



NEWSLETTER

GOAL 12: RESPONSIBLE CONSUMPTION AND PRODUCTION

(Sustainable Development Goals)



JM International School Dwarka, New Delhi





OVERVIEW OF SUSTAINABLE GALS

•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 12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Sustainable Development Goal 12 (SDG 12) focuses on ensuring sustainable consumption and production patterns. This goal aims to decouple economic growth from environmental degradation, promote resource efficiency, and foster sustainable lifestyles

WHY IT MATTERS?

Resource Depletion: Overuse of natural resources threatens the planet's ecosystems and biodiversity.

Climate Change: Unsustainable production and consumption contribute significantly to greenhouse gas emissions.

Global Inequality: Wastage in one part of the world



coexists with scarcity in another.

Economic Benefits: Sustainable practices can lead to

KEY MONITORING ASPECTS OF SDG 12?

Waste Generation: Over 2 billion tons of waste are generated globally every year.

Food Loss: About one-third of all food produced is wasted annually, amounting to 1.3 billion tons.

Plastic Pollution: Approximately 300 million tons of plastic waste are produced each year, harming marine life and ecosystems.

Energy Inefficiency: Fossil fuel reliance continues to dominate global energy consumption.

SUCCESS STORIES

Sweden's Recycling System: Sweden recycles nearly 99% of its waste, converting much of it into energy.

Japan's Circular Economy: Japan's efficient use of materials and recycling efforts set an example for reducing resource consumption.

Denmark's Energy Efficiency: Denmark leads in renewable energy adoption, with wind power contributing significantly to its energy mix.

India's Ban on Single-Use Plastics: India's steps to eliminate single-use plastics are reducing environmental pollution





WHAT ARE THE CHALLENGES FACED IN SDG 12?

Economic Pressures: High costs of transitioning to sustainable technologies and practices can discourage both producers and consumers.

Global Collaboration: Ensuring international cooperation is challenging, particularly when addressing transboundary issues like pollution and waste trade.

Technological Barriers: Limited access to innovative, eco-friendly technologies hampers efforts in resource efficiency.

Cultural Resistance: Changing deeply rooted consumption patterns and lifestyles requires significant effort and time.

Data and Monitoring: Reliable data is needed to track progress and identify areas for improvement, but it remains scarce in many regions.

Short-Term Thinking: A focus on immediate economic gains often overrides long-term

LOOKING FORWARD





"Sustainability is not a choice; it's a responsibility to future generations." – Anonymous

HOW CAN WE MAKE A DIFFERENCE?

Reduce Waste: Minimize waste by using reusable products, recycling, and composting. Choose Sustainable Products: Opt for eco-friendly, ethically sourced, and durable goods.

Conserve Energy: Use energy-efficient appliances, switch to renewable energy, and reduce electricity use.

Support Local and Organic: Buy local produce and organic products to reduce your carbon footprint.

Educate Others: Raise awareness about responsible consumption and production. Avoid Overconsumption: Practice mindful purchasing to reduce unnecessary consumption.

CONSUMPTION & PRODUCTION: Why IT MATTERS

What is the goal here?

To ensure sustainable consumption and production patterns

Why?

More people globally are expected to join the middle class over the next two decades. This is good for individual prosperity but it will increase demand for already constrained natural resources. If we don't act to change our consumption and production patterns, we will cause irreversible damage to our environment. by 2050, the equivalent of almost **three** planets will be required to sustain current lifestyles







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.









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.





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.



STEMROBO TECHNOLOGIES

Innovation, Creativity & Learning —

STEMROBO 'End-To-End provides 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.

www.stemrobo.com



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About ATL Lab



The Atal Tinkering Lab (ATL) is an initiative by the Government of India under the Atal Innovation Mission (AIM). It aims to foster creativity, innovation, and entrepreneurship among school students by providing them with the tools and environment to explore science, technology, engineering, and mathematics (STEM) concepts.

- Promotes a culture of innovation and entrepreneurship among young students.
- Bridges the gap between theoretical knowledge and practical application.
- Prepares students for future technological advancements and career opportunities in STEM fields.

E-Waste Recycling: Less than 20% of the world's e-waste is formally recycled.





Grade I - Introduction to Scratch

Students explored Scratch, a blockbased coding platform, to develop creativity and logical thinking. They learned to animate characters and customize their appearance using simple coding blocks.

Activities:

 Animate the Cat: Made the Scratch cat move, jump, and change expressions using motion and event blocks.





- Dress Up the Sprite: Customized sprite appearances using the "Costumes" tab, enhancing creativity and design skills.



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FUN FACT



Food Waste: If food waste were a country, it would be the third-largest greenhouse gas emitter.





Grade II - Introduction to Scratch

Students explored Scratch, a blockbased coding platform, to develop creativity and logical thinking. They learned to animate characters and customize their appearance using simple coding blocks.

Activities:

 Animate the Cat: Made the Scratch cat move, jump, and change expressions using motion and event blocks.





- Dress Up the Sprite: Customized sprite appearances using the "Costumes" tab, enhancing creativity and design skills.



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FUN FLCT



Fashion Industry Impact: The fashion industry is responsible for 10% of global carbon emissions.





Grade III- Introduction to Scratch

Students explored Scratch, a blockbased coding platform, to develop creativity and logical thinking. They learned to animate characters, customize their appearance, and interact with simple coding blocks. Activities:

• Animate the Cat: Made the Scratch cat move, jump, and change expressions using motion and event blocks.





• Dress Up the Sprite:

Customized sprite appearances using the "Costumes" tab, enhancing creativity and design skills.

• **Dancing Letters:** Used motion and animation blocks to make letters move rhythmically, helping students understand sequencing and creative expression.



" FUN FACT

Renewable Energy Potential: Solar energy can power the entire world's electricity needs with just 0.3% of the Earth's land.





Grade IV- Introduction to Scratch

Students explored Scratch, a blockbased coding platform, to develop creativity and logical thinking. They learned to animate characters, customize their appearance, and interact with simple coding blocks. Activities:

• Animate the Cat: Made the Scratch cat move, jump, and change expressions using motion and event blocks.





- **Dress Up the Sprite:** Customized sprite appearances using the "Costumes" tab, enhancing creativity and design skills.
- **3D Cube:** Using a 3D pen, students created a cube, learning about basic 3D structures, hand-eye coordination, and spatial awareness.

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Plastic Bags: A single plastic bag can take up to 1,000 years to degrade.





Grade V - Al Connect & 3D Pen

Exploration

Students developed logical thinking and creativity using AI Connect for coding and a 3D pen for hands-on design.

Activities:

Basic Geometrical Shape Making: Used Turtle block coding to draw squares, triangles, and circles, enhancing geometry and coding skills.
3D Cube: Built a cube with a 3D pen, improving spatial awareness and hand-eye coordination.





- Butterfly Effect: Created a butterfly using a 3D pen, exploring symmetry, creativity, and fine motor skills.
- Table Lamp: Created a table
 lamp using a 3D pen, exploring
 symmetry, creativity, and fine
 motor skills.





Python Turtle was inspired by real robotic turtles from the 1960s used for teaching programming. It makes coding fun by allowing users to create drawings, animations, and games with simple commands.





Grade VI - AI Connect & STEMBOT Exploration

Students developed logical thinking and creativity using AI Connect for coding and explored robotics with STEMBOT to understand real-world applications.

Activities:

• Basic Geometrical Shape Making: Used Turtle block





- coding to draw squares, triangles, and circles, enhancing geometry and coding skills.
- **STEMBOT Temperature Detector Robot:** Built and programmed a robot to detect temperature changes, introducing students to sensors, automation, and realworld problem-solving.





A temperature sensor is a device that measures heat energy and converts it into an electrical signal. Common types include thermistors, thermocouples, and digital sensors like the DS18B2O, used in industries, weather monitoring, and smart devices.





Grade VII - AI Connect & STEMBOT Exploration

Students developed logical thinking and creativity using AI Connect for coding and explored robotics with STEMBOT to understand real-world applications.

Activities:

- Basic Geometrical Shape
 Making: Used Turtle block
- coding to draw squares, triangles, and circles, enhancing geometry and coding skills.





STEMBOT - Temperature
 Detector Robot: Built and
 programmed a robot to
 detect temperature changes,
 introducing students to
 sensors, automation, and real world problem-solving.





Computer coding is the process of writing instructions in a programming language to communicate with a computer. It powers software, websites, apps, and automation, enabling problem-solving, creativity, and innovation in technology.





Grade VIII- AI Connect & STEMBOT

Exploration

Students developed logical thinking and creativity using AI Connect for coding and explored robotics with STEMBOT to understand real-world applications.

Activities:

 Basic Geometrical Shape Making: Used Turtle block coding to draw squares, triangles, and circles, enhancing geometry and coding





skills.

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F/C

- STEMBOT Temperature
 Detector Robot: Built and
 programmed a robot to detect
 temperature changes,
 introducing students to sensors,
 automation, and real-world
 problem-solving.
- Cubebot using Bitli Kit: Students built a cube-shaped robot, learning structural design, motor control, and basic robotics.



Circular Economies: These systems focus on reusing and recycling materials, aiming to eliminate waste.





Project name-Cubebot



Solution:

The Cubebot, built using the Bitli Kit, is an educational robot designed to teach students robotics, coding, and problem-solving. It integrates motors, sensors, and microcontrollers, allowing students to program movements and interactions, enhancing their hands-on learning experience.

Impact:

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The Cubebot project enhances STEM education by developing technical skills in robotics and coding while fostering creativity and teamwork. It makes learning interactive, encourages problemsolving, and builds a strong foundation for future careers in technology.

Packaging Waste: Around 40% of plastic produced is for single-use packaging.





ACHIEVEMENTS AT A GLANCE

- We have successfully completed our robotics curriculum, keeping students engaged and excited throughout the journey. Alongside the curriculum, we incorporated hands-on activities that sparked curiosity and deepened technical understanding, ensuring a strong foundation for future careers in STEM.
- Using kits like Robotics Block Kit, Paper Circuit Kit, Drone, Arduino Uno, and Micro:bit, students enhanced their creativity, focus, and technical skills in electronics and programming. These practical tools equipped them with essential problem-solving abilities, preparing them to become future innovators in technology.
- Additionally, 3D design played a crucial role in developing students' creativity and spatial thinking, allowing them to visualize and create real
 - world objects. It improved their engineering skills through digital modeling and printing, fostering innovation and technological literacy.
- Moreover, Cubebot using Bitli Kit and Stembot provided interactive ways for students to understand robotics and automation, reinforcing their problem-solving and engineering skills through hands-on learning. With this strong foundation, we look forward to introducing advanced concepts like AI and automation in the coming months, empowering students to stay ahead in the ever-evolving world of technology.



Energy Savings: LED lights use up to 75% less energy than traditional incandescent bulbs.







THANK YOU

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