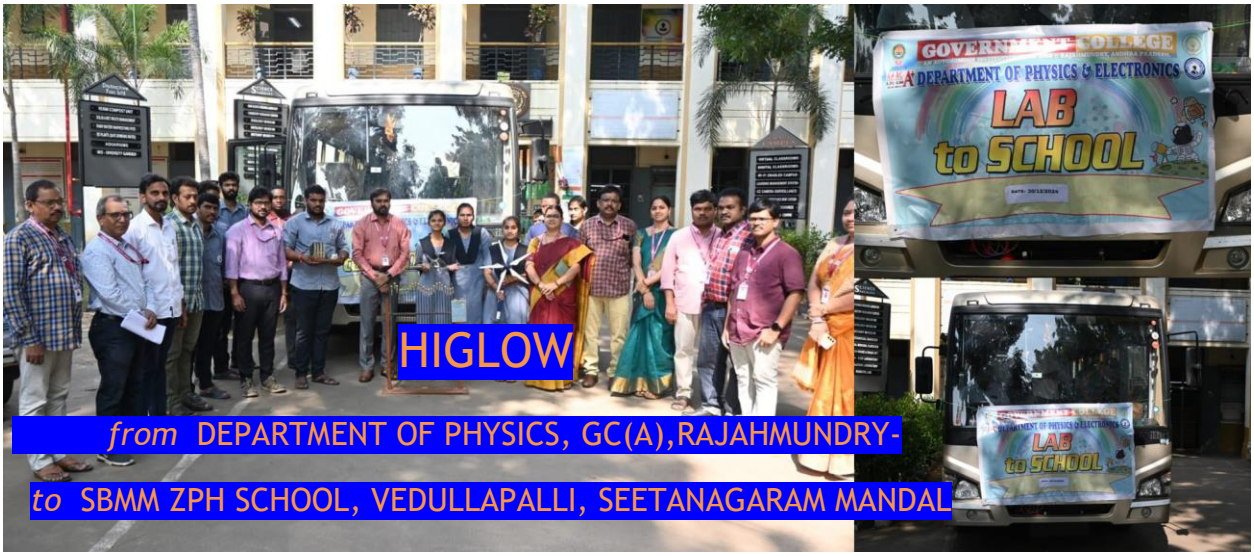
1. **Student Engagement:** The school students showed high levels of interest and participation throughout the program. Their active involvement in the experiments and curiosity during the Q&A sessions indicated a deepened understanding and enthusiasm for physics.
2. **Positive Feedback:** Teachers and administrators at SBMM ZPH SCHOOL, VEDULLAPALLI provided positive feedback, noting that the demonstrations significantly enhanced the students' grasp of concepts that were previously challenging.
3. **Improved Academic Performance:** A follow-up assessment showed that students who participated in the program performed better in their subsequent physics exams, particularly in topics covered during the demonstrations.
4. **Increased Interest in Science:** Several students expressed a newfound interest in pursuing science in their higher education, directly attributing their inspiration to the "LAB TO SCHOOL" program.

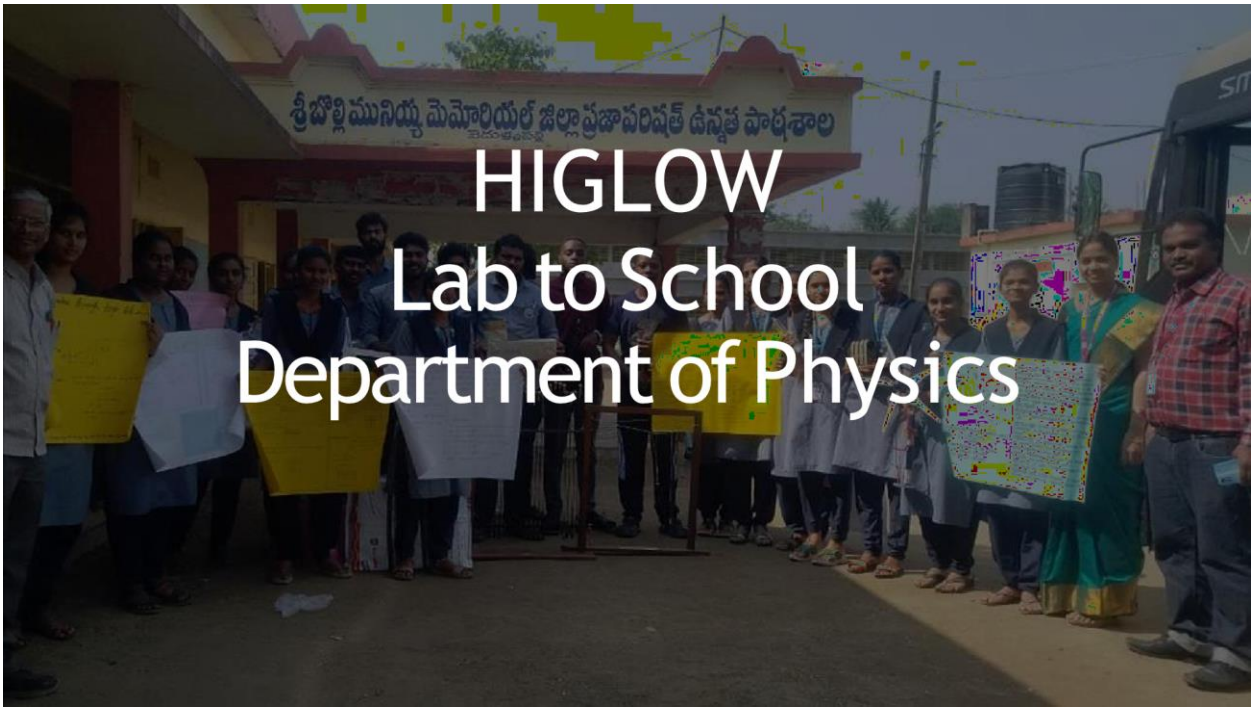
Conclusion:

The "LAB TO SCHOOL" program successfully met its objectives of enhancing science education at the school level by bringing advanced physics concepts into the classroom. The hands-on approach not only

improved students' understanding but also sparked their interest in scientific exploration. The program's success has set a strong precedent for future initiatives, encouraging continued collaboration between the Department of Physics and Electronics at Government College and local schools. The program exemplifies how higher education institutions can play a crucial role in community development by making quality education more accessible and engaging for younger students

Gallary





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Paperclipings

ల్యాబ్ టు స్కూల్‌కు ప్రత్యేక బస్సు

దేవీచౌక్, న్యూస్‌టుడే: రాజమహేంద్రవరం ప్రభుత్వ ఆర్ట్స్ కళాశాల సైన్స్ గ్రూప్ నిర్వహిస్తున్న ల్యాబ్ టు స్కూల్‌కు ప్రత్యేక బస్సు కేటాయించారు. హైదరాబాద్‌కు చెందిన ఐటీ కంపెనీ హన్సా సొల్యూషన్స్ సంస్థ సీఎస్ఆర్‌లో భాగంగా కళాశాలకు రూ. 36 లక్షలు విలువైన ఏసీ బస్సు బహూకరించింది. దీన్ని హన్సా సొల్యూషన్స్, ప్రభుత్వ కళాశాల ల్యాబ్ ఆన్ వీల్స్(ఫ్లైగ్లో) కార్యక్రమానికి కేటాయించినట్లు కళాశాల ప్రిన్సిపల్ కె.రామచంద్రరావు తెలిపారు. పాఠశాల విద్యార్థుల్లో పరిశోధనలపై అవగాహన, ఆసక్తి కలిగించేందుకు కళాశాలలోని పది సైన్స్ గ్రూపులు గత కొంతకాలంగా ల్యాబ్ టు స్కూల్ కార్యక్రమాన్ని నిర్వహిస్తున్నాయి. దీనిలో భాగంగా సోమవారం కళాశాల భౌతికశాస్త్ర విభాగం ఆధ్వర్యంలో సీతానగరం మండలం వెదుళ్లపల్లిలోని బొల్లి మునియ్య జిల్లా పరిషత్ ఉన్నత పాఠశాలలోని విద్యార్థులకు భౌతికశాస్త్ర పాఠ్యాంశంలోని అంశాలను ప్రయోగాత్మకంగా వివరించారు.

ప్రయోగ పరికరాలతో విద్యార్థులు, కళాశాల వర్గాలు