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PRESS RELEASE

Hands-on STEM Experiments Spark Scientific Curiosity Among BCCL PAP Students at Girls High School, Bhaga

Making science engaging through innovative experiments such as Balloon Blow-Up, Lava Lamp and Elephant Toothpaste, IIT (ISM) Dhanbad on Friday conducted a STEM (Science, Technology, Engineering and Mathematics) outreach and motivation programme for around 160 students of Classes IX and X at Girls High School, Railway Colony, Bhaga. Organised under a CSR initiative of Bharat Coking Coal Limited (BCCL), the programme aimed to promote scientific temper, analytical thinking and conceptual understanding among children of Project Affected Persons (PAP) and other underprivileged sections.

The initiative was led by Prof. Rashmi Singh and Prof. Niladri Das from the Department of Management Studies and Industrial Engineering, IIT (ISM) Dhanbad, who adopted a visual, logical and experimental learning approach to make scientific concepts easy and relatable for students.

Through simplified hands-on experiments, students were introduced to core scientific principles such as gas formation, air pressure, chemical reactions, density and pH change. In the Balloon Blow-Up activity, carbon dioxide produced during a chemical reaction inflated the balloon, while the Candle Water Rising experiment demonstrated oxygen consumption and pressure differences. The Turmeric Indicator activity explained pH variation through colour change, and the Lava Lamp experiment illustrated density differences and fluid motion. Students also witnessed the popular Elephant Toothpaste experiment, which demonstrated rapid decomposition reactions through foamy chemical activity.

Prof. Rashmi Singh said, “Science learning becomes more meaningful when students can observe, analyse and experiment on their own.” Prof. Niladri Das added that the initiative seeks to equip students with curiosity, confidence and the foundational skills needed for future education and careers in STEM fields.

Senior BCCL officials including Shri Murli Krishna Ramaiah, Director (HR), Shri Surendra Bhushan, General Manager (CSR), Kumar Manoj, General Manager (CSR), and Shri Abhijeet Mitra, CSR Manager, were present during the session along with School Principal Pramod Singh Choudhary and faculty members.

The programme is part of an ongoing IIT (ISM)-BCCL outreach initiative. Similar STEM sessions were recently conducted at schools in Nawagarh and Jharia, with more workshops planned across coalfield regions in the coming days.

Rajni Singh
Dean (Corporate Communications)