

**JANUARY
2025**



NEWSLETTER

**GOAL 11 : SUSTAINABLE CITIES AND
COMMUNITIES**

(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 11 SUSTAINABLE CITIES AND COMMUNITIES

Sustainable Development Goal 11 (SDG 11) aims to make cities and human settlements inclusive, safe, resilient, and sustainable. With over half the global population living in urban areas, the importance of well-planned and sustainable cities cannot be overstated.

KEY CHALLENGES :

Overcrowding: Rapid urbanization leads to slums, inadequate housing, and pressure on resources.

Transportation: Congestion and pollution are significant issues in many urban centers.

Disaster Risks: Cities are vulnerable to natural disasters, especially in the face of climate change.

Infrastructure Gaps: Lack of adequate infrastructure, such as water, sanitation, and energy, impacts quality of life.



WHAT IS THE GOAL HERE ?

The goal of SDG 11 is to make cities and human settlements inclusive, safe, resilient, and sustainable. This includes ensuring access to adequate housing, improving urban infrastructure, fostering inclusivity, reducing environmental impact, and enhancing disaster resilience. It aims to create urban areas where everyone can thrive, with a focus on equity, environmental sustainability, and efficient resource use.

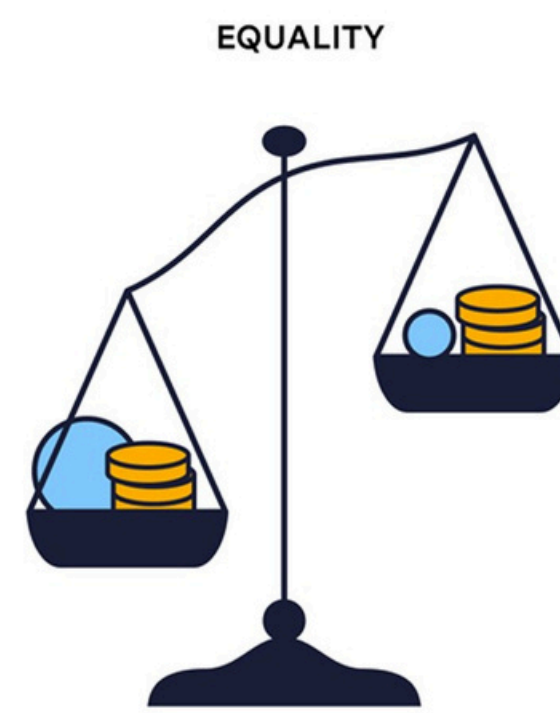
WHY DO WE NEED SUSTAINABLE CITIES AND COMMUNITIES AS AN SDG?

We need SDG 11 because urban areas play a crucial role in shaping the future of our planet and its people. Here's why SDG 11 is essential:

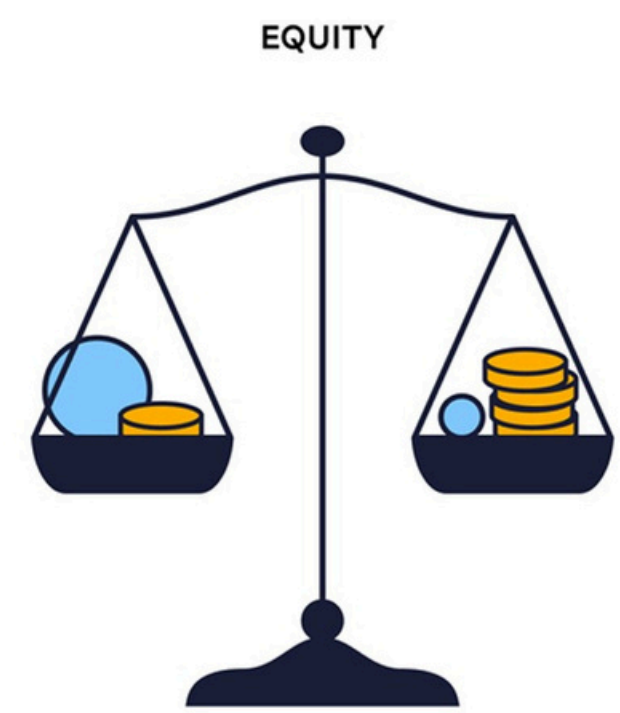
Rapid Urbanization: Over half the world's population lives in cities, and this number is growing. Sustainable urban planning is necessary to accommodate this growth without overwhelming resources.

Environmental Impact: Urban areas consume a vast majority of natural resources and generate significant greenhouse gas emissions. Sustainable practices can reduce this footprint.

Social Equity: Many cities face inequality, with marginalized communities lacking access to housing, education, and opportunities. SDG 11 addresses these disparities.



Distributes the exact same resources and opportunities to everyone—irrespective of their circumstances



Requires a set of unique, specific resources to reach an equal outcome

WHAT ARE THE GOAL TARGETS OF SDG 11 BY 2030?

The targets of SDG 11 by 2030 include the following key objectives:

Safe and Affordable Housing: Ensure access for all to adequate, safe, and affordable housing and basic services, and upgrade slums.

Sustainable Transport: Provide access to safe, affordable, accessible, and sustainable transport systems for all, with special attention to the needs of vulnerable groups, including women, children, and persons with disabilities.

Urban Planning: Enhance inclusive and sustainable urbanization and the capacity for participatory, integrated, and sustainable human settlement planning and management.

Protect Cultural Heritage: Strengthen efforts to protect and safeguard the world's cultural and natural heritage.

Reduce Disaster Risks: Significantly reduce the number of deaths, economic losses, and the impact of disasters by making cities more resilient.



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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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 21st 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**.



About Lab



The Robotics Lab at JM International School 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 at JM International School 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.



Smart Cities: Cities like Amsterdam and Barcelona use smart technologies to enhance urban living.

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GLIMPSE OF ACTIVITIES

Grade I

Students explored the fundamentals of robotics and motion using the **Robotics Block Kit** or **Motion Discovery Kit**. They learned about basic mechanical and motion concepts, assembling components to create functional and imaginative designs.

Activities:

- **Swing:** A model that illustrated the principles of oscillatory motion and balance, encouraging hands-on learning and design creativity.
- **Power Pressing Machine:** A functional project that demonstrated the application of mechanical force, helping students understand basic engineering concepts.



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GLIMPSE OF ACTIVITIES

Grade II

Students explored the fundamentals of robotics and motion using the **Robotics Block Kit** or **Motion Discovery Kit**. They learned about basic mechanical and motion concepts, assembling components to create functional and imaginative designs.

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GLIMPSE OF ACTIVITIES

Grade III

Students explored the fundamentals of robotics and motion using the **Robotics Block Kit** or **Motion Discovery Kit**. They learned about basic mechanical and motion concepts, assembling components to create functional and imaginative designs.

Activities:

- **Swing:** A model that illustrated the principles of oscillatory motion and balance, encouraging hands-on learning and design creativity.
- **Power Pressing Machine:** A functional project that demonstrated the application of mechanical force, helping students understand basic engineering concepts.



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GLIMPSE OF ACTIVITIES

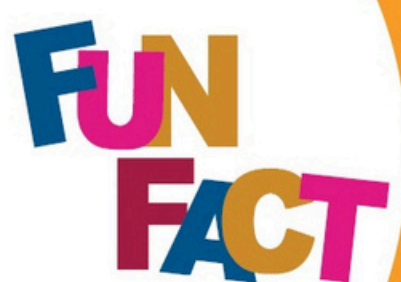
Grade IV

Robotics & 3D Design Exploration

Students engaged in hands-on learning with the Robotics Block Kit, Motion Discovery Kit, and **Tinker N Design Kit**, exploring mechanical motion, robotics, and 3D design. They applied creativity and engineering concepts to build functional models.

Activities:

- **Swing:** Illustrated oscillatory motion and balance, fostering hands-on learning.
- **Power Pressing Machine:** Demonstrated mechanical force application, introducing basic engineering principles.
- **Magic Shapes using 3D Pen:** Allowed students to create geometric and imaginative designs, enhancing spatial skills.
- **Fruit Shapes using 3D Pen:** Encouraged creativity and fine motor skills through fun, **eco-friendly** 3D printing.



A power pressing machine can generate immense force with minimal human effort, shaping metal and other materials with precision that can reach up to thousands of tons in pressure!

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GLIMPSE OF ACTIVITIES

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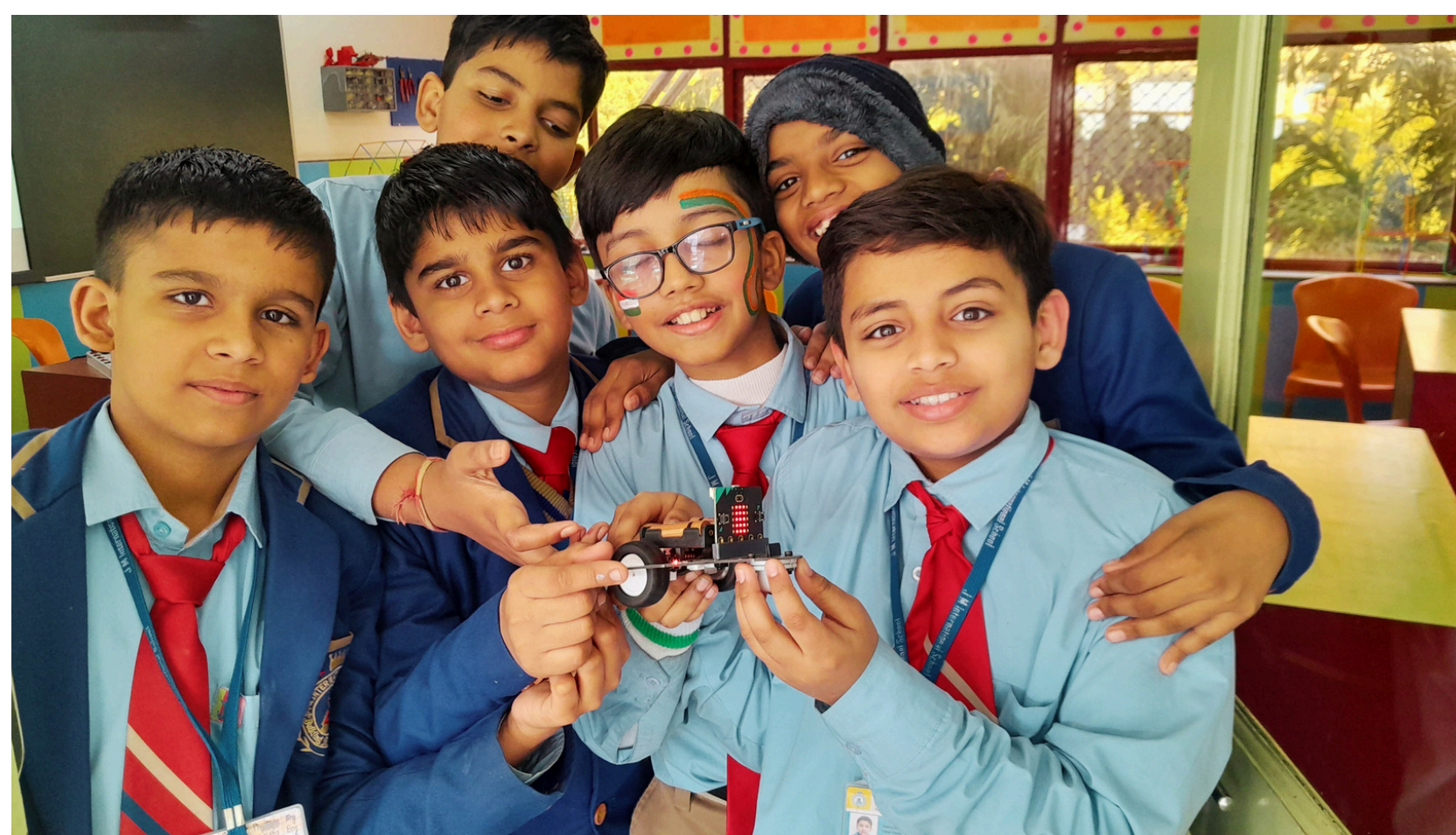
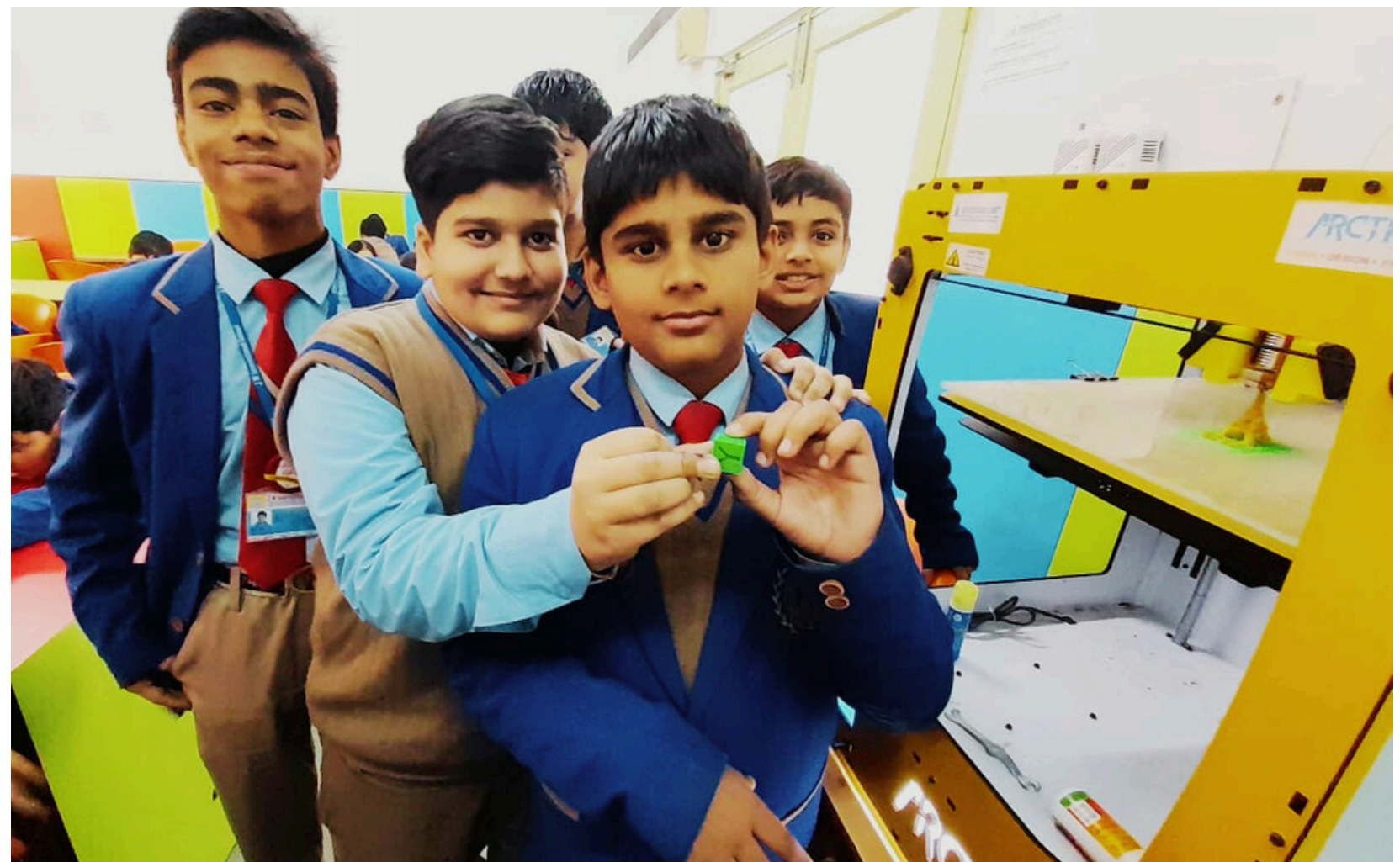
Grade VI

3D Designing & Robotics Exploration

Students engaged in 3D designing and robotics using the Arctic 3D Printer and **STEM-bot Light Follower Robot**. They learned digital modeling, 3D printing, and autonomous movement through hands-on activities.

Activities:

- **3D Designing with Arctic 3D Printer:** Introduced students to 3D modeling and printing concepts.
- **Eiffel Tower Print:** Students designed and printed a miniature Eiffel Tower, improving precision and creativity.
- **STEMbot Light Follower Robot:** They built and programmed a robot that follows light, exploring sensor-based automation.



“A light follower robot mimics natural phototaxis, like moths drawn to light, using sensors to detect and chase brightness—paving the way for smart automation in search-and-rescue, agriculture, and space exploration!”

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GLIMPSE OF ACTIVITIES

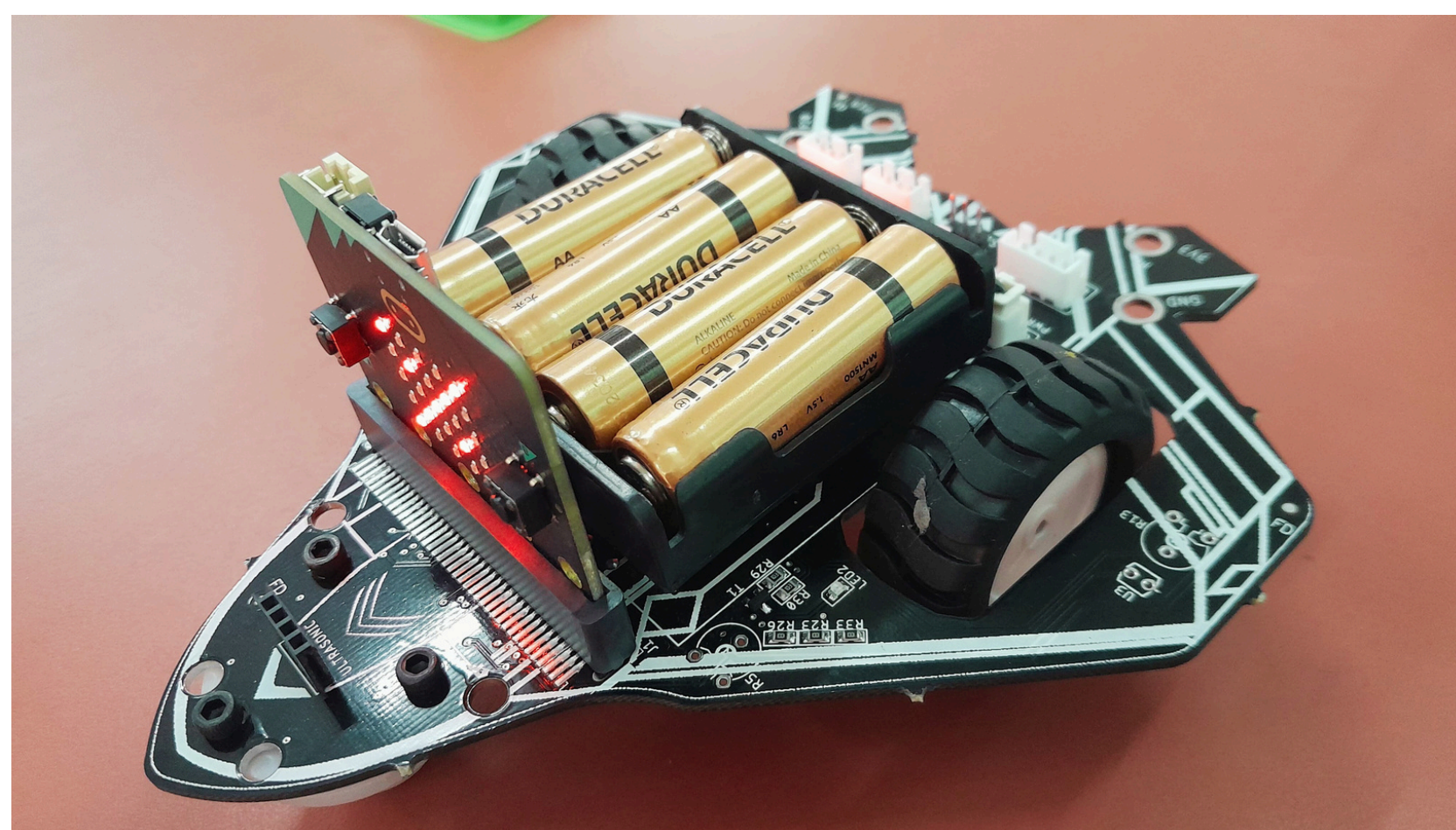
Grade VII

3D Designing & Robotics Exploration

Students engaged in 3D designing and robotics using the Arctic 3D Printer and **STEM-bot Light Follower Robot**. They learned digital modeling, 3D printing, and autonomous movement through hands-on activities.

Activities:

- **3D Designing with Arctic 3D Printer:** Introduced students to 3D modeling and printing concepts.
- **Eiffel Tower Print:** Students designed and printed a miniature Eiffel Tower, improving precision and creativity.
- **STEMbot Light Follower Robot:** They built and programmed a robot that follows light, exploring sensor-based automation.
- Students designed and 3D-printed personalized **JMIS keychains**, learning modeling, scaling, and additive manufacturing.



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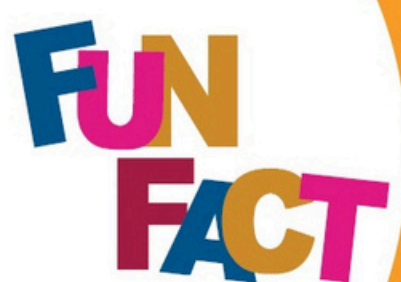
Grade VIII

3D Designing & Robotics Exploration

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Activities:

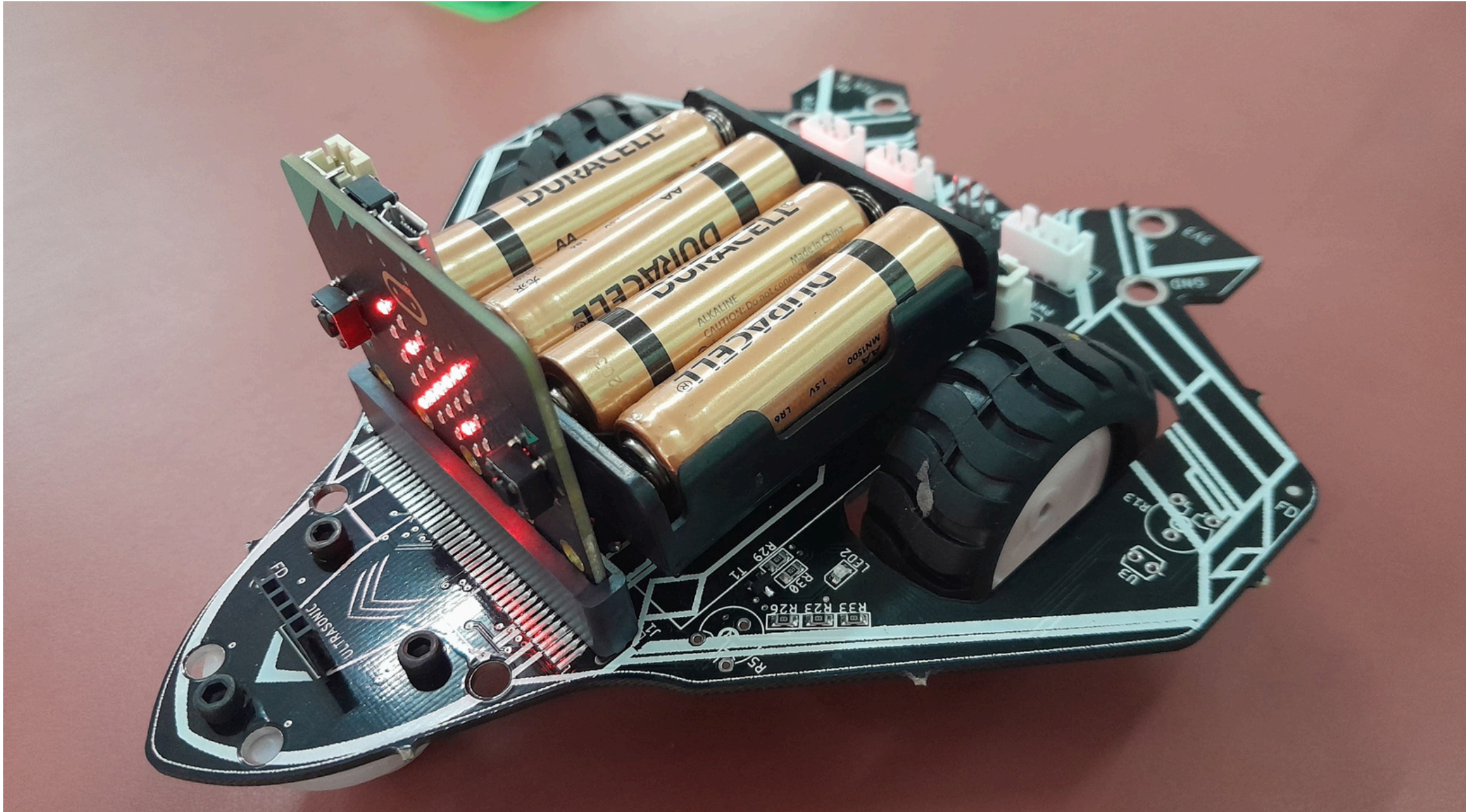
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3D printers can create complex objects layer by layer using materials like plastic, metal, and even **food**, revolutionizing manufacturing and prototyping across industries.

— GLIMPSE OF — PROJECTS



Light Follower Robot

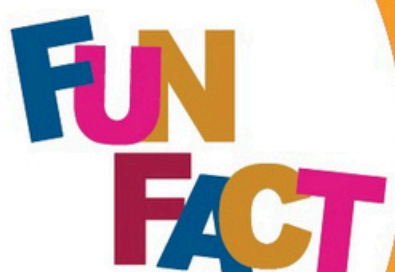
Solution: Students built a Light Follower Robot using STEMbot, utilizing light sensors to detect and follow a light source. They programmed the robot to respond to varying light intensities, enabling autonomous movement. This hands-on activity helped them apply concepts of electronics, robotics, and automation.

Impact:

Impact: The project enhanced students' understanding of sensor-based robotics and real-world automation. It improved problem-solving skills, logical thinking, and practical application of coding. By engaging in hands-on learning, students developed creativity and technical confidence in robotics.

—ACHIEVEMENTS— AT A GLANCE

- We have completed ~90% of our robotics curriculum, keeping students engaged and excited throughout.
- Along with the curriculum, we've introduced activities that spark curiosity and enhance technical understanding, laying a solid foundation for future careers.
- Our focus is on building a strong base in robotics, with plans to introduce advanced concepts like AI and automation in the coming months.
- Kits like Robotics Block Kit, Paper Circuit Kit, Drone, Arduino Uno, and Micro:bit are boosting students' creativity, focus, and technical skills in electronics and programming.
- These hands-on tools and activities equip students with essential skills, preparing them to become innovators and stay ahead in the world of technology.
- 3D design enhances students' creativity and spatial thinking by allowing them to visualize and create real-world objects. It improves problem-solving and engineering skills through hands-on learning with digital modeling and printing. Additionally, it fosters innovation and technological literacy, preparing students for future careers in STEM fields.
- Stembot helps students understand robotics and automation through hands-on learning, enhancing their problem-solving and engineering skills.



Affordable Housing: Vienna's housing policies ensure affordability for the majority of residents.



THANK YOU



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