

**BIRLA PUBLIC SCHOOL, KISHANGARH, AJMER**

**SCHOOL CODE: 10896**

**AFFILIATION NUMBER: 1730551**

**MCOP5-CHALLENGE 2024**

**Topic 5. Promote the adoption of renewable energy in your city's households, industries, and municipalities, and implement an energy-saving campaign in your school or community**

**PROJECT REPORT**

## **STEP 01: Energy Audits & Policy Advocacy**

### **1. Conducting Energy Audits**

A detailed survey was conducted by students to assess electricity consumption in alignment with our project goals. Our primary focus was on the staff quarters and school classrooms, which are used for five to seven hours daily except on holidays. Following the survey, we aimed to identify key areas to increase awareness among residents about energy-saving practices and pinpoint locations where we can introduce non-conventional energy sources to reduce the load on conventional energy resources.

**Objective:** To assess current energy usage in school and community buildings, identify inefficiencies, and propose improvements.

#### **Steps:**

##### **1. Survey Building Layout and Usage:**

- Analyse building design, lighting, heating, cooling, and electrical systems.
- Evaluate equipment, appliances, and other energy-consuming devices.

##### **2. Collect Data on Energy Consumption:**

- Use utility bills and energy meters to track energy usage over time.
- Monitor peak usage hours and seasonal variations.
- Calculate the carbon footprint of each building.

##### **3. Identify Inefficiencies:**

- Identify areas with excessive energy use, such as outdated lighting, poor insulation, or inefficient HVAC systems.
- Observe behavioural inefficiencies, such as lights left on in unoccupied rooms.

## **2. Identifying Areas for Improvement**

- **Appliances and Equipment:**

- Replace older equipment with energy-efficient models and implement energy-saving settings.

- **Behavioural Changes:**

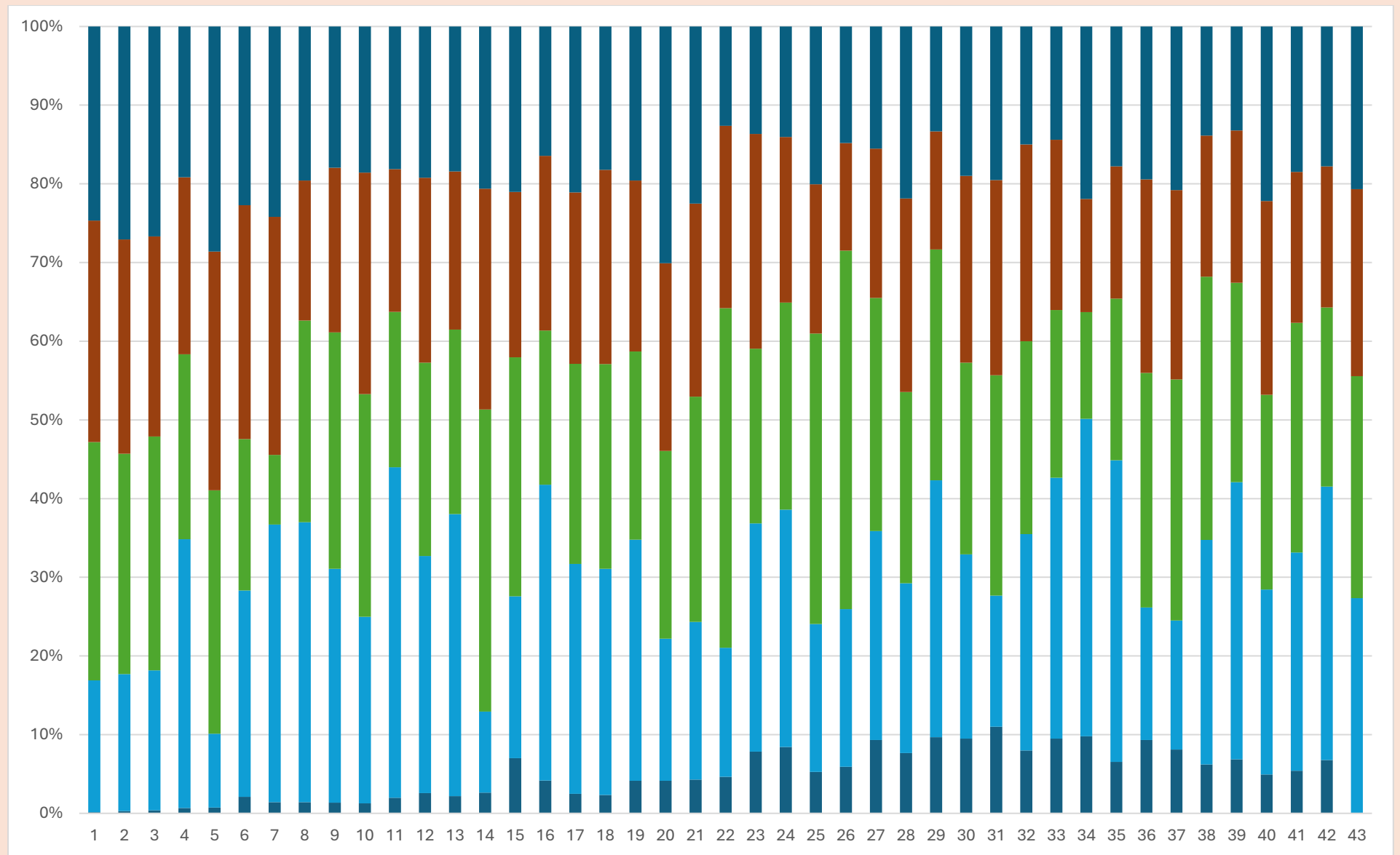
- Educate building users on energy-saving practices, such as switching off lights and devices when not in use.

This approach will help in reducing overall energy consumption and promote a culture of energy efficiency within the school community.

**BIRLA PUBLIC SCHOOL KISHANGARH AJMER****ENERGY USING AUDITS****BUILDING: STAFF QUARTERS****TIME: APRIL TO OCTOBER**

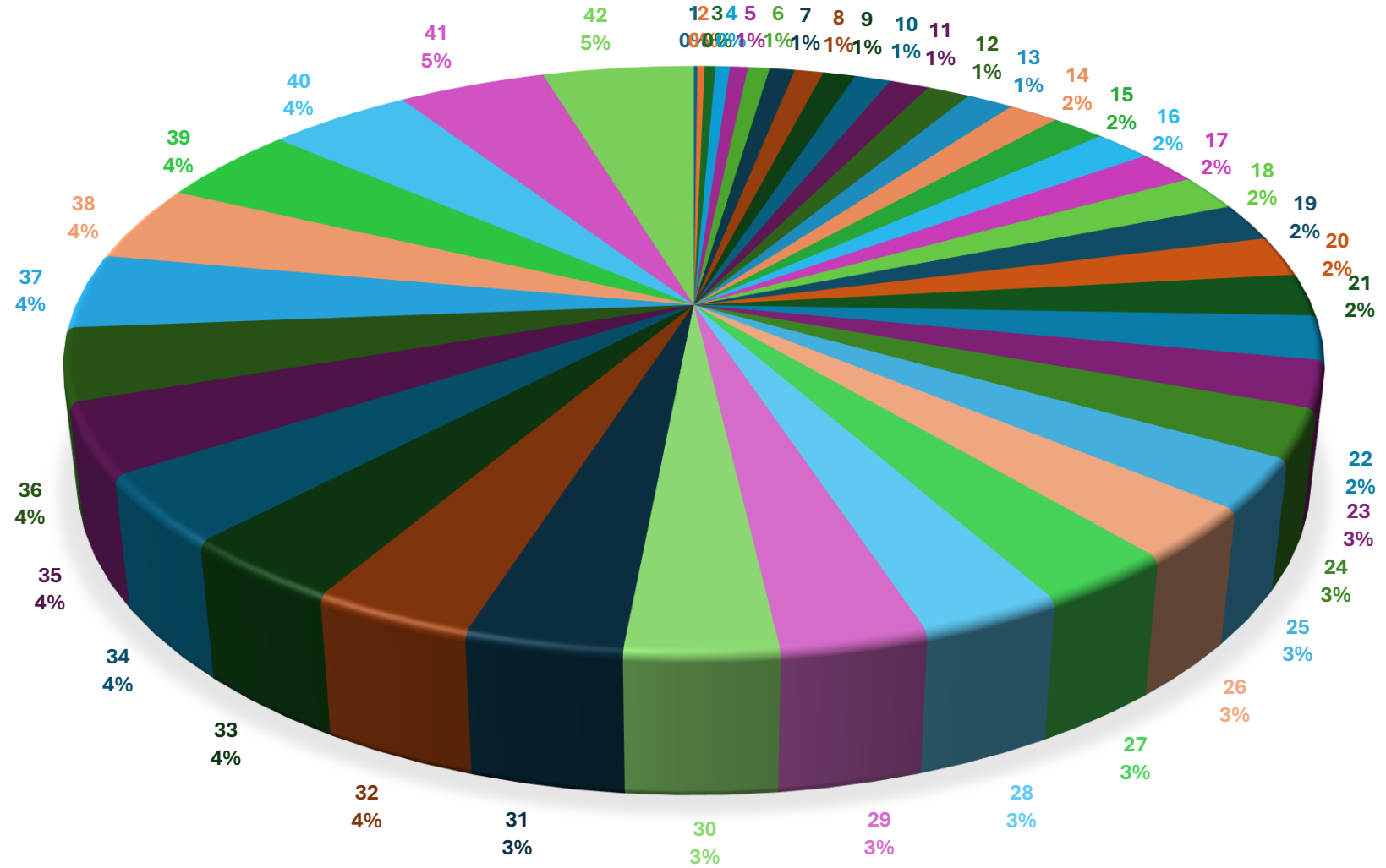
S.NO	Q. No.	MONTH	CONSUMPTION IN UNITS	MONTH	CONSUMPTION IN UNITS	MONTH	CONSUMPTION IN UNITS	MONTH	CONSUMPTION IN UNITS
1	B-1-Q1	APRIL	110	JULY	199	SEPTEMBER	185	OCTOBER	162
2	B-1-Q2		115		185		180		179
3	B-1-Q3		140		234		200		210
4	B-1-Q4		205		141		135		115
5	B-1-Q5		65		214		210		198
6	B-1-Q6		75		55		85		65
7	B-2-Q1		175		44		150		120
8	B-2-Q2		200		144		100		110
9	B-2-Q3		199		201		140		120
10	B-2-Q4		185		221		220		145
11	B-2-Q5		234		110		101		101
12	B-2-Q6		141		115		110		90
13	B-3-Q1		214		140		120		110
14	B-3-Q2		55		205		150		110
15	B-3-Q3		44		65		45		45
16	B-3-Q4		144		75		85		63
17	B-3-Q5		201		175		150		145
18	B-3-Q6		221		200		190		140
19	B-3-Q1		141		110		100		90

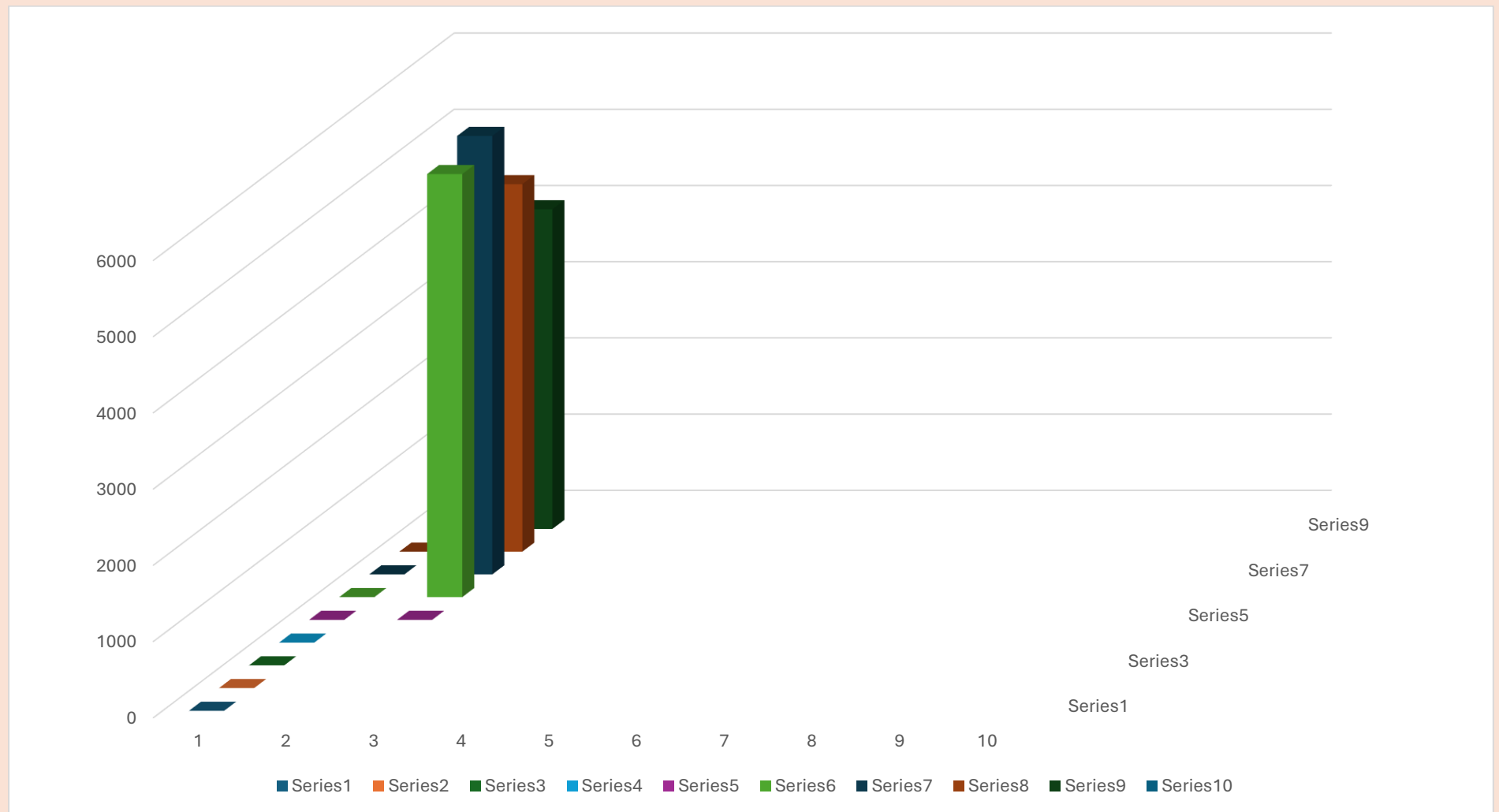
20	B-3-Q2		87		115		115		145
21	B-3-Q3		98		140		120		110
22	B-3-Q4		78		205		110		60
23	B-3-Q5		85		65		80		40
24	B-3-Q6		86		75		60		40
25	B-4-Q1		89		175		90		95
26	B-4-Q2		88		200		60		65
27	B-4-Q3		77		86		55		45
28	B-4-Q4		79		89		90		80
29	B-4-Q5		98		88		45		40
30	B-4-Q6		74		77		75		60
31	B-5-Q1		47		79		70		55
32	B-5-Q2		110		98		100		60
33	B-5-Q3		115		74		75		50
34	B-5-Q4		140		47		50		76
35	B-5-Q5		205		110		90		95
36	B-5-Q6		65		115		95		75
37	B-6-Q1		75		140		110		95
38	B-6-Q2		175		205		110		85
39	B-6-Q3		200		144		110		75
40	B-6-Q4		191		201		200		180
41	B-6-Q5		210		221		145		140
42	B-6-Q6		215		141		111		110
Total			5551		5723		4822		4194



# ENERGY USING AUDITS BUILDING: STAFF QUARTERS TIME: APRIL TO OCTOBER

## S.NO.







## STEP 02: Awareness Campaign

### 1. Creating Informative Materials

- **Posters:**

A poster-making competition was organized to raise awareness about conservation and promote non-conventional energy resources.

- Designed colourful posters with simple messages about types of renewable energy (solar, wind, geothermal, etc.) and their environmental benefits.
- Included visuals comparing renewable energy sources to traditional fossil fuels, emphasizing benefits like lower emissions and sustainability.

- **Digital Content:**

A competition for senior students was held to encourage awareness and foster a habit of conservation.

- **Infographics:** Shared infographics on social media featuring quick, shareable facts about renewable energy and energy-saving tips.

## 2. Organizing Events

- **Rally:**

The rally's theme was inspired by Mahatma Gandhi's statement, "*The Earth has enough resources to meet the needs of all but not enough to satisfy the greed of even one person.*" This message is highly relevant to discussions on development, as both resources and sustainable development go hand in hand. For development to be sustainable, resource conservation is essential. A rally was organized to raise awareness about the importance of conserving resources and the need to use non-conventional energy resources, which are pollution-free. The theme of the rally was "Gandhi Ji's March for Conservation."

This awareness campaign aimed to engage the school community in meaningful conservation practices, emphasizing the shift toward sustainable energy resources for a healthier planet.



### STEP 03: Behaviour Change Measures & Monitoring and Evaluation

To encourage behaviour, change for resource conservation and to monitor progress continuously, two competitions were organized. Data on monthly electricity consumption was collected in October, showing significant positive changes after analysis.

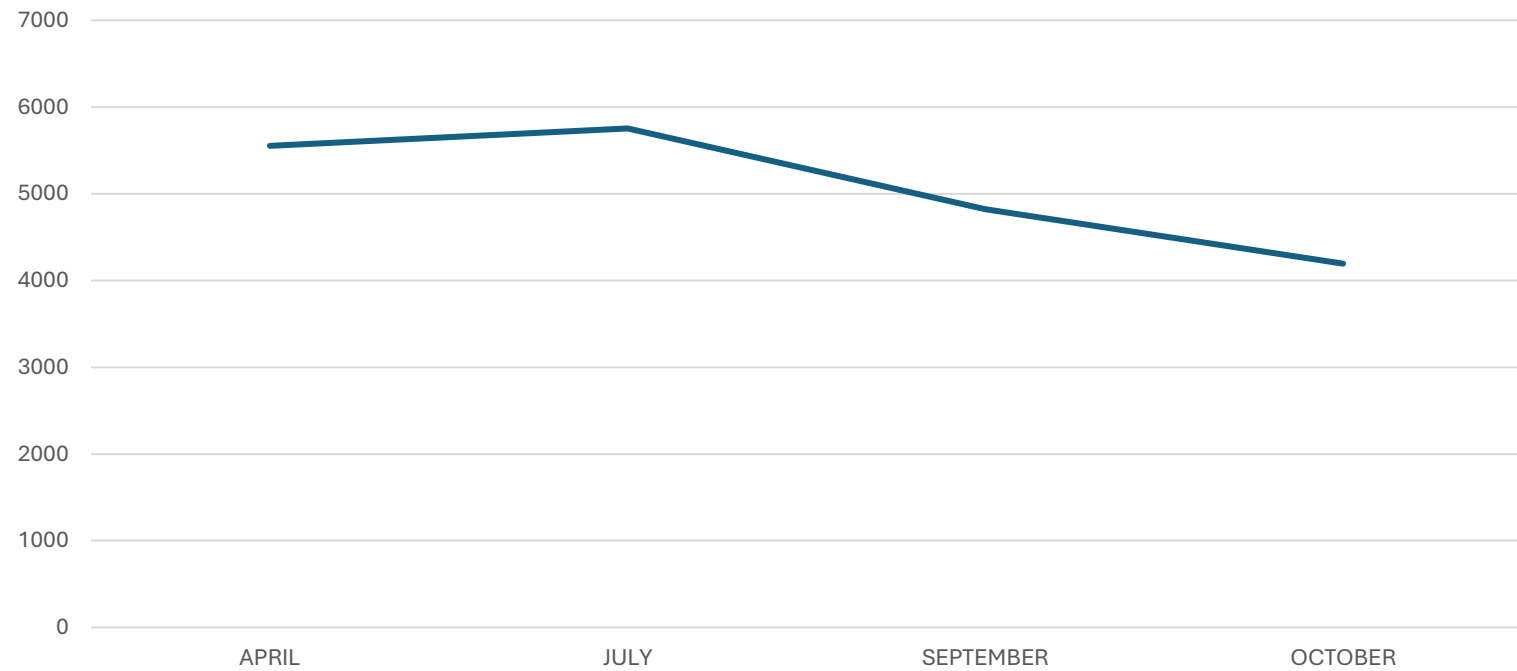
#### Organizing Competitions and Challenges

- **Energy-Saving Challenge:**
  - **Objective:** To engage individuals or groups (students, families, staff, etc.) in reducing their energy consumption over a set period.
  - **Format:**
    - Participants tracked their energy consumption (electricity, water, heating/cooling) using a simple log or an app.
    - A baseline energy usage was established, and participants aimed to lower it by adopting energy-saving habits (e.g., switching off unused devices, using energy-efficient appliances).
  - **Duration:** 1-2 months.
- **Energy-Saving Innovations Competition:**
  - **Objective:** To encourage participants to develop energy-saving solutions, either through inventions or innovative practices.
  - **Format:**
    - Participants submitted proposals or models of energy-efficient systems or devices (e.g., DIY solar heaters, rainwater harvesting systems, energy-saving gadgets).
    - Projects were evaluated based on creativity, feasibility, and impact on energy use.

These initiatives aimed to instil sustainable habits and foster innovation, helping the community to actively contribute to energy conservation and resource sustainability. Monitoring results showed that these activities led to measurable reductions in energy consumption, underscoring the effectiveness of ongoing conservation efforts.

<b>BIRLA PUBLIC SCHOOL KISHANGARH AJMER</b>	
<b>ENERGY USING AUDITS</b>	
<b>BUILDING: STAFF QUARTERS</b>	
<b>TIME: APRIL TO OCTOBER</b>	
<b>MONTH</b>	<b>ELECTRICITY USES/CONSUMPTION IN UNITS</b>
APRIL	5551
JULY	5753
SEPTEMBER	4822
OCTOBER	4194

BIRLA PUBLIC SCHOOL KISHANGARH AJMER ENERGY USING AUDITS  
DATA ANALYSIS OF THE CONSUMPTION OF ELECTRICITY  
STAFF QUARTERS BUILDINGS



#### **STEP 04: Findings on Renewable Energy Resource Installations**

Upon completing our project, we recommended the following potential locations within the residential campus buildings as ideal for community solar installations. Each site leverages unused or underutilized spaces while aiming to minimize any disruption to school activities.

**1. Rooftops of Dormitories and Academic Buildings:**

These buildings generally have large, flat roof spaces, making them ideal for solar panel installations. Proximity to energy use points also reduces energy transmission losses.

**2. Dining Hall Roof:**

The dining hall typically has a large roof surface, making it suitable for solar panels, particularly as its power demands are consistent and high.

**3. MPH Roof:**

These buildings often have ample roof space, which can accommodate numerous solar panels, helping to offset the high energy usage associated with sports facilities.

**4. Parking Lot Canopies:**

Installing solar canopies over parking lots is a dual-purpose solution, providing shade for vehicles while generating power. It effectively utilizes land that would otherwise remain unused.

**5. Walkway or Pathway Canopies:**

In areas with extensive pathways, solar panel canopies can be installed to provide both shade and electricity. This efficiently uses space that may otherwise go unutilized.

These suggested locations offer effective, scalable solutions for solar installations, tailored to the school's energy needs and available space, while fostering a more sustainable energy infrastructure.

# WAYS TO SAVE ENERGY AT HOME

Here are some energy saving measures that can be implemented at home:

## 1. Use LED Lights

Replacing incandescent or energy-saving lamps with more efficient LED lamps can reduce energy consumption for lighting.

## 2. Turn off electronic equipment

Turn off electronic equipment such as televisions, computers and chargers when not in use to avoid unnecessary use of electricity.

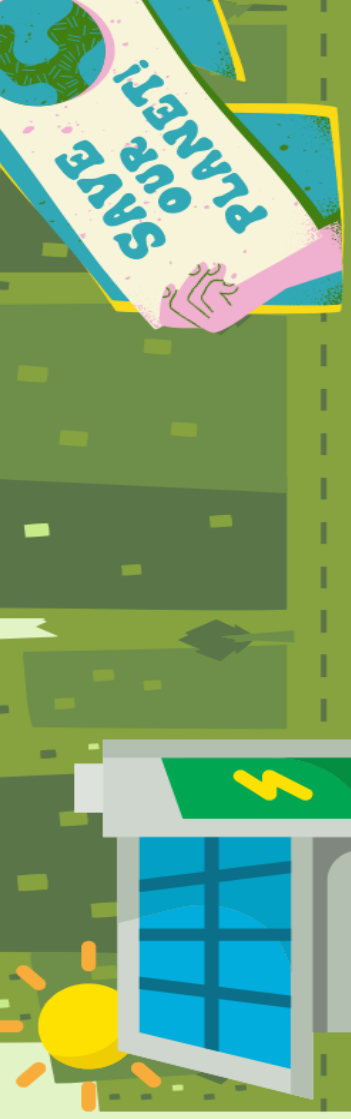
## 3. Improve Home Insulation

Improving home insulation to prevent air leaks can help reduce energy consumption for heating or cooling a room.


## 4. Use Low Energy Appliances

Choosing electronic and electrodomestic appliances with high energy labels can reduce overall household energy consumption.

BY : Shivansh Guha  
Class : XI Science









# WATTS UP? SAVE ENERGY SAVE MONEY

Watt Are You Waiting For? Save Energy, Save Money, and Spark a Greener Future!



**Our world Faces rising energy demands, environmental strain, and the need for sustainable power solutions.**




## WHY DOES IT MATTER?

Did You Know?

- The average household spends \$2,200/year on energy bills.
- Lighting accounts for 10–15% of a home's total energy consumption.
- Heating and cooling make up nearly 50% of energy costs.
- Renewable energy like solar and wind could reduce electricity bills by 50% or more in some areas!

## THESE CHALLENGES IMPACT OUR DAILY LIVES...



### PRACTICES FOR A SUSTAINABLE FUTURE

Upgrade to Energy-Efficient Appliances

Savings: New models use 50% less energy than older ones.

Use a Smart Thermostat


Savings: Save up to 10% on heating/cooling costs by adjusting the thermostat while away.

Quick Tip: Program your thermostat to lower temperatures in winter and raise them in summer.

Solar Power: Cut bills, reduce CO2 by 4,000 lbs./year (100 trees).

Wind Power: Can power 1,500 homes with one turbine.


Energy Storage: Store solar/wind energy for later use with batteries



### COMMUNITY AND GLOBAL INITIATIVES


Communities and international initiatives are vital to progress.

Here are programs and projects aimed at addressing environmental sustainability:




#### ANNUAL SAVINGS FROM SIMPLE CHANGES

- Annual Savings From Simple Changes
- Unplugging unused devices: \$100/year
- Switching to LED bulbs: \$75/year



#### POTENTIAL SAVINGS WITH SOLAR POWER


- Average solar installation can cut electric bills by 50–70% over 25 years—up to \$30,000 in savings!



#### ENVIRONMENTAL IMPACT


- Solar Energy: Reduces CO2 emissions by 4,000 lbs./year.
- Energy Efficiency: Equivalent to removing 1 car from the road.

## THE POWER OF COLLECTIVE ACTION




#### STRENGTH IN NUMBERS

When people come together for a common cause, their collective voice can drive change in policies, practices, and industries.



#### ADVOCACY AND AWARENESS

Campaigns often raise public awareness, sparking change at the local, national, and global levels.



#### ECONOMIC TRANSFORMATION

The global shift towards sustainability has the power to drive businesses toward adopting more eco-friendly practices.

# READY TO SAVE? TAKE ACTION!

# START SMALL: SWITCH A BULB OR UNPLUG A DEVICE TODAY!

By – Tanmay Jain, XI – Science, Birla Public School Kishanganr



# Saving The Future!

## 1 Shine Brighter by Using Less: Electricity-Saving Solutions

Shine brighter by using less with easy ways to save electricity, cut costs, and reduce your environmental footprint. From switching to energy-efficient appliances to adopting smart habits, every small change makes a big difference.



## 3 Illuminate Wisely

Replace conventional lamps with LED lamps or energy saving lamps. This will reduce electricity consumption and operational costs.

## 2 Unplug to Power Up

Make sure all electronic devices such as computers, printers and lights are turned off after not being used.



## 4 Transform Today

Recycle paper, plastic and cardboard, and implement to efficient waste management reduce the environmental impact of office operations.



## 5 Building a Sustainable Future Together

Take advantage of natural light as much as possible by opening curtains or windows during the day. This will reduce the need for artificial lighting.



Sustainability