Item: 6

Preventing wastage of electricity

Objectives

- (i) To create awareness about the need for conservation of electricity.
- (ii) To be sensitised about avoiding excessive use of electricity.

Background

Electricity is a very convenient and flexible form of energy. However, it is often not used judiciously by most of us. Electricity is a scarced resource which is produced by burning coal at a thermal power station. It is also generated at nuclear power stations and hydel power plants. Irrespective of the ways in which it is produced it affects our environment. Conserving electric energy not only saves our money but also helps in increasing its availability. By proper planning and a little awareness, we can save a substantial amount of electricity in our schools, work places and homes.



Methodology

- 1. Visit all the classrooms of your school with a few of your friends during recess time and after the school is over.
- Observe whether all the fans and bulbs/ tubelights are switched off, when no one is there.
- 3. Note down how many electric fans and bulbs are switched on in vacant classrooms. If you come across any such classrooms, turn off all the switches.
- 4. Also in a similar way try to find out whether electricity is being wasted at home.
- 5. Find out about energy saving devices available in the market, for example, compact fluorescent tubes (CFLs).

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Conclusion

Prepare a report citing instances of wastage of electricity. Prepare a plan for conserving electricity at your school/home.

Electricity is very precious. Let's measure how much current do we use consume in our house or in the rooms of our schools. Let's notice the reasons of much power consumption in particular room. Let's reduce the power consumption and follow the methods such as switching off the fans when there is nobody in that room and use fans instead of ACs, Let's switch off the lights and fans compulsorily while going out of the room.

Tips on energy saving:

The Domestic Sector accounts for 30% of total energy consumption in the country. There is a tremendous scope to conserve energy by adopting simple measures.

This information is a guide, which offers easy. practical solutions for saving energy in Home Appliances. Please, take a few movements to read the valuable tips that will save energy and money and ultimately help conserve our natural resources. It would be useful to know which gadget consumes how much electricity. Economic use of home appliances can help in reducing electricity bills. The following table shows the energy consumption of various appliances normally used at home:

S.No.	Appliances	Rating (watts)	Operating	Units per month
			(hrs/day)	
1.	Incandescent Bulbs	40	6	7
		60	6	11
2.	Fluorescent Tube lighl	40	10	12
3.	Night Lamp	15	10	4.5
4.	Mosquito Repellent	5	10	1.5
5.	Fans	60	15	27
6.	Air Coolers	175	8	42
7.	Air Conditioners	1500	6	270
8.	Refrigerator	225	15	101
9.	Mixer/Blender	450	1	13.5
10.	Toaster	800	0.5	12
11.	Hot Plate	1500	0.5	22.5



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12.	Oven	100	1	30
13.	Electric Kettle	1500	1	45
14.	Electric Iron	1500	1	45
15.	Water heater instant type -	3000	1	90
	1 to 2 ltr capacity			
16.	Water heater storage type -	2000	1	60
	10 to 20 ltr capacity			
17.	Immersion rod	1000	1	30
18.	Vacuum Cleaner	700	0.5	-11
19.	Washing Machine	300	1	9
20.	Water pump	750	-1	22.5
21.	TV	100	10	30
22.	Audio system	50	2	3

Useful Tips to Save Energy

By following these simple tips one can save energy to a large extent.

Lighting

Turn off the lights when not in use. Take advantage of daylight by using light coloured. loose-weave curtains on your windows to allow daylight to penetrate the room. Also, decorate with lighter colours that reflect daylight. De-dust lighting fixtures to maintain illumination Use task lighting, instead of brightly lighting an entire room, focus the light where you need it Compact fluorescent bulbs are four times more energy efficient than incandescent bulbs and provide the same lighting. Use electronic chokes in place of conventional copper chokes. Fan:- Replace conventional regulators with electronic regulators for ceiling fans. Install exhaust fans at a higher elevation than ceiling fans

Electric iron:-

Select iron boxes with automatic temparature cut off

Use appropriate regulator position for ironing

Do not put more water on clothes ironing

Do not iron wet clothes

Kitchen Appliances

Mixers

Avoid dry grinding in your food processors (mixers and grinders) as it takes longer time than liquid grinding.

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Microwaves ovens

Consumes 50 % less energy than conventional electric / gas stoves. Do not bake large food items.

- · Unless you're baking breads or pastries. you may not even need to pre-heat.
- Don't open the oven door too often to check food condition as each opening leads to a temperature drop of 25'C.

Electric stove

- Turn off electric stoves several minutes before the specified cooking time
- · Use flat-bottomed pans that make full contact with the cooking coil

Gas stove

- · When cooking on a gas burner, use moderate flame settings to conserve LPG
- · Remember that a blue flame means your gas stove is operating efficiently
- · Yellowish flame is an Indicator that the burner needs cleaning
- Use pressure cookers as much as possible
- Use lids to cover the pans while cooking
- Bring items taken out of refrigerators (like vegetables, milk etc), to room temperature before placing on the gas stove for heating
- · Use Solar Water Heater good replacement for a electric water heater.

Electronic Devices

Do not switch on the power when TV and Audio Systems are not in use i.e. idle operation leads to an energy loss of 10 watts/device.

Computers

Turn off your home office equipment when not in use. A computer that runs 24 hours a day, for instance, uses - more power than an energy-efficient refrigerator.

If your computer must be left on, turn off the monitor, this device alone uses more than half the systems energy.

Setting computers, monitors, and copiers to use sleep-mode when not in use helps cut energy costs by approximately 40%.

Battery chargers, such as those for laptops, cell phones and digital cameras, draw power whenever they are plugged in and are very inefficient. Pull the plug and save.

Screen savers save computer screens, not energy. Start-ups and shutdowns do not use any extra energy, nor are they hard on your computer components. In fact, shutting computers down when you are finished using them actually reduces system wear - and saves energy.



Refrigerator

Regularly defrost machines, defrost refrigerators and freezers, frost buildup increases the amount of energy needed to keep the motor running.

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Leave enough space between your refrigerator and the walls so that air can easily circulate around the refrigerator.

Don't keep your refrigerator or freezer too cold.

Make sure your refrigerator door seals are air tight.

Cover liquids and wrap foods stored in the refrigerator. Uncovered foods release moisture and make the compressor work harder

Do not open the doors of the refrigerators frequently

Don't leave the fridge door open for longer than necessary, as cold air will escape. Use smaller cabinets for strong frequently used items

Avoid putting hot or warm food straight into the fridge.

Washing machines

Always wash only with full loads.

Use optimal quantity of water.

Use timer facility to save energy.

Use the correct amount of detergent.

Use hot water only for very dirty clothes.

Always use cold water in the rinse cycle.

Prefer natural drying over electric dryers.

Air Conditioners

Prefer air conditioners having automatic temperature cut off.

Keep regulators at low cool position.

Operate the ceiling fan in conjunction with your window air conditioner to spread the cooled air more effectively through out the room and operate the air conditioner at higher temperature. Seal the doors and window properly

Leave enough space between your air conditioner and the walls to allow better air circulation.

A roof garden can reduce the load on Air Conditioner.

Use windows with sun screan filims or curtons.

Set your thermostat as high as comfortabley possible in the summer. The less difference

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between the indoor and outdoor temperatures, the lower will be energy consumption.

Don't set your thermostat at a colder setting than normal when you turn on your air conditioner. It will not cool your home any faster and could result in excessive cooling. Don't place lamps or TV sets near your air conditioning thermostat. The thermostat senses heat from these appliances, which can cause the air conditioner to run longer than necessary.

Plant trees or shrubs to shade air conditioning units but not to block the airflow.

A unit per rating in a shade uses as much as 10% less electricity than the same one operating in the sun.

- 1. Prepare report on the situations where electricity is misuse.
- 2. Prepare an action plan to implement energy saving in your house.

Follow -up

- 1. Make a talk to your headmaster or teacher to get your plan implemented.
- 2. Keep on monitoring activities and communicate with your school mates during morning assembley.
- 3. Make a list of things how you can minimise the usage of energy consumption in your house or school.



