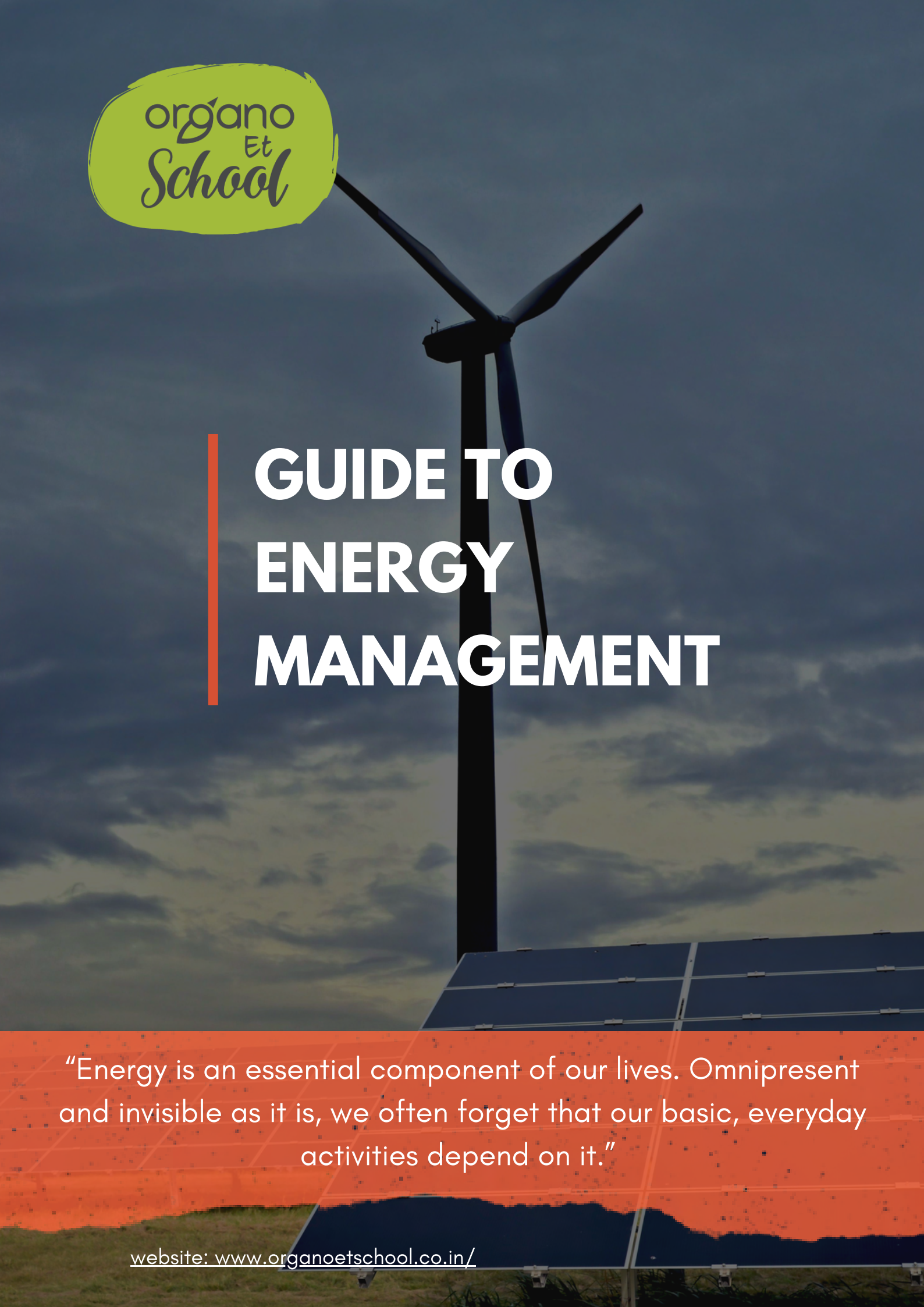

GUIDE TO ENERGY MANAGEMENT

"Energy is an essential component of our lives. Omnipresent and invisible as it is, we often forget that our basic, everyday activities depend on it."

website: www.organoetschool.co.in/

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Energy Consumption & Consequences

How much energy do you think is needed to light and mobilize all the machines and devices operating on the planet? Have you ever thought that by turning on a light in your house or school you are impacting the environment and emitting gases into the atmosphere?

To move the goods we consume from one place to another, we use energy-fuelled vehicles. If it is hot, we use air-conditioning or a fan. We are surrounded by gadgets and machines that require energy to operate and to meet our needs. For any good that we consume, some kind of energy is used for machines to manufacture it, for vehicles to transport it, for lights to display it.

Much of the energy consumed is in the form of fossil fuels. **Sixty-six percent of the world's electricity**—one of the most common forms of energy that we consume—**is generated from fossil fuels**, with their corresponding emissions of **local pollutants and greenhouse gases (GHGs)**. Strangely enough, despite the large quantities of pollutants involved in making electricity, when we turn on a light or an electrical appliance, we erroneously regard it as "clean" just because it appears so.

In recent decades, increased consumption of energy for transportation, industrial activity, and the processes of everyday modern life have caused levels of GHGs to rise, with consequences for the global climate. Although the same amounts of contaminants are not released in all parts of the planet, we all share the same atmosphere. **The actions of each of us affect all.**

Solutions to problems as large and complex as this demand action. Many countries, cities, and citizens are realizing this, but the challenge is not simple. It requires us to improve or switch fuels, lower our reliance on the automobile, change the ways we use electrical and gas appliances, and, of course, **integrate non-polluting alternative technologies**—those that come from **renewable energy sources** such as **water, air, and the sun**—to produce the energy we can't stop using.

Making a change in your Home

In our homes—as in other spaces of human activity—goods such as water, energy, and space are needed.

Meeting each one of these needs leaves an impact on nature that we can and need to reduce in order to mitigate harmful climate change. **The places where we live, study, work, and play amount to 40% of the global GHG emissions,** and their energy conservation will contribute to the global good immensely. Smart use of natural resources will give us clean air and water, and productive land.

If environmentally responsible actions to lower emissions are learned and practiced at home, **children can transmit this knowledge to their families** and to their children in the future, thus preparing future generations for the challenges of climate change.

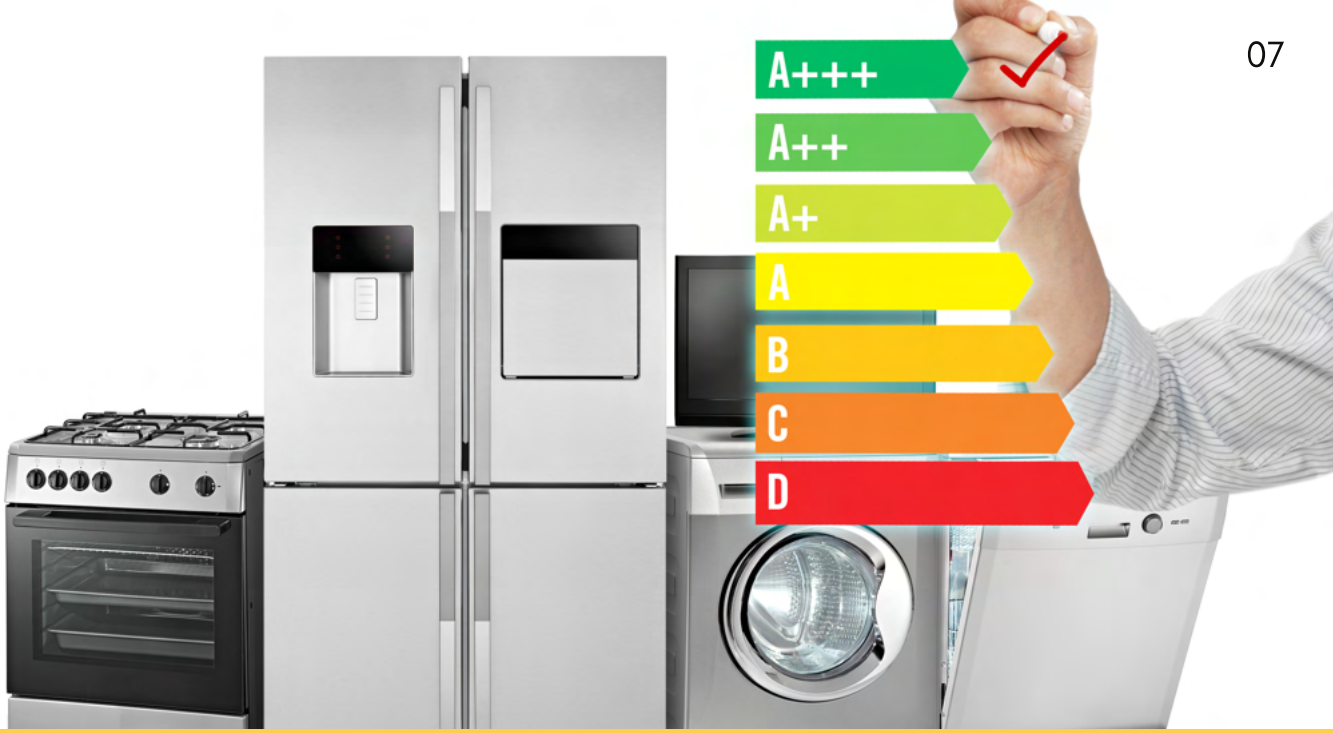
Diagnosis

A home's energy use can be measured in several ways. Calculating the carbon footprint (measuring GHG emissions from daily activities) and **recording each form of energy used by your home is the key step**. Conducting this exercise is useful since it helps us understand the pressure that we humans are exerting on the planet.

Estimating your home's energy use

To raise the awareness of neighbors in your community, gather a group of friends with whom you wish to undertake this activity.
Click here to estimate your home's energy use through a sample survey:

Diagnosing Home Energy Use



To learn more about how energy is used in your home, conduct an inventory of all energy-using equipment. **Take a tour of your home and record your findings.** Get your friends to do the same exercise for their homes and share your results. Here's a sample questionnaire provided for you which depicts an inventory of energy-consuming systems, with some examples showing you how to fill it out.

Sample inventory list of energy-consuming gadgets

As each room is equipped with lights and sockets, we recommend devising a simple plan and inventory for each room.

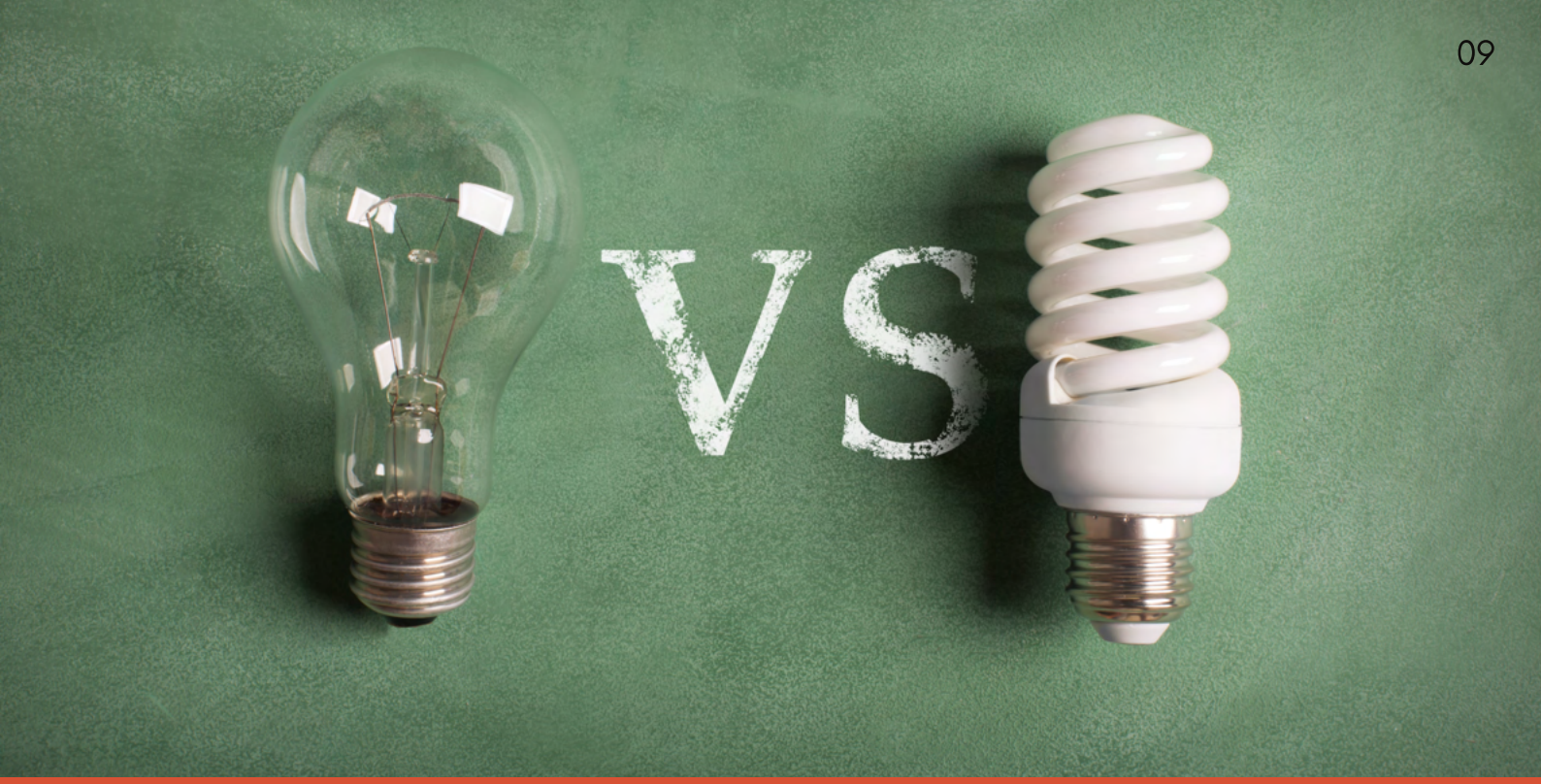
Sample inventory list of lights and sockets

As you complete the chart, you may add additional columns as needed, one to **explain the problem** and another for **solutions considered**. For example, if there are rooms where lights are used only 6 hours a day but stay on for 10, you need to investigate whether this is because those responsible neglect to turn them off, or because there is only one switch in an inaccessible location and so on.

Problem to address	Possible Solution	Remedial Action	Monitoring
Forgetting to switch off the mobile charger when not in use	Sticky note as a reminder	Sticky Note & Pen	Keep a tab on this habit
Inefficient and old fans	Replace with efficient fans	Identify BEE star rated fans and check ROI	Check the electricity consumption before and after installing

Thus, **possible remedial actions** may include replacing bulbs or lamps with others that save energy or are more efficient, and so on.

But remember that, important as it is to ensure that bulbs or **lamps are turned off when not in use, good lighting in rooms and workspaces is a very important requirement for learning.**



Recommendations

Modifying your home's environmental impact by reducing its energy consumption can be accomplished in several ways. These include:

- Decreasing consumption through changes in habits and customs
- Adopting more efficient or otherwise alternative energy production technologies.

While both options complement each other, a good place to start is addressing the habits and customs to lower power consumption. The importance of making even modest changes, such as turning off lights or electrical appliances whenever not in use, is great: consumption can drop as much as 30 percent.

The first actions to take when designing a program for saving energy and boosting efficiency at school are:

- **Based on the inventory, identify the appliances in poor condition or those replaceable by other, more energy-efficient models**. Discontinuing the use of these devices, and removing or replacing them has an immediate impact on energy use and efficiency.
- **Audit drains on electricity**. To do this, all lights must be turned off, all electrical appliances disconnected, and no electricity should be used in any place inside the home. Then check to see whether the disc in the meter is running. If it is, there must be a drain on the electricity supply, and the installation should be checked.
- **Audit for vampire energy**. This involves electrical appliances that remain connected and consume power even when turned off. Many have small indicator lamps that stay in standby mode, ready for immediate use. An estimated 10 percent of all household energy consumption may be attributable to this phenomenon.

If we were to add up the potential energy savings attainable through these adjustments alone, it would be well worth the effort.

Recommendations for saving energy: Lighting

- **Turn off lights when not needed.**

Set up a routine check to turn off exterior lights at dawn. During holidays and at night, switch off all lights not necessary for security purposes. Furthermore, motion sensors could be connected to safety lights. If possible, an automated system could be installed to turn lights or unused devices off during certain periods.

- **Use energy-efficient lamps**

Energy-efficient bulbs or energy savers, compact fluorescents, or LEDs; many alternatives are available on the market. Energy-efficient bulbs are more expensive but last up to 10 times longer than incandescent light bulbs, and electricity savings can quickly recoup the investment made. Substitute lower-wattage bulbs in areas where higher intensity light is not required, as in bathrooms.

• **Maximize the use of daylight**

In rooms with windows, keep curtains or shutters open to allow natural light in and keep overhead lights off. In other areas it will be convenient to place external shade—trees, canopies, or decks—that allow light to go through without dazzling or making it uncomfortable to work inside.

• **Improve lighting installations**

Take advantage of existing windows and cover them with materials that let light through, paint rooms with light colors, and take advantage of skylights. This avoids the need to turn on lights for several hours a day.

• **Keep lamps, light bulbs**, and screens free of dust. This makes better use of lighting.

• **Post reminders next to light switches** to remind people of the school's energy-saving program.

• **Install motion sensors** in areas such as bathrooms or on safety nightlights.

Recommendations for saving energy: Cooling systems

• To maintain the temperature in rooms where air-conditioners are used, **open and close doors and windows** as little as possible. Set the device to a comfortable temperature of 24 (+/-) 2 deg C—depending on the outside temperature. Make sure that the thermostat is working, disconnect the device when the room is empty, and check and service equipment regularly.

• **Turn off fans in empty rooms** and install independent controls for fans in each room. Clean fans and service them periodically to minimize energy demand. Keep doors and windows open to allow air to circulate.

• **Wear breathable fabrics like cotton or linen** in summers and layer clothing in winter while staying indoors. Our bodies emit heat and wearing light cotton clothing will keep the body cooler and also minimize the need for excess cooling.

• **Insulate walls, ceilings, and windows**. Use insulation materials and double-glazed windows. However, this can be challenging to retrofit in existing homes. The alternative would be to install green roofs or vertical gardens, painting roofs and walls with High SRI paints, and installing rooftops with solar panels which shade the roof and also produce electricity.

• **Use window shades, blinds, and curtains** to maintain an even room temperature. Using light-colored cotton curtains will keep the indoors cooler.

Recommendations for saving energy: Electrical appliances

• Make sure that the **cable and pins** of all **appliances are in good condition.**

• **Disconnect all appliances** when not in use to prevent the electrical vampire effect. If multiple devices are connected to a multi-contact strip or bar, shut it down at the switch.

• Keep the use of electric ovens and microwaves to a minimum as well as electric teapots, which are high consumers of energy. Limit their use to only **heating small portions of food and on an occasional basis.**

• In the kitchen, make sure that the **blender's blades are sharp** and not broken or worn. Wash the blender immediately to protect the edge of the blades. **Chop food into small pieces** before blending, and grind food in the shortest time possible.

• If possible, **replace old refrigerators with newer units**, as these are more energy-efficient.
• Disconnect water coolers, and RO machines when not in use.

• **Turn off printers and computers when not in use**. **Activate the energy-saving function on monitors** so that they turn off after a given period of inactivity.

• **Activate the standby feature on photocopiers** to switch the device off after a given period of inactivity.

• Make sure that video projectors are shut down and disconnected immediately after use. If equipped with a presenter-activated pause mechanism, set it on standby.

• Prepare only the amount of coffee needed. Switch the coffee maker off and disconnect immediately after serving.

• **Turn off televisions when nobody is watching.** Unplug when not in use, along with the voltage regulator, if equipped with one.

• When buying a new appliance, make sure it has been designed to consume the least amount of energy possible. **BEE certification helps identify this. Any equipment of 3-star rating and above is suggested.**

Recommendations for energy saving: Cooking

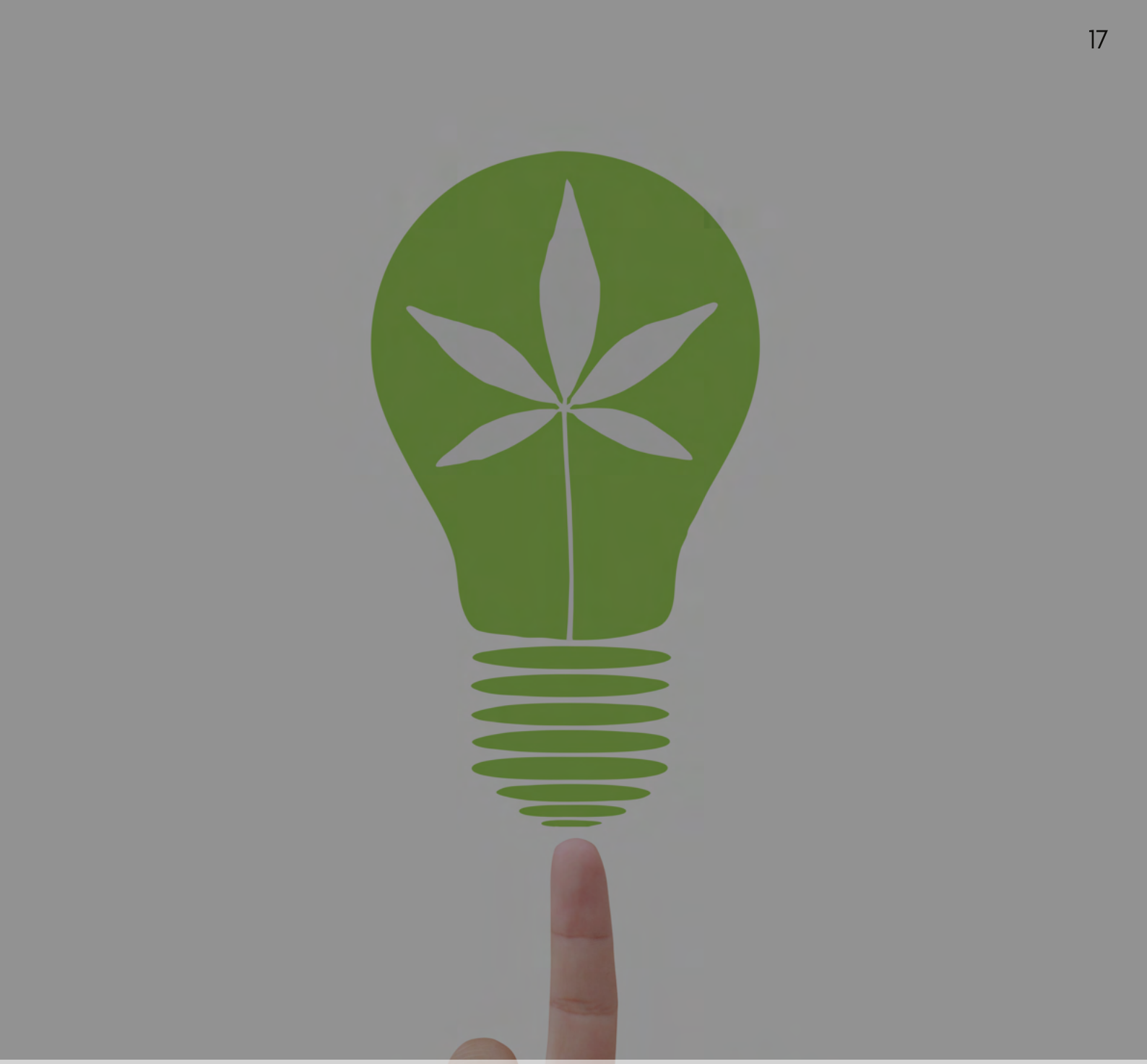
• **Keep stove burners clean** and avoid leaving knobs in the "on" position.
• **Use pots and pans with completely flat bottoms** and those that distribute heat quickly and evenly.
• **Use pots or containers of the same size as the burner**.
• **Use pressure cookers to prepare food requiring long cooking times.**

Food for thought

Did you know that you can save water by installing solar panels?

Click on the link below to know more:

www.organo.co.in/blog/want-to-save-water



Consume Less, Conserve More

Reducing electricity use in your home – or going off the power grid with solar energy –can benefit the environment, conserve resources and save our eco-system. Although your own energy-saving adjustments may seem inconsequential, small steps become great leaps when energy-saving methods are adopted collectively by a community.

Organo Et School

Organo Et School is the brainchild of team Organo. Organo was founded on the idea of environmentally conscious living and Organo Et School translates that idea into reality by educating and empowering schools, colleges, organizations and communities on the triple bottom line of sustainability. Organo et School aims at engaging individuals of today to stay connected with nature through workshops, live sessions and site visits.

Leading the change

We create an experiential learning environment for people to learn from.

Organo Et School educates people about the challenges of sustainable development and creates opportunities for them to use their creativity and knowledge to pioneer innovative solutions for themselves.

Learners develop a sense of place and belonging to their local community.

NURTURING A LEARNING ENVIRONMENT FOR ALL STAKEHOLDERS WHERE INCLUSIVE HOLISTIC ECO-LIVING IS CELEBRATED

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