

**SEPTEMBER  
2024**

# NEWSLETTER

**GOAL 7:  
AFFORDABLE AND CLEAN ENERGY**

**(Sustainable Development Goals)**



**JM International School  
Dwarka, New Delhi**



# OVERVIEW OF SUSTAINABLE DEVELOPMENT GOALS

- The 70th Session of the UN General Assembly held on 25th September 2015 adopted the Sustainable Development Goals (SDGs) with 17 goals and 169 targets, under the official agenda “Transforming our world: the 2030 Agenda for Sustainable Development”. India is a signatory to this landmark agreement.



70 Session of UN General Assembly, New York , 25th Sept. 2015

- Officially, the SDGs came into effect from 1st January 2016.
- Member Countries have the responsibility for follow-up and review the progress made in implementing the goals and targets.
- SDGs is an inter-governmentally agreed set of goals relating to international development which aims at meeting the needs of the present without compromising the ability of future generations to meet their own needs.

## 17 GOALS OF SDG





# WHAT IS GOAL 7

# AFFORDABLE AND CLEAN ENERGY

Sustainable Development Goal (SDG) 7 focuses on ensuring access to affordable, reliable, sustainable, and modern energy for everyone. It aims to address the global challenge of energy access by increasing the availability of renewable energy sources, improving energy efficiency, and ensuring that energy is clean and accessible to all.

## KEY ASPECTS INCLUDE:

- Expanding the use of renewable energy sources like solar, wind, and hydroelectric power.
- Improving energy infrastructure to be more efficient and less reliant on fossil fuels.
- Making sure that even the poorest communities have access to affordable energy, which is vital for health, education, and economic development.

Ultimately, SDG 7 is about transforming energy systems to support sustainable development and reduce environmental impacts like climate change.



## WHAT IS THE GOAL HERE?

The world is at a turning point in terms of energy. As we continue to battle climate change and work towards sustainable development, Sustainable Development Goal 7 (SDG 7) stands as a critical pillar.

## WHY DO WE NEED AFFORDABLE AND CLEAN ENERGY AS AN SDG?

It emphasizes ensuring universal access to affordable, reliable, sustainable, and modern energy by 2030. The focus is clear: we need clean, renewable energy that powers lives without harming our planet.

## REASONS WHY SDG 7 IS NECESSARY

Energy powers our daily lives – from turning on the lights to fueling industries and connecting us digitally. However, 759 million people globally still live without access to electricity, and 2.6 billion rely on harmful, polluting fuels like wood and coal for cooking. Without clean energy, health, education, and economic growth are stunted, especially in developing regions. SDG 7 seeks to transform this scenario, ensuring energy equity, while pushing the world towards a low-carbon future. It aligns directly with the global effort to mitigate climate change, aiming to decrease dependency on fossil fuels and promote renewable energy.



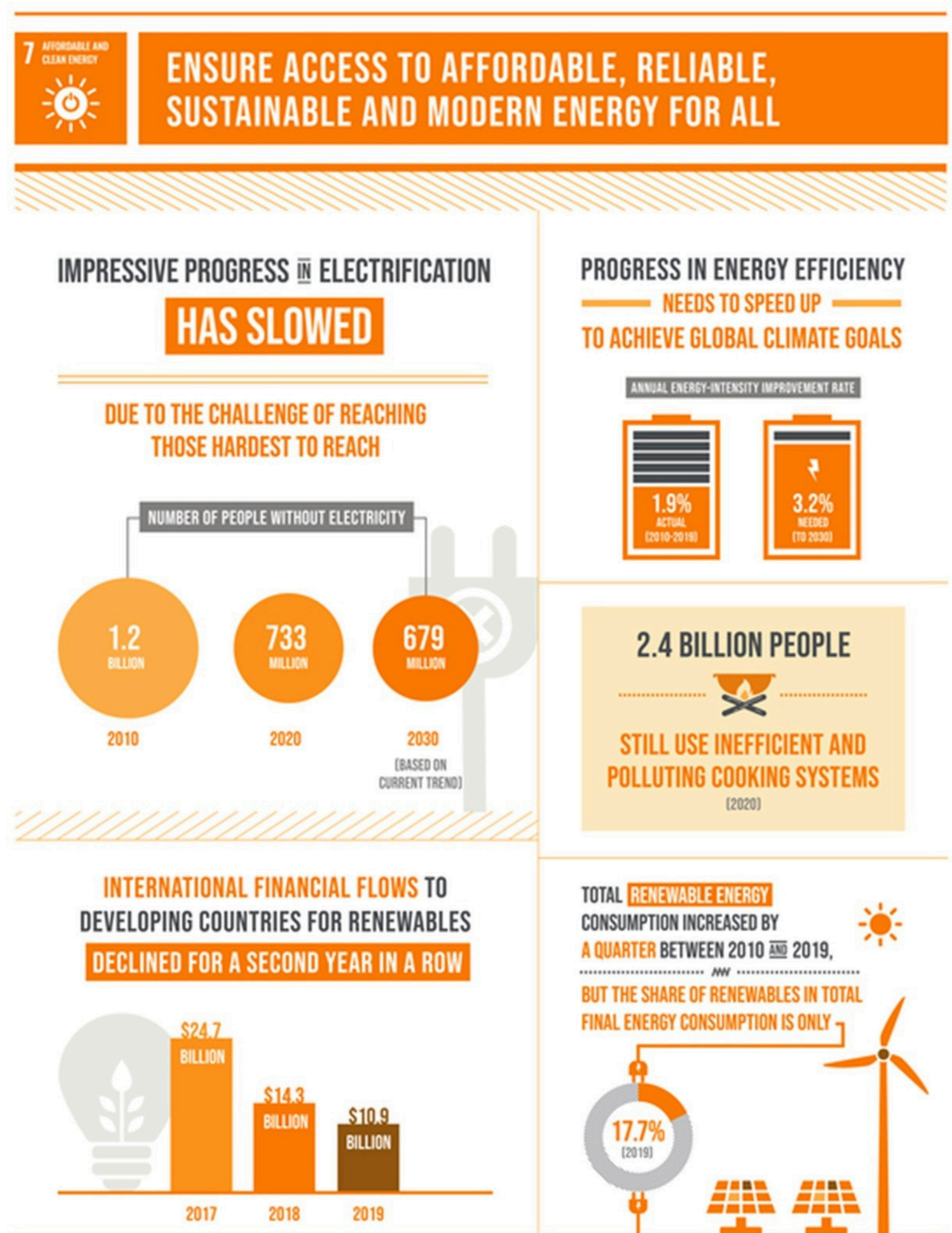
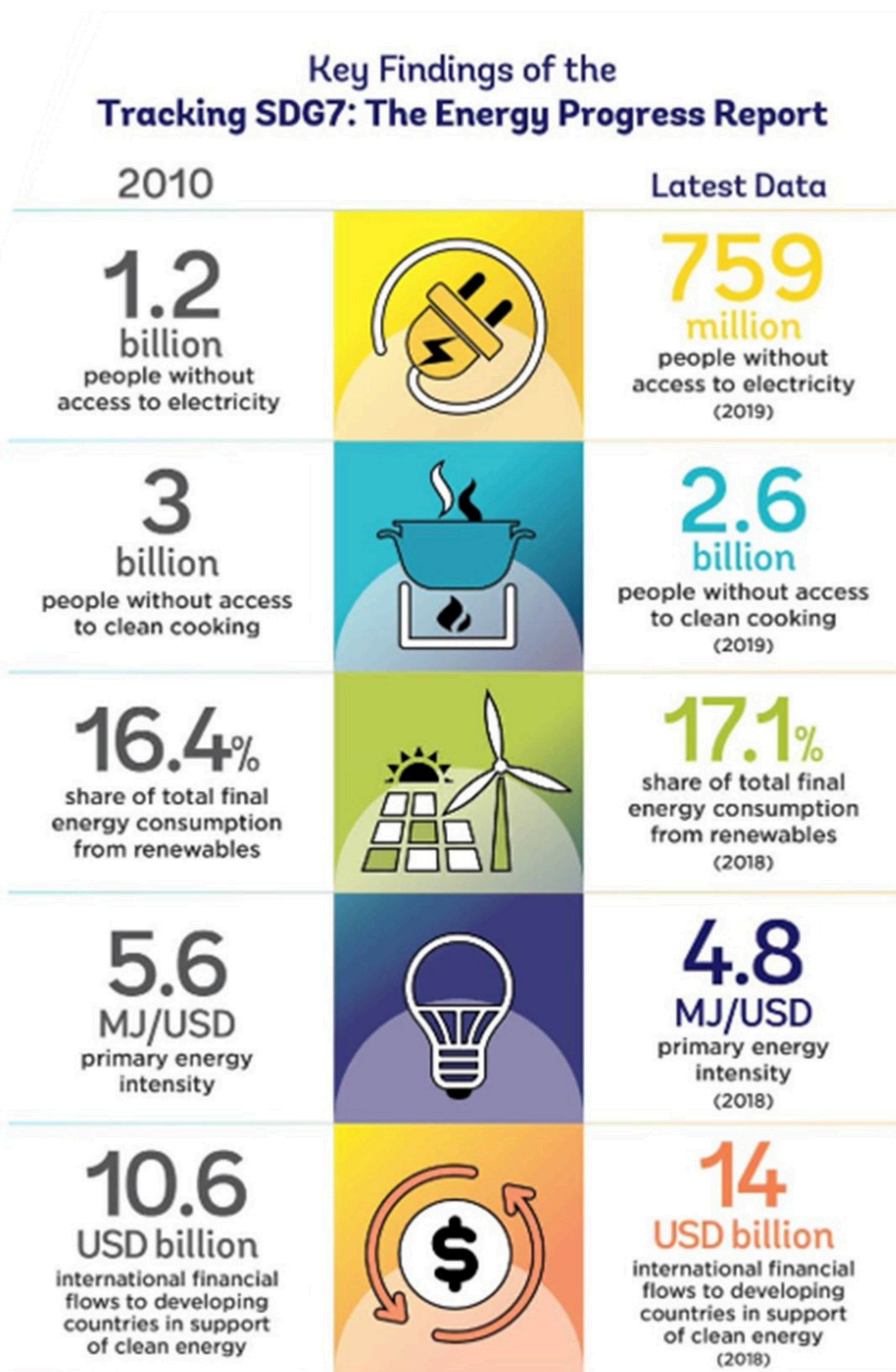
# WHAT ARE THE GOAL TARGETS OF SDG 5 BY 2030?

**Universal Access to Energy:** By 2030, ensure that everyone, everywhere, has access to electricity, including rural and underserved communities.

**Increase in Renewable Energy:** Substantially increase the share of renewable energy in the global energy mix. This includes sources like wind, solar, hydro, and geothermal, which offer a cleaner alternative to traditional fossil fuels.

**Energy Efficiency Improvements:** Doubling the rate of energy efficiency by promoting smarter consumption and the use of technology to reduce energy waste.

**International Collaboration:** Enhance international cooperation to provide modern, sustainable energy infrastructure and technology, especially in developing countries.





# HOW TO ACHIEVE SDGs

- A localized approach to address the unique challenges and opportunities present at the local level. By building a Local SDG Agenda tailored to gender equality, we can effectively target and implement initiatives that promote women's rights and empowerment.
- Creating an environment where multiple stakeholders—including civil society, private sector organizations, professional associations, and other agencies—actively participate in gender-focused initiatives is crucial. These collaborative efforts can drive meaningful change and ensure that diverse perspectives and resources contribute to gender equality.
- Conducting a situation assessment to identify development gaps and needs related to gender inequality is essential. By setting priorities at the local government and district levels, we can formulate targeted SDG-wise planning that addresses specific gender issues. Aligning existing budgets, schemes, and programs with relevant SDG 5 targets will further enhance our efforts to achieve gender equality in our state.





## ABOUT

# STEMROBO TECHNOLOGIES



**STEMROBO** provides 'End-To-End Solution to K-12 Schools' for 'Nurturing Innovation & 21st Century Skills' among young students of age 6-18 years across the globe. We offer young students an opportunity to explore, experience and bring innovation through a world class STEAM, Artificial Intelligence, Robotics & Coding curriculum integrated with our unique & affordable 'Technology Products and Solutions' delivered in an online or hybrid model; thereby enabling and empowering students to be able to become Creative - Thinkers and Problem - Solvers. Together, let's unlock the potential within each student, ignite a passion for Innovation, Creativity & Learning, and pave the way for a brighter tomorrow.

## IMPORTANCE OF STEM EDUCATION FOR KIDS

The term "STEM" typically refers to a group of academic disciplines that are focused on science, technology, engineering, and mathematics. It prepares them for the future by building problem-solving skills, encouraging curiosity and exploration, fostering collaboration and communication skills, and addressing global challenges that require STEM principles for their solution.





# STEMROBO TECHNOLOGIES

Innovation, Creativity & Learning

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Together, let's unlock the potential within each student, ignite a passion for Innovation, Creativity & Learning, and pave the way for a brighter tomorrow.

[www.stemrobo.com](http://www.stemrobo.com)

## Mission

Our mission is to build an ecosystem focused on leveraging technology in education where **STEAM, Robotics, Coding, Artificial Intelligence & AR/VR** are utilized as crucial tools for kids to become smart in their academics and be able to solve modern world problems.

## Vision

The company's vision is to nurture innovation and 21<sup>st</sup> century skills in K-12 students across the globe and prepare them for the future technological world. We are on a journey which will help every student to elevate core skills like **Logical Thinking, Creativity, Computational Thinking and Problem - Solving**.

ROBOTIC





# About

## School Robotics Lab



The Robotics Lab is a dedicated workspace where students can learn, experiment, and transform their ideas into prototypes. Designed to foster creativity beyond rote learning, the lab encourages students to explore futuristic skills such as design and computational thinking, adaptive learning, and artificial intelligence.

Equipped with state-of-the-art tools and equipment like 3D printers, robotics kits, and electronic components, the Robotics Lab provides a hands-on learning experience in science, technology, engineering, and mathematics (STEM) fields. The primary goal is to cultivate problem-solving and critical thinking skills from an early age. By promoting experimentation and innovation, the lab aims to nurture the next generation of innovators and entrepreneurs, preparing them for future challenges and contributing to the overall development of India's technological landscape.



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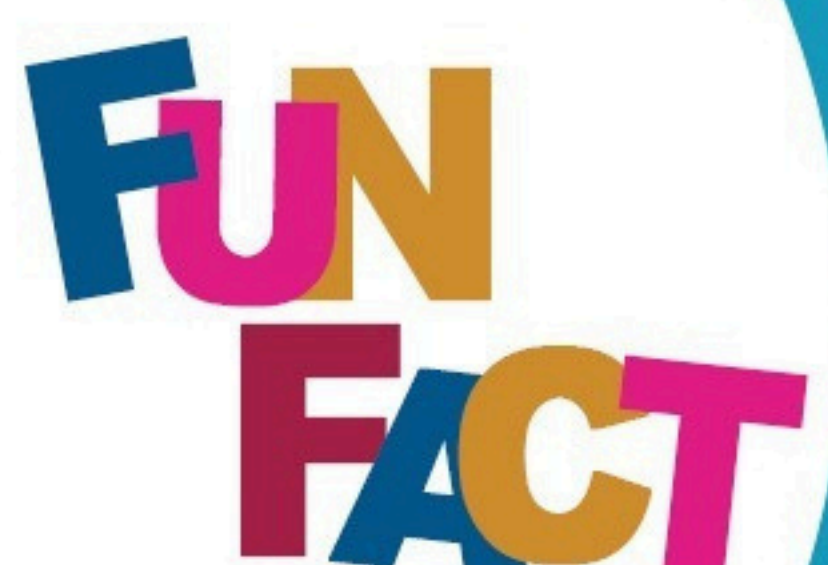
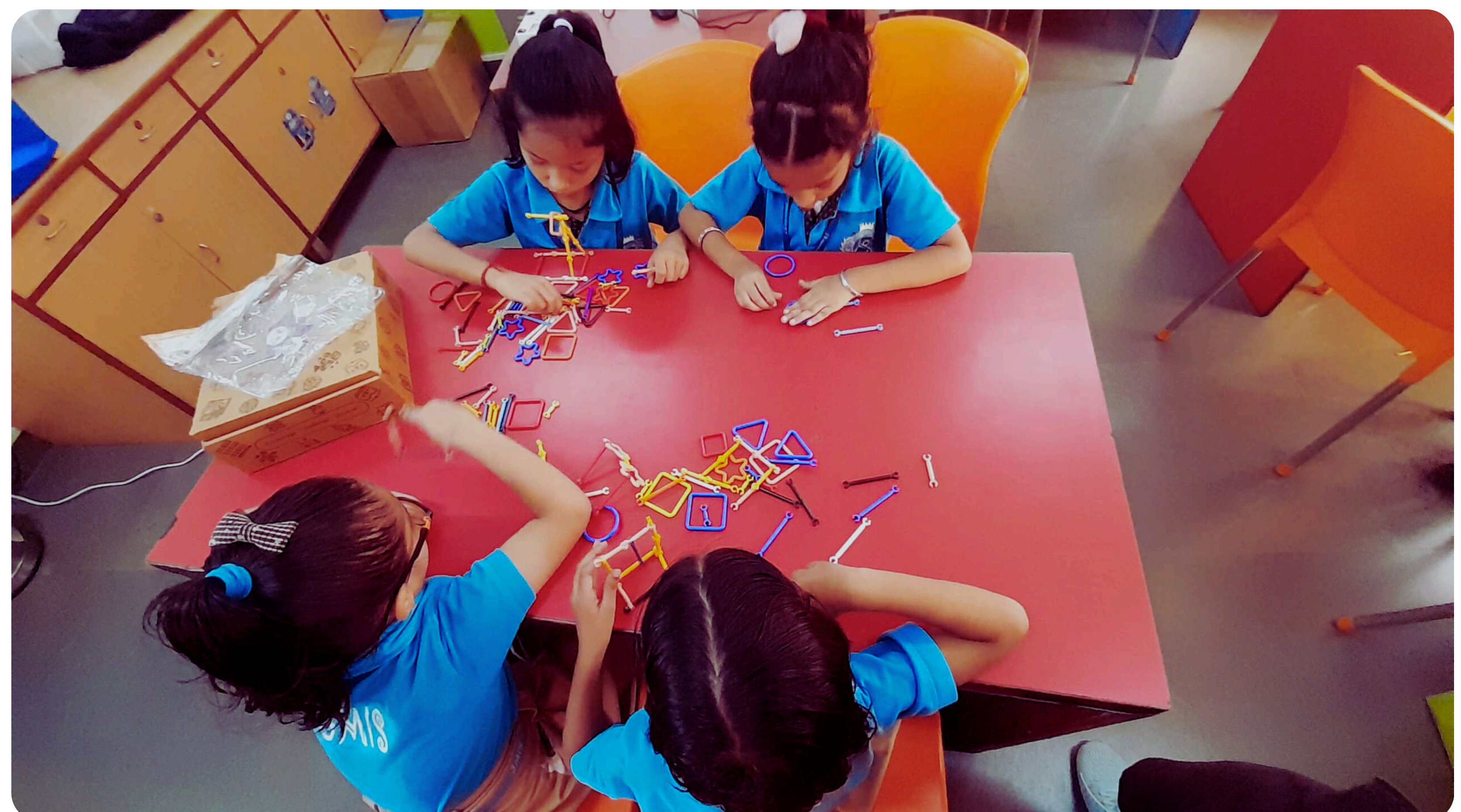
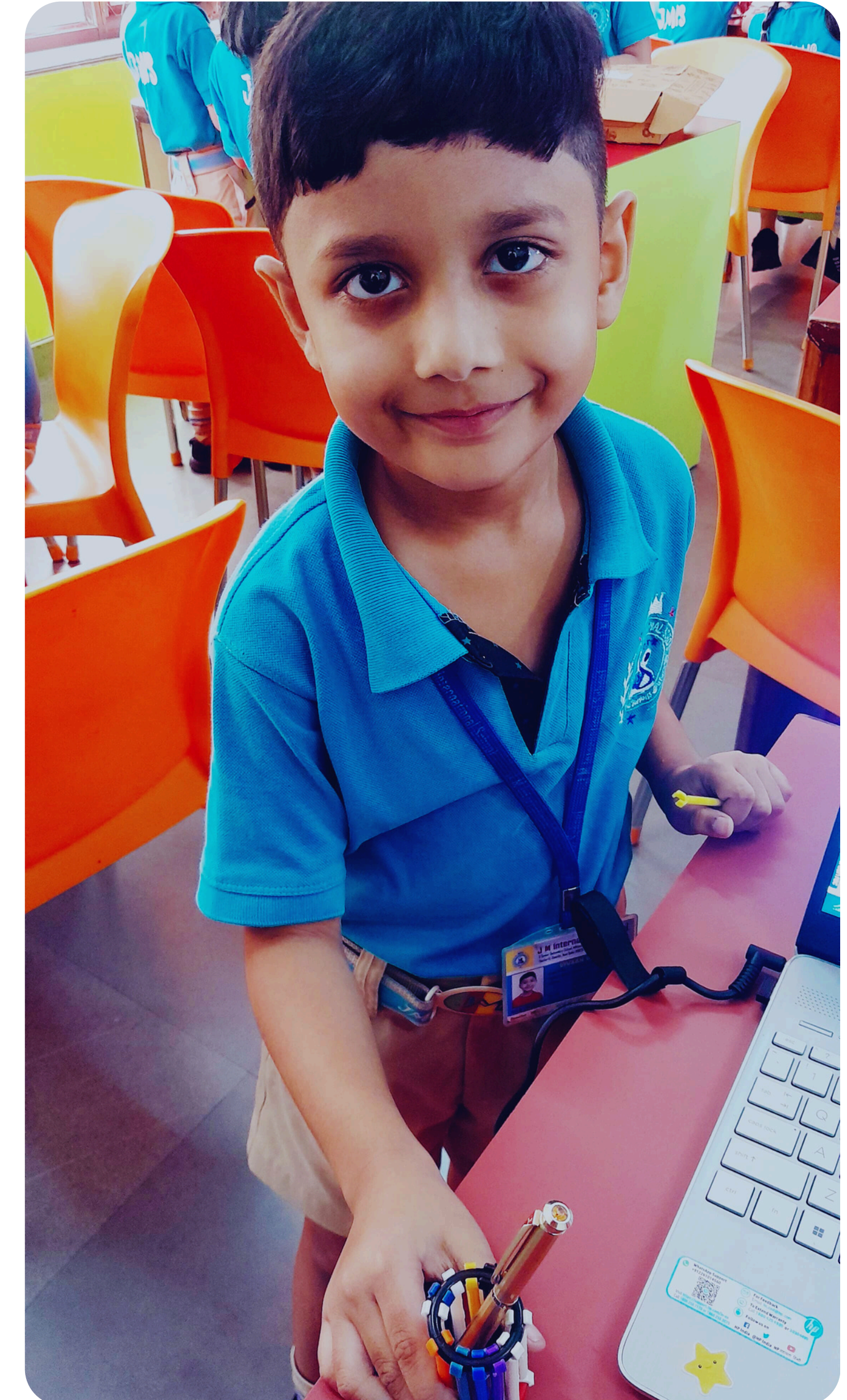
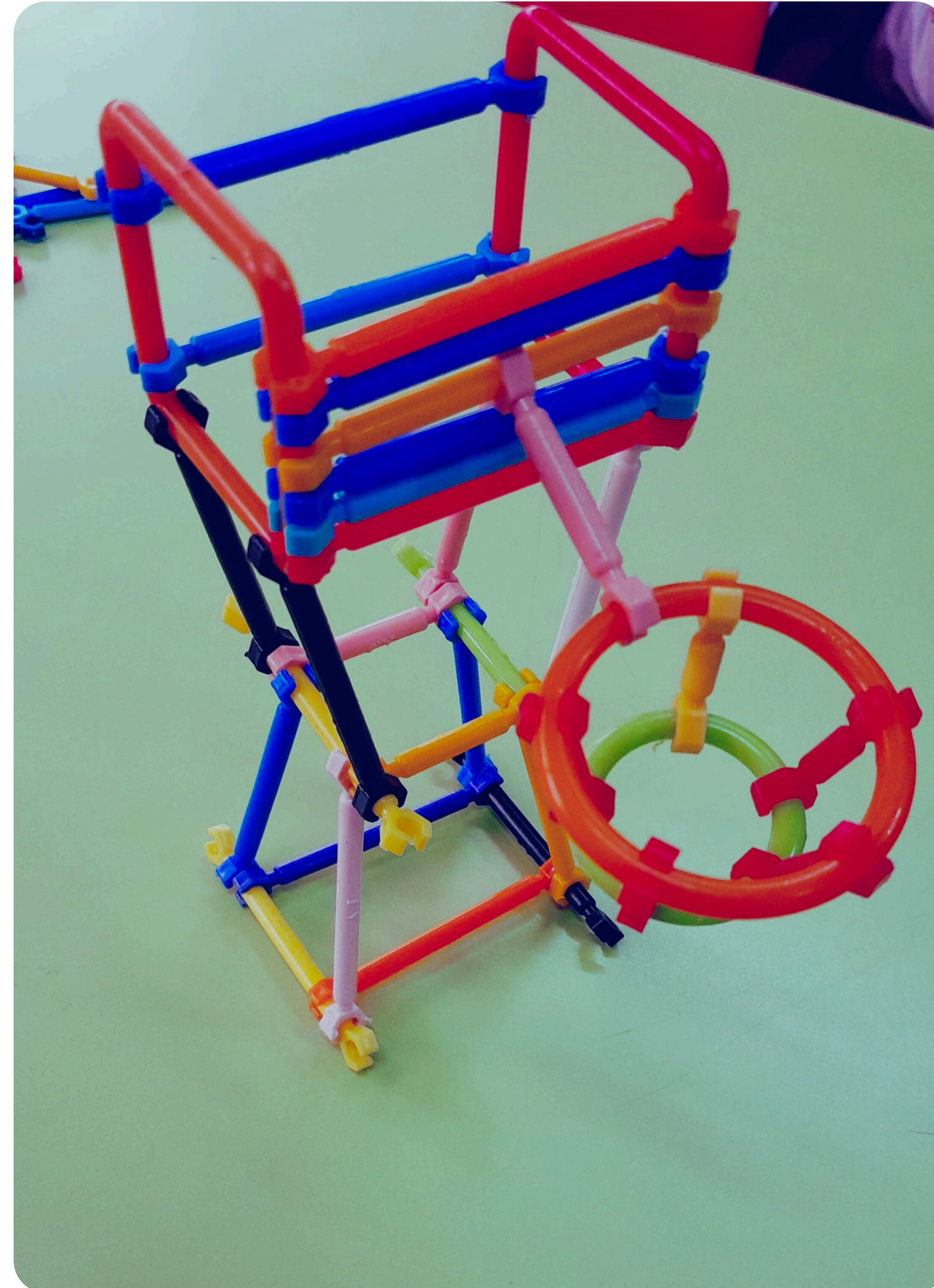
## GLIMPSE OF ACTIVITIES

### Grade I & II

- Introduction to Fun Linker Kit
- The Fun Linker Kit engages students in hands-on activities, introducing them to basic engineering principles in a fun and creative way.
- Introduction to Engineering Designing
- Students learn the fundamentals of engineering design through simple, step-by-step methods, making complex concepts easy to understand and apply.

### Activities:

- **Beach Ball:** Create a model of a beach ball, exploring shapes and structural assembly.
- **Pen Holder:** Design a functional pen holder, learning about stability and utility.
- **Basketball Hoop:** Build a basketball hoop, focusing on structure and usability.
- **Rope Swing:** Construct a rope swing, understanding balance and movement.



Solar power is booming! Solar energy is one of the fastest-growing energy sources, becoming 10 times cheaper than it was a decade ago.



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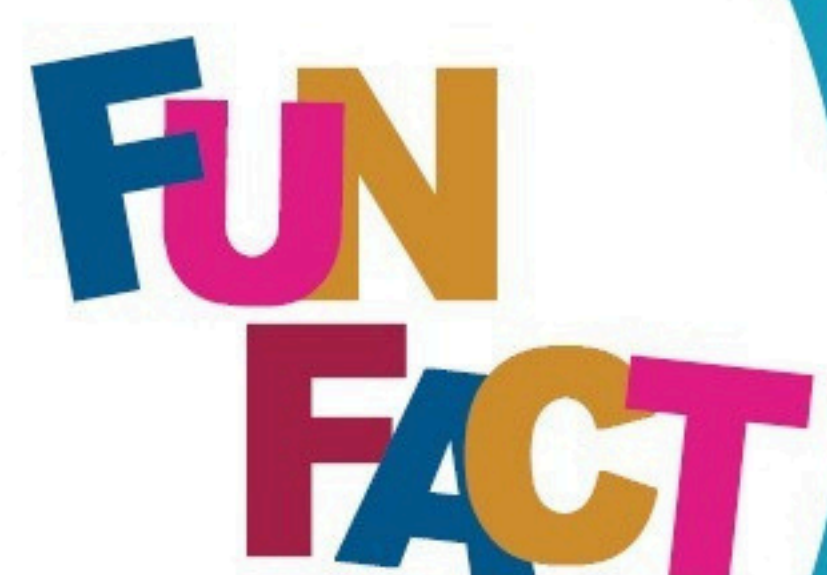
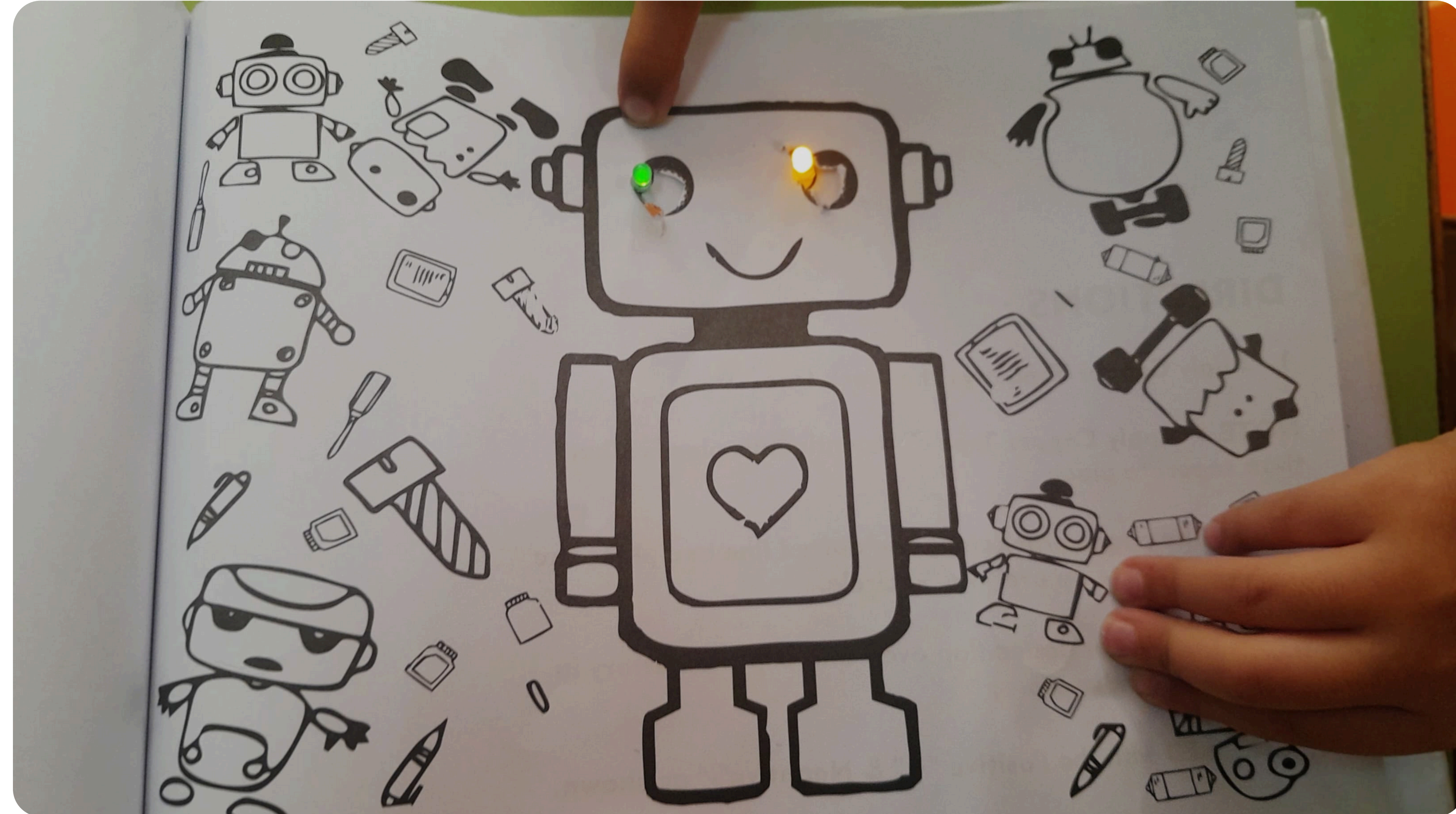
## GLIMPSE OF ACTIVITIES

### Grade III

- The Paper Circuit Kit, Smart Block Kit, and Fun Linker Kit offer an engaging way for students to explore the fundamentals of electronics, engineering, and design. These kits simplify complex concepts, allowing students to learn through hands-on projects.

### Activities:

- **Laughing Boy:** Build a playful circuit project that generates sound.
- **Robot:** Create a simple robot, exploring movement and functionality.
- **Dark Room Safety Alarm:** Design an alarm system to enhance safety in dark spaces.
- **Beach Ball:** Construct a model beach ball, focusing on structure and creativity.
- **Rope Swing:** Assemble a miniature swing, learning about balance and design.



The first electronic computer, ENIAC, was so big it filled an entire room, yet it had less computing power than a modern smartphone!



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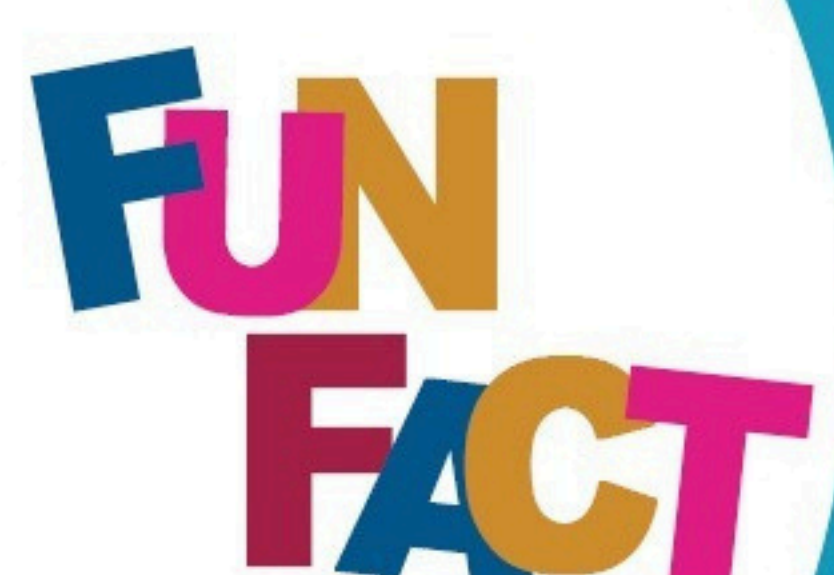
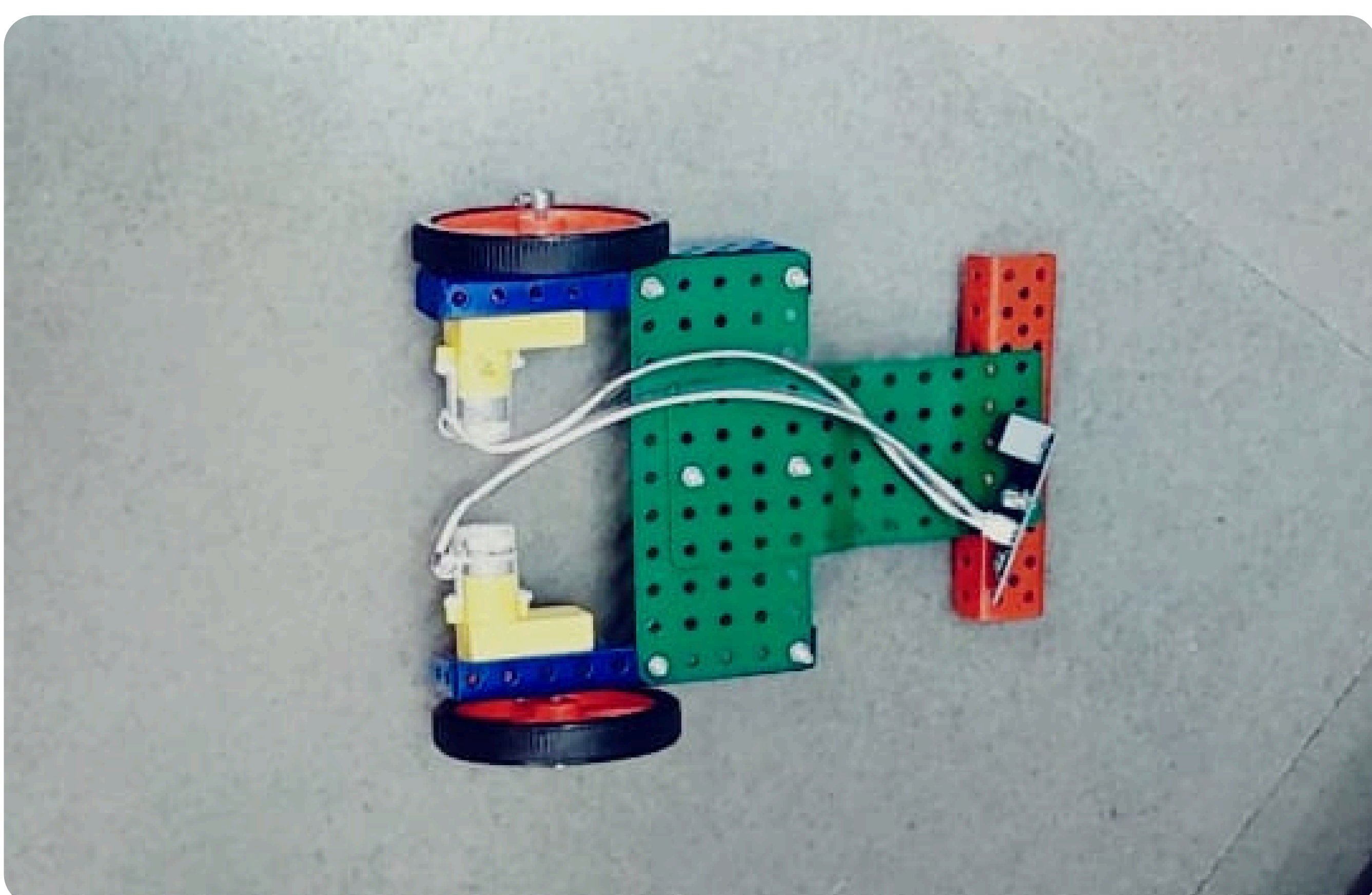
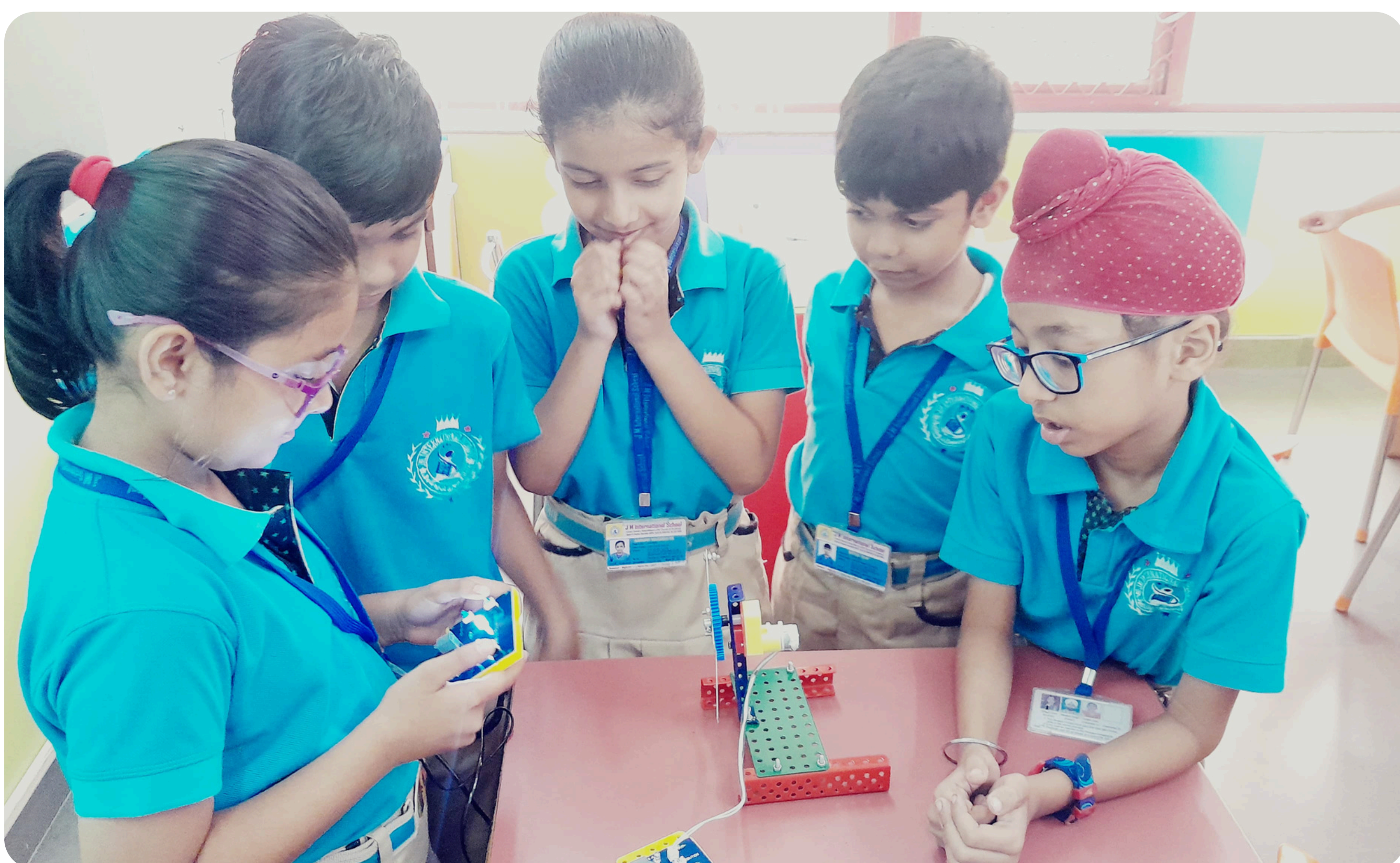
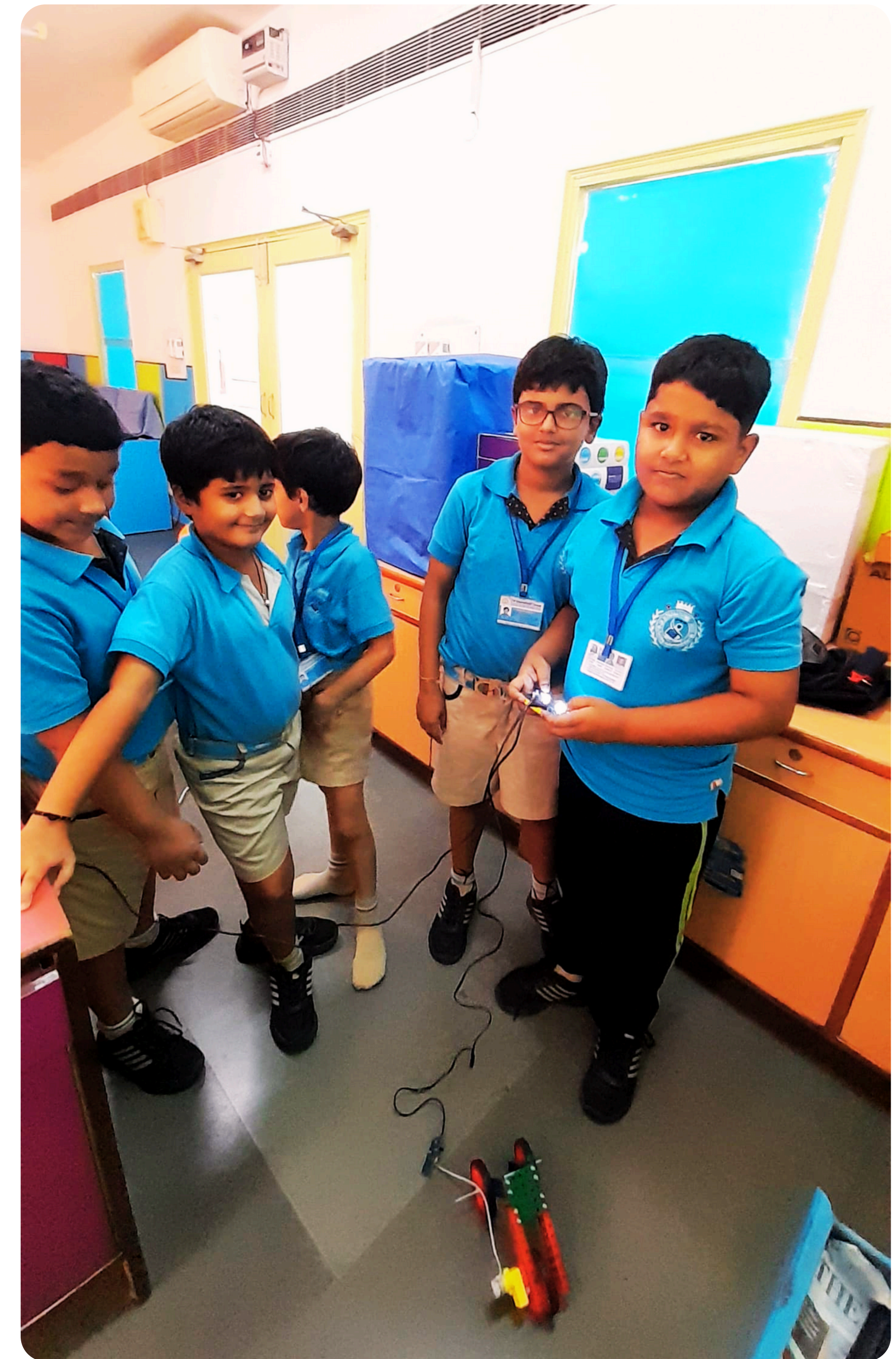
## GLIMPSE OF ACTIVITIES

### Grade IV

- The Mechatron Kit introduces students to the basics of mechanics, electronics, and engineering through engaging, hands-on projects. It simplifies concepts like motion, rotation, and electricity flow, making them easy to understand and apply.

### Activities:

- **Tricycle:** Motion and balance.
- **Obstacle Avoiding Robot:** Automation skills.
- **Table Fan Bot:** Rotation and function.



Mechanics helps us design everything from bicycles to roller coasters! It's all about using forces and motion to make things move efficiently and safely.



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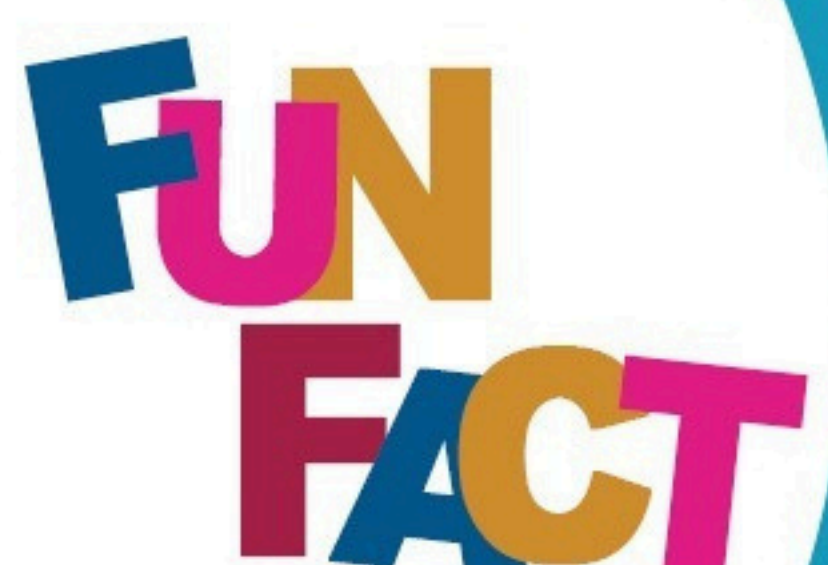
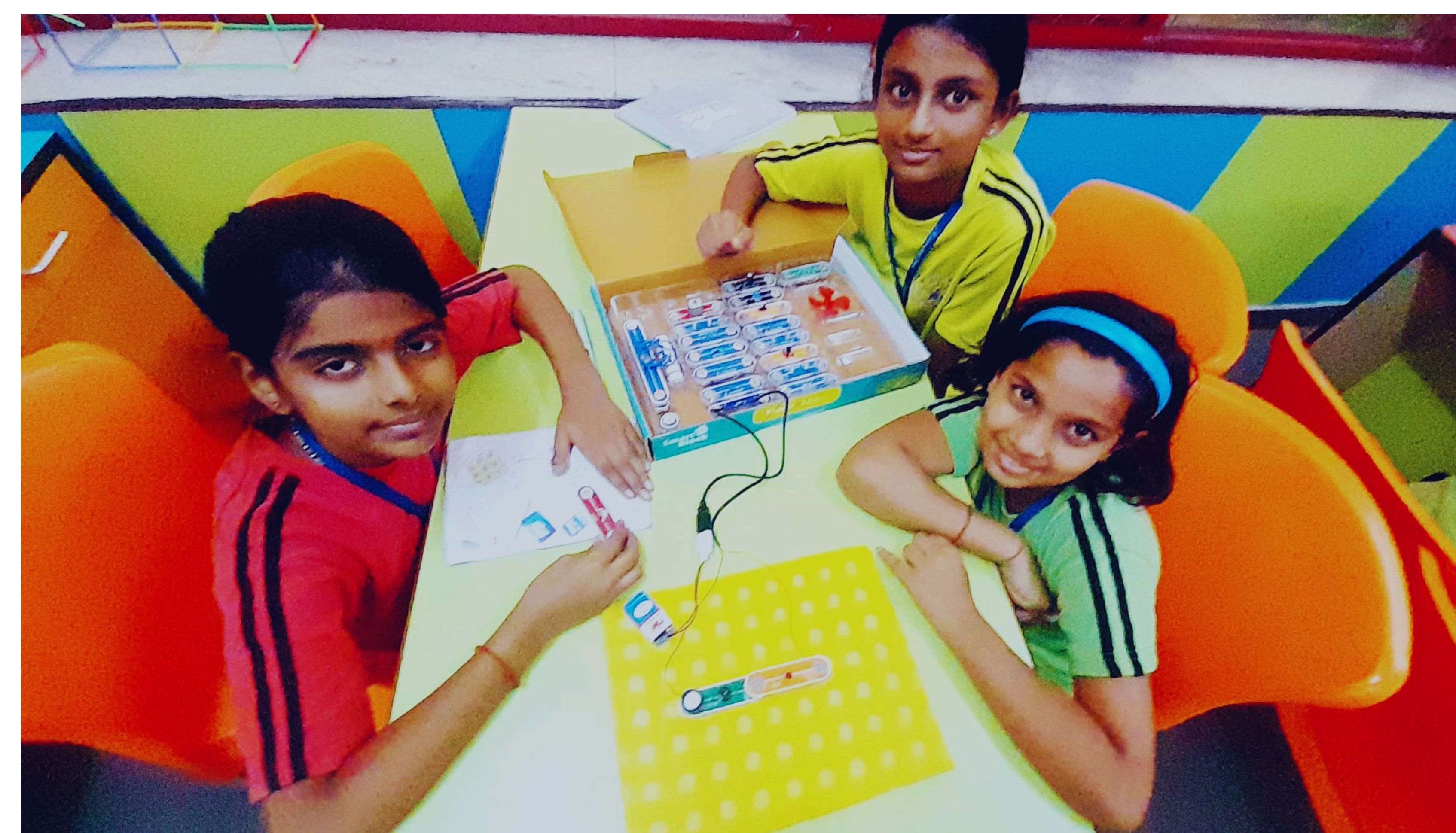
## GLIMPSE OF ACTIVITIES

### Grade V

- The Smart Block Kit provides hands-on learning with components like LEDs, push buttons, and potentiometers, introducing basic electronics and circuit design concepts.

### Activities:

- **Light Up a Bulb:** Basics of circuit connections.
- **Car Music Control:** Sound control exploration.
- **Spin a Fan:** Understanding motor operations.



The smallest electronic circuits today can fit on a chip smaller than a fingernail, powering everything from smartphones to satellites!



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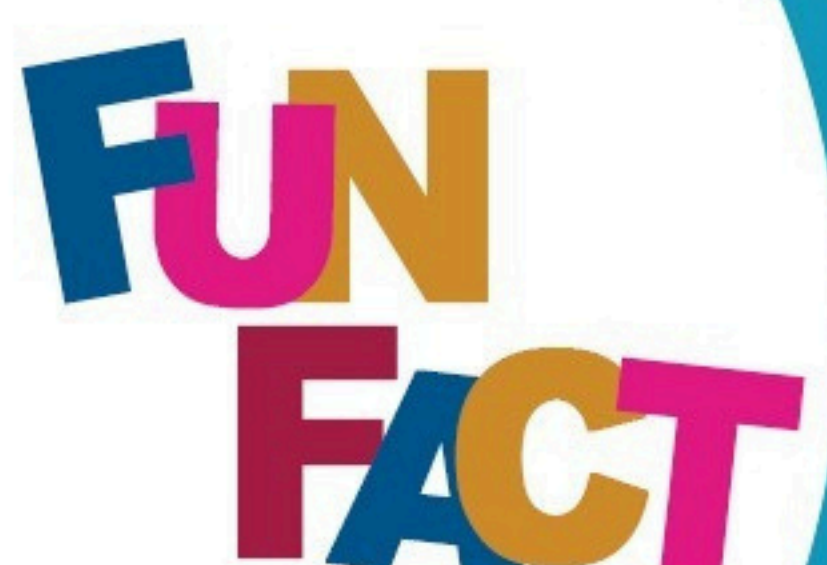
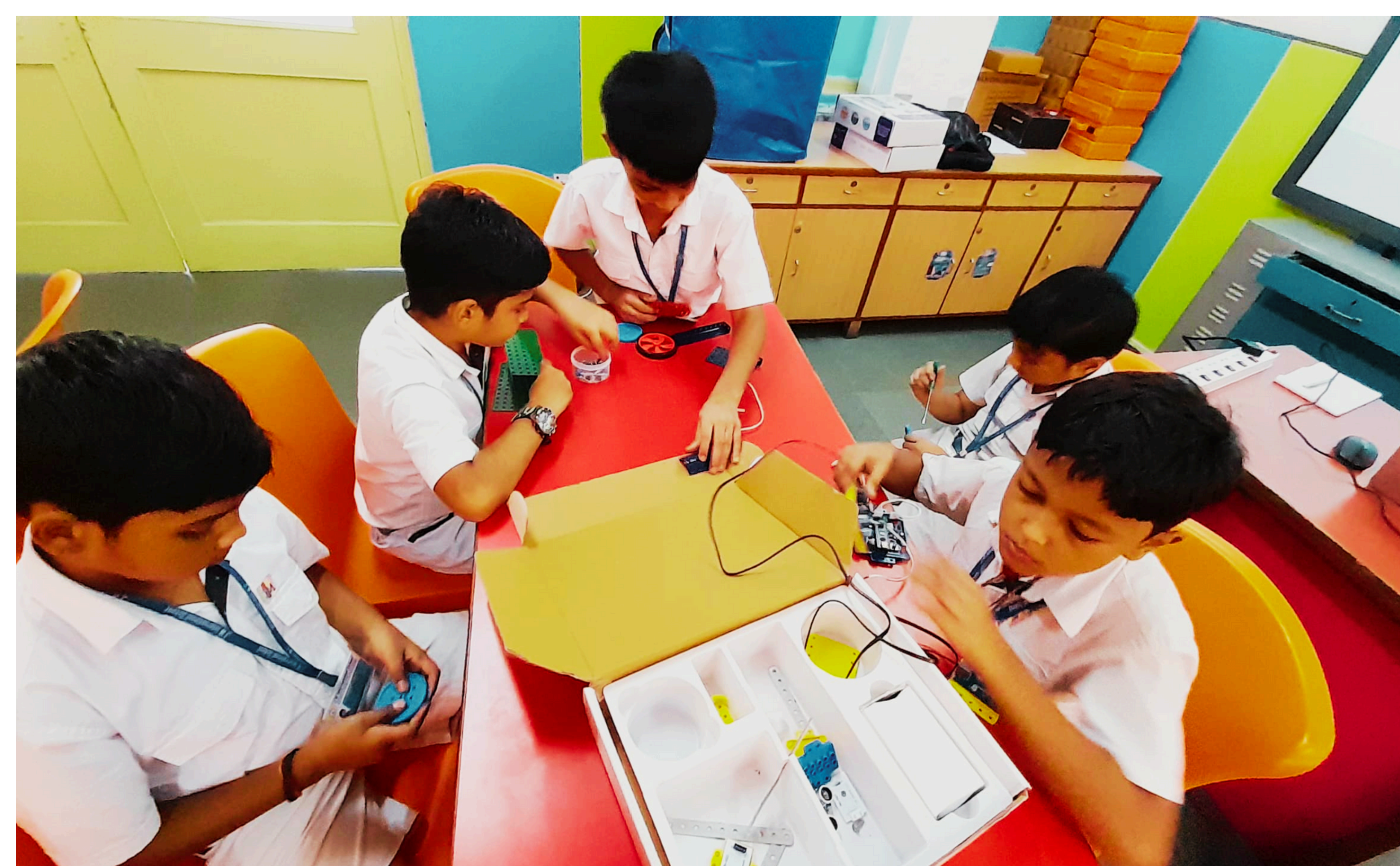
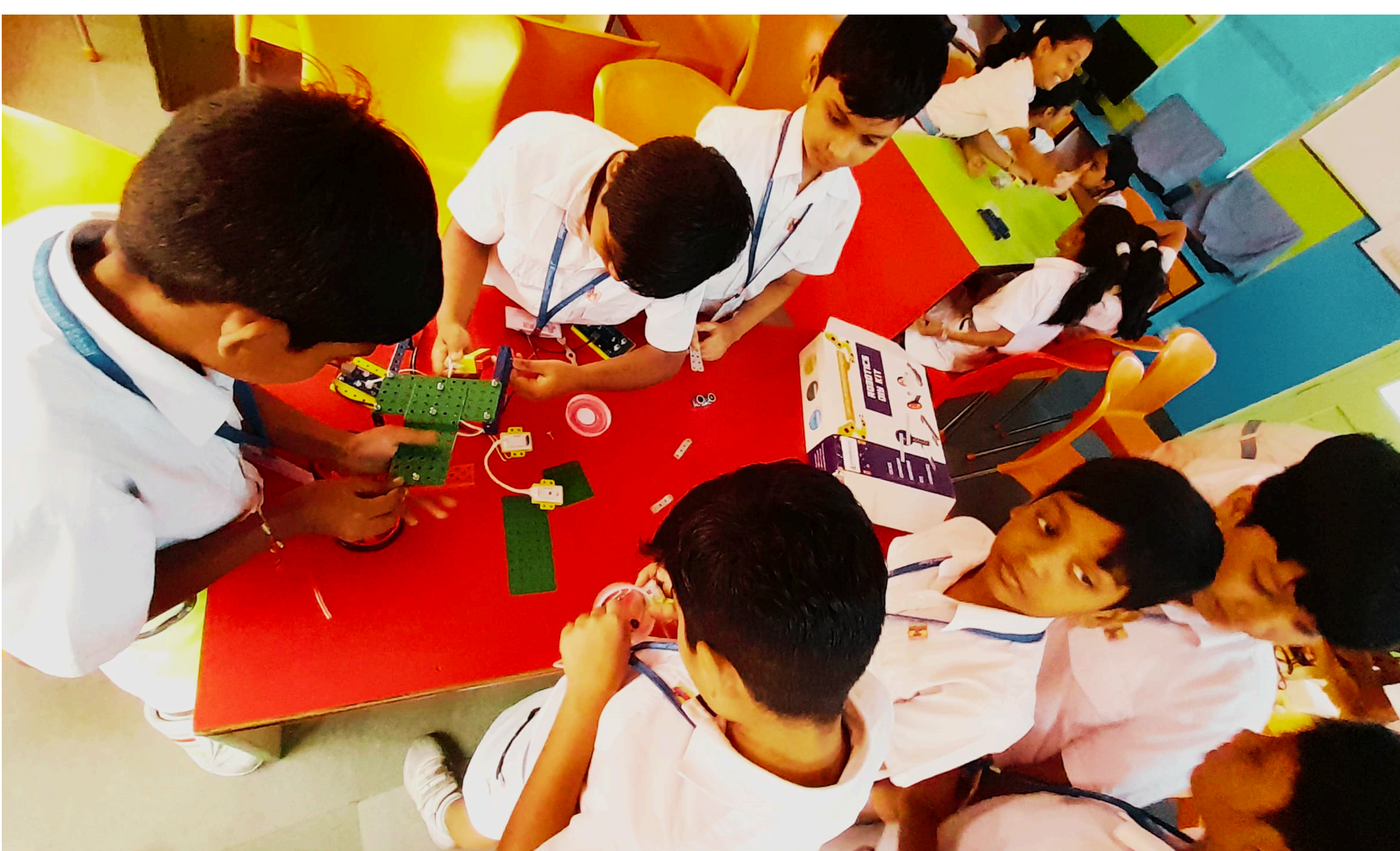
### GLIMPSE OF ACTIVITIES

#### Grade VI

- Introduction to Tinker Orbit Kit
- The Tinker Orbit Kit introduces laser and IR sensors, showcasing their applications in technology.
- Introduction to Mechatron Kit
- It also includes mechanical components like motors and plates for hands-on learning.

#### Activities:

- **Laser with IR Sensor:** Control lasers using IR sensors.
- **Laser with Push Button:** Operate lasers with push buttons.
- **Robo-Soccer:** Create robots for soccer.
- **Robotic Crane:** Build and operate a crane.



The first robot, named "Unimate," was created in 1954 to work on an assembly line, and now robots are exploring Mars and performing surgeries!



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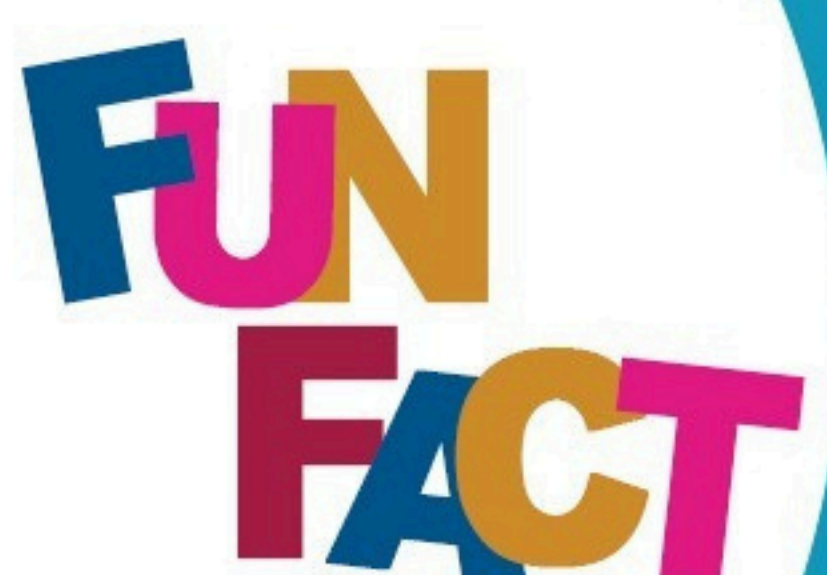
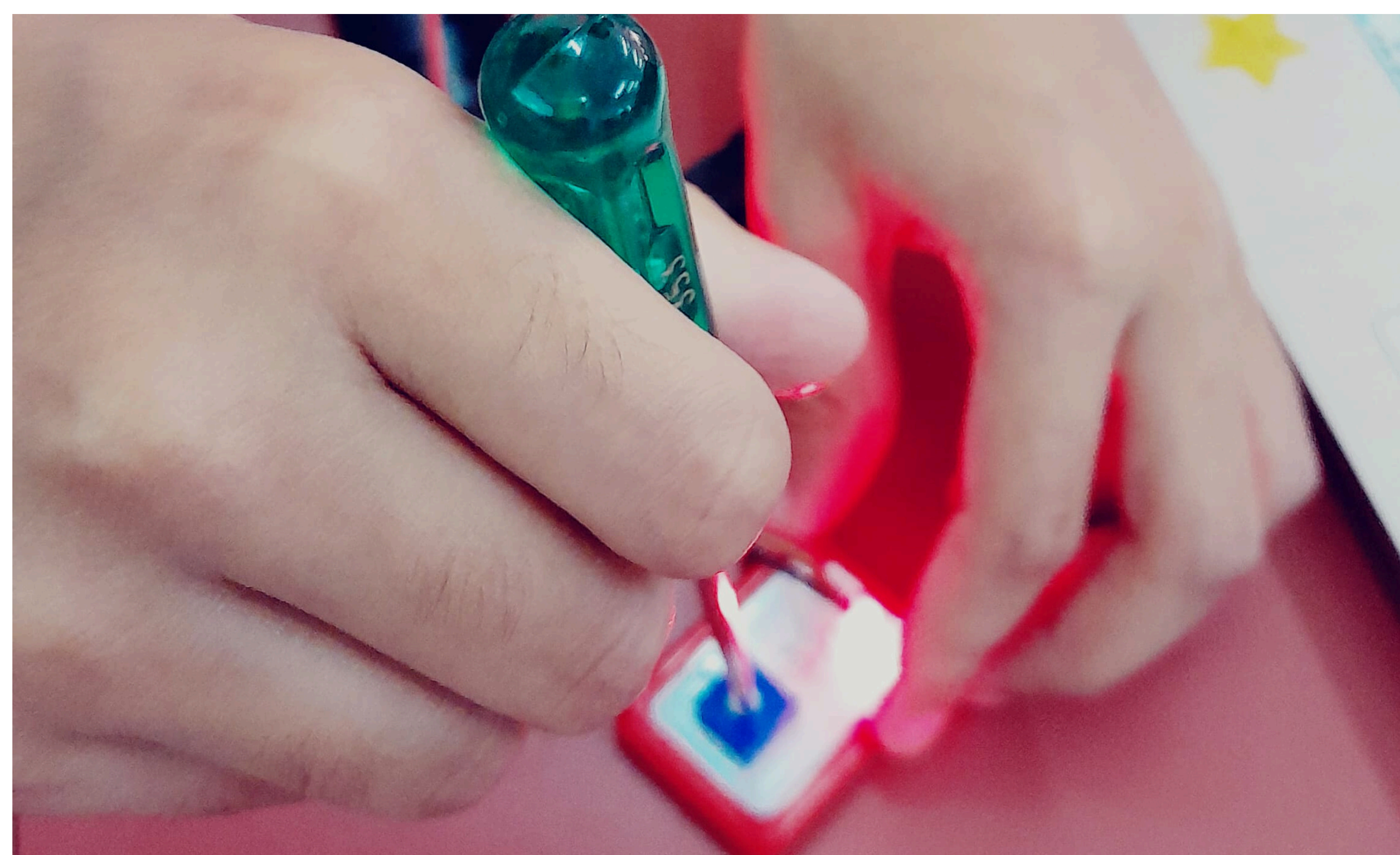
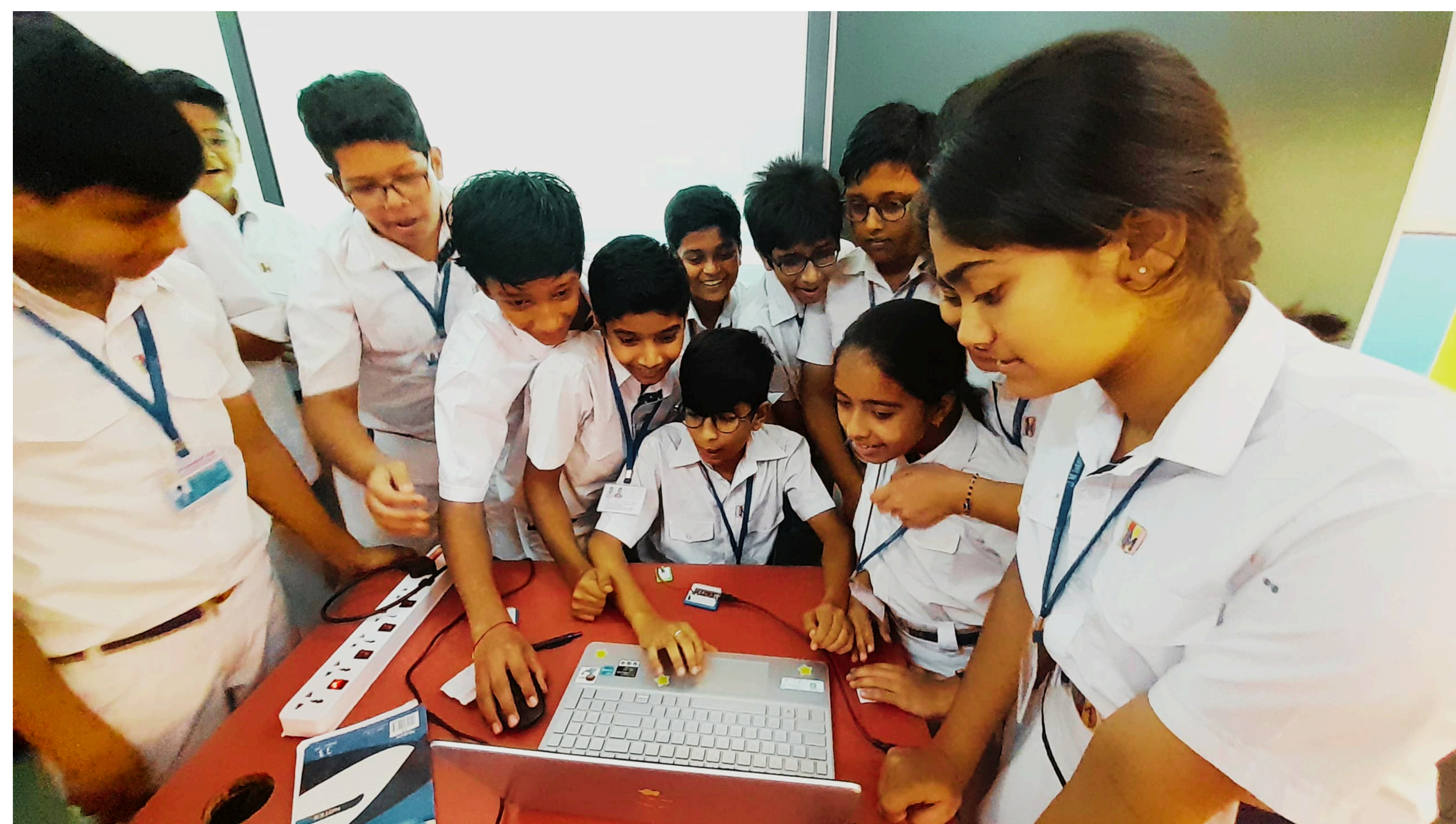
## GLIMPSE OF ACTIVITIES

### Grade VII

- The Tinker Orbit Kit offers a comprehensive introduction to electronics, IR sensors, block coding, and Arduino Nano programming.

### Activities:

- **Controlling Laser Using IR Sensor:** Learn how to control a laser with an IR sensor, demonstrating sensor applications.
- **Laser Control Using Push Button:** Understand how to operate a laser using a simple push button, exploring basic control mechanisms.
- **LED Blinking Using Arduino Nano:** Program the Arduino Nano to blink an LED, gaining skills in microcontroller programming.



The first microcontroller, created in 1971, was used in calculators. Today, they power everything from smartwatches to space probes!



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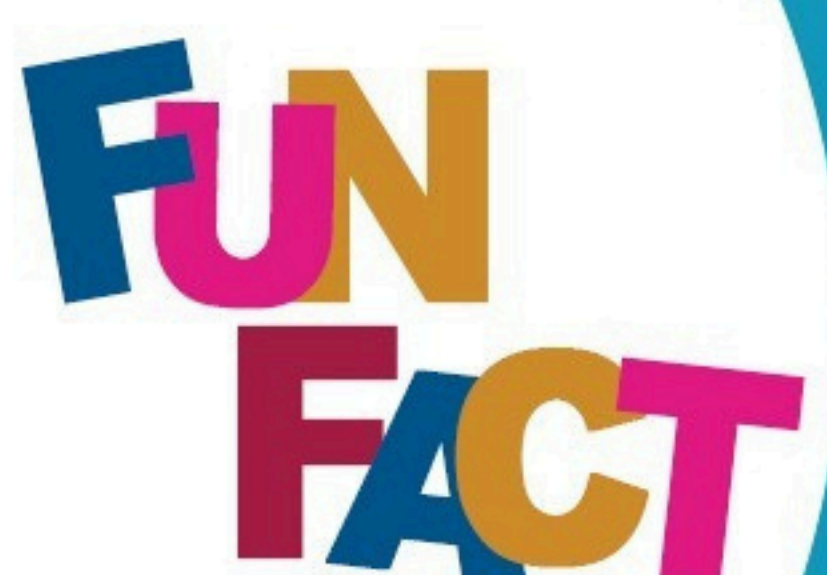
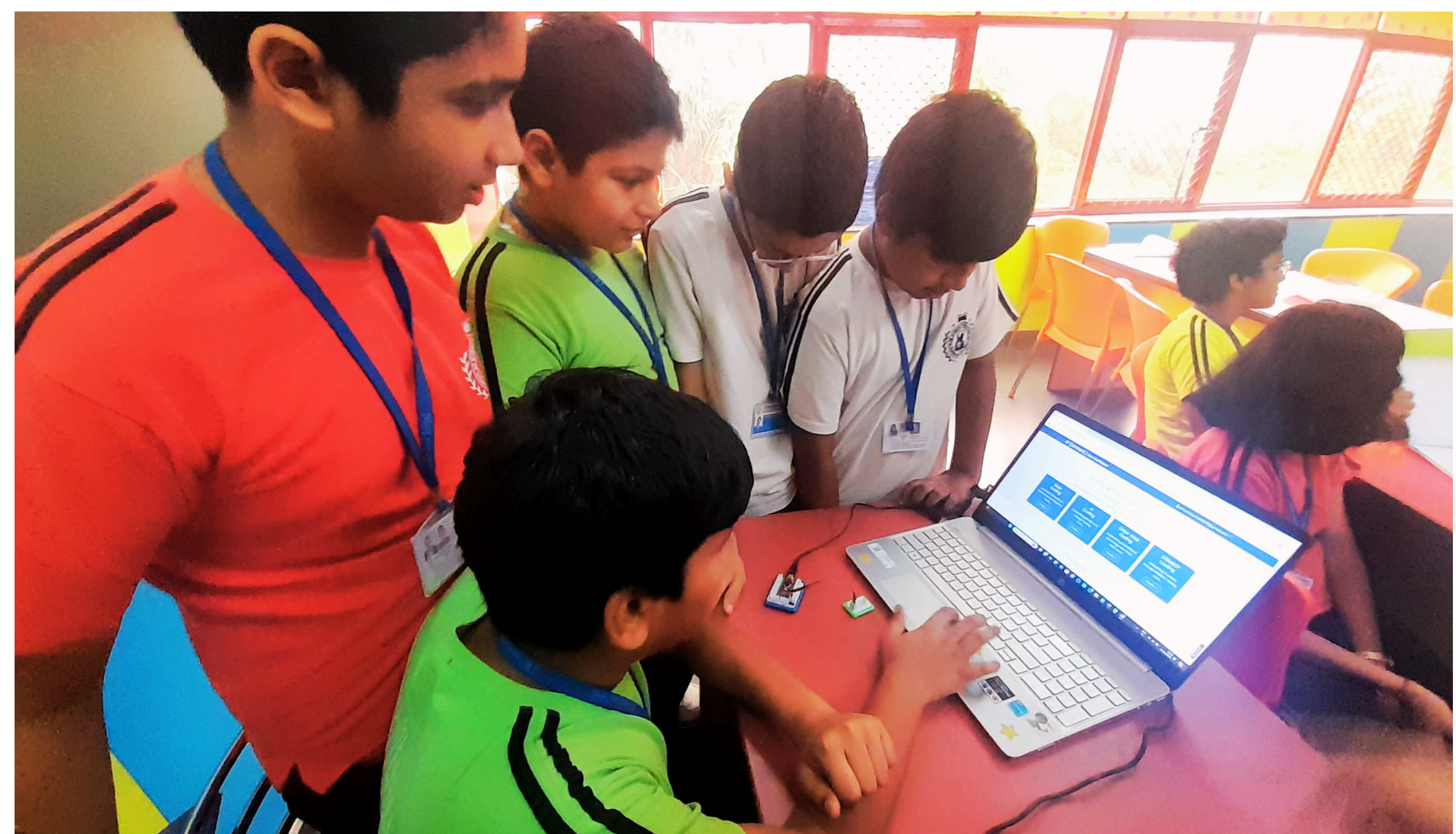
## GLIMPSE OF ACTIVITIES

### Grade VIII

- The Tinker Orbit Kit offers a comprehensive introduction to electronics, IR sensors, block coding, and Arduino Nano programming.

### Activities:

- **Controlling Laser Using IR Sensor:** Learn how to control a laser with an IR sensor, demonstrating sensor applications.
- **Laser Control Using Push Button:** Understand how to operate a laser using a simple push button, exploring basic control mechanisms.
- **LED Blinking Using Arduino Nano:** Program the Arduino Nano to blink an LED, gaining skills in microcontroller programming.



Sensors can be as sensitive as human senses! For example, some sensors can detect light millions of times dimmer than a candle or changes in temperature as small as 0.01°C.



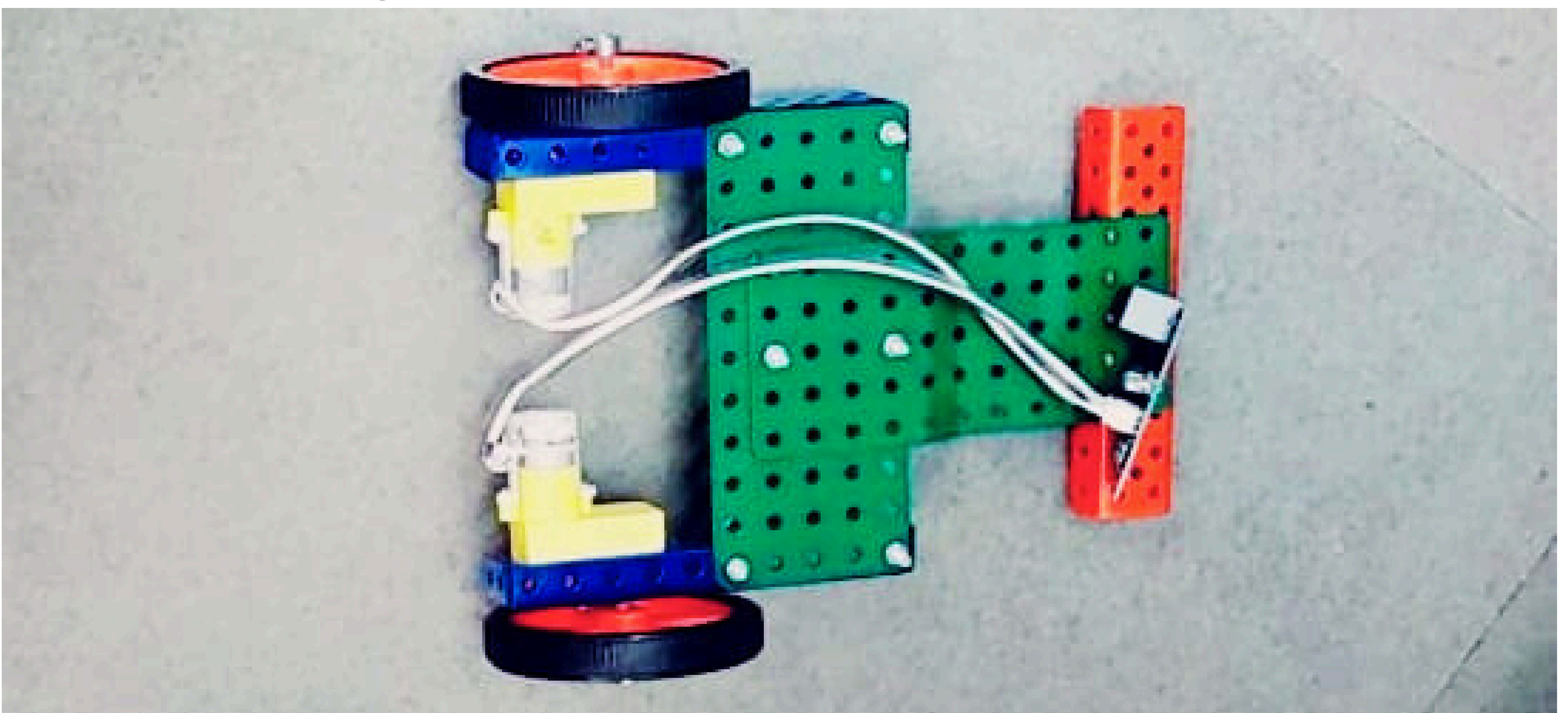
## — GLIMPSE OF — PROJECTS

Our school students successfully completed an **Obstacle-Avoiding Robot** project in the robotics lab. They learned to use sensors, like ultrasonic sensors, for obstacle detection and assembled the robot by connecting motors and wheels. After programming it with simple code, the robot effectively avoided obstacles. This hands-on project enhanced their understanding of robotics and problem-solving skills in a fun and practical way.



**Obstacle-Avoiding Robot**

**Impact:** The project enhanced students' technical skills, problem-solving abilities, and creativity while fostering teamwork and sparking interest in STEM. It provided hands-on learning, boosted confidence, and encouraged innovative thinking.



“

**FUN  
FACT**

Energy efficiency saves billions! Every dollar invested in energy efficiency can yield up to \$4 in savings by reducing energy bills and consumption.

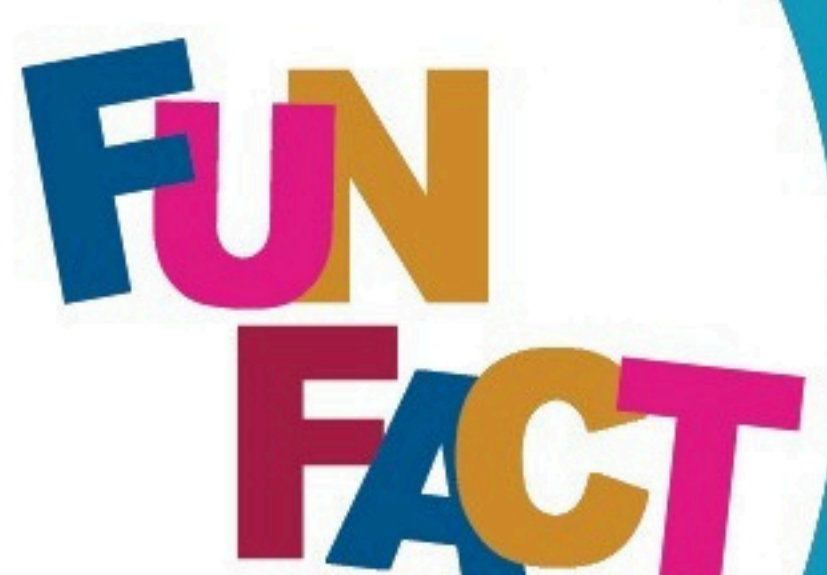




## —ACHIEVEMENTS—

### AT A GLANCE

- We have proudly completed 30% of our robotics curriculum while ensuring the students had fun and stayed engaged throughout the learning process.
- We've gone beyond the curriculum by introducing numerous activities, as our learning journey isn't confined by any boundaries.
- Students not only enjoyed the sessions but also learned many technical concepts for the first time, sparking their interest in technology.
- These technical skills, though small in scale now, will play a vital role in shaping the students' future careers and building a strong foundation for their growth.
- Our focus is on building a strong foundation in robotics today, with a vision to introduce advanced concepts like artificial intelligence and automation in the coming months, preparing students for future technologies.
- We aim to equip students with hands-on experience in cutting-edge tools and projects, ensuring they stay ahead of technological advancements and become innovators in the world of robotics.



Off-grid solutions are game changers! Solar home systems and mini-grids are providing electricity in remote areas where extending the national grid is too costly.





# THANK YOU



## CONTACT US

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