



What Is This Module About?

When there is a power interruption, a lot of things come to a stop or are interrupted. Fortunately, such interruption is only temporary. Can you imagine what life would be like if you don't have television or radio to entertain you? How about staying in the city during the hot summer without an electric fan to cool you? And do you think you would like it if you always had to grope in the dark when nighttime comes?

In this module, you will realize the importance of electricity in your daily life. You will also learn how to compute the amount of electricity your appliances consume. Moreover, you will find ways to lessen the amount you spend on electricity and how you can keep your family safe from electrical dangers.

This module is divided into three lessons. These are:

Lesson 1 — *Electricity and Its Uses*

Lesson 2 — *How Can You Save on Electricity?*

Lesson 3 — *Electrical Safety*



What Will You Learn From This Module?

After reading this module, you should be able to:

- ◆ explain how important electricity is in your daily activities;
- ◆ compute how much electricity your appliances consume;
- ◆ discuss ways to reduce your home electric bill; and
- ◆ practice safety measures when using electrical appliances at home.

To get the most from this module, you should already know how to add, multiply and divide. Some parts of the module will require you to perform these mathematical operations.



Let's See What You Already Know

Before you start studying this module, take this simple test first to find out how much you already know about this topic.

A. Answer the questions below. Encircle the letter of the correct answer.

1. What would you do if you saw someone who is electrocuted?
 - a. Splash water on the victim.
 - b. Pull him away from the source of electricity.
 - c. Push him with a dry wooden broom handle.
 - d. Call a doctor.

2. Which of these materials should you keep away from electrical appliances?
 - a. plastic
 - b. rubber
 - c. wood
 - d. water

3. What should you do to save on electricity?
 - a. Leave the lights switched on even when nobody is around.
 - b. During daytime, open the windows to let the light in.
 - c. Let dust accumulate on light bulbs.
 - d. Paint your rooms with dark colors.

4. What should you do to avoid causing fire?
 - a. Cover all electrical outlets.
 - b. Do not use any electrical appliance.
 - c. Touch anything electrical when wet.
 - d. Do not plug too many appliances in one outlet.

5. If you have an airpot with a wattage of 600w, how many watts would it consume in 1½ hours?
 - a. 750 wh
 - b. 450 wh
 - c. 900 wh
 - d. 800 wh

B. Are you using electricity wisely and safely? Find out by answering the questions below.

1. How can you save on electricity when using your electric flat iron?

2. What would you do if you have a broken appliance?

Well, how was it? Do you think you fared well? Compare your answers with those in the *Answer Key* on page 39 to find out.

If all your answers are correct, very good! This shows that you already know much about the topic. You may still study the module to review what you already know. Who knows, you might learn a few more new things as well.

If you got a low score, don't feel bad. This means that this module is for you. It will help you understand important concepts that you can apply in your daily life. If you study this module carefully, you will learn the answers to all the items in the test and a lot more! Are you ready?

You may now go to the next page to begin Lesson 1.

Electricity and Its Uses

Look around your house and observe what electricity does for you. Doesn't electricity power up your fan, television, radio, flat iron and refrigerator? Imagine how uncomfortable life would be if these appliances were taken away from you.

In this lesson, you will learn more about the importance of electricity especially to households.

Electricity is important to everyone. Everybody benefits from it. Almost all homes use electricity. Some households only use a few incandescent bulbs. But there are some who have a number of electrical appliances such as fan, television, radio, air conditioner, washing machine, personal computer and many others.

Using electricity lightens our load. It makes work easier, faster and better, especially for busy persons.

After studying this lesson, you should be able to:

- ◆ identify the uses of electricity; and
- ◆ estimate your power consumption.



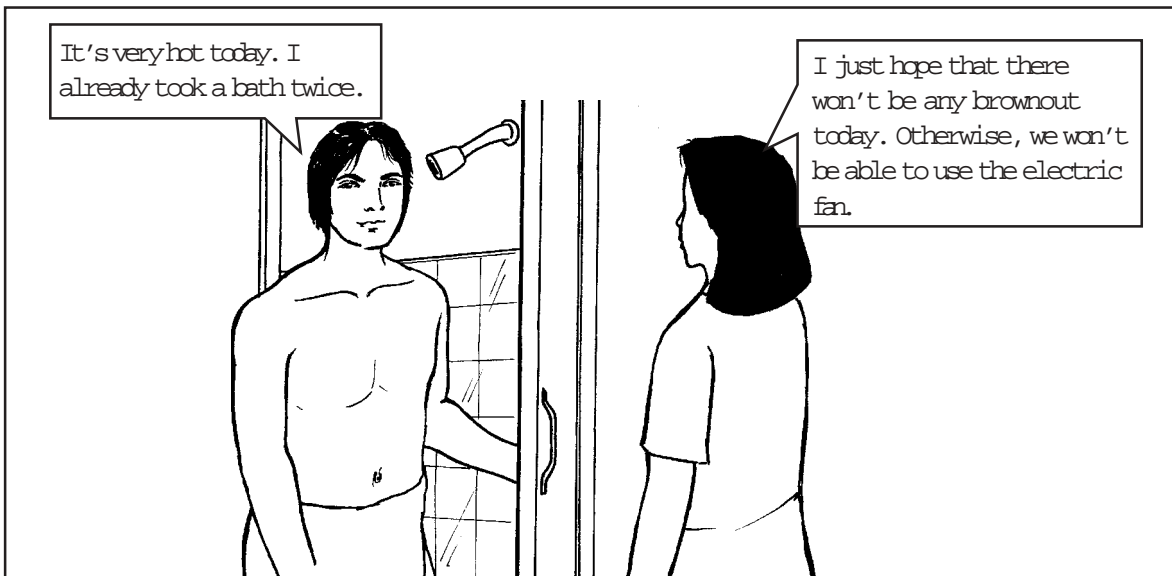
Let's Study and Analyze

Read each situation below.

Situation 1



Situation 2



Situation 3



Situation 4

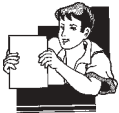


Let's Think About This

1. Based on the four situations that you have read, how important is electricity to people?

2. How do you think will lack of electricity affect your daily life?

Compare your answers with those in the *Answer Key* on page 39.

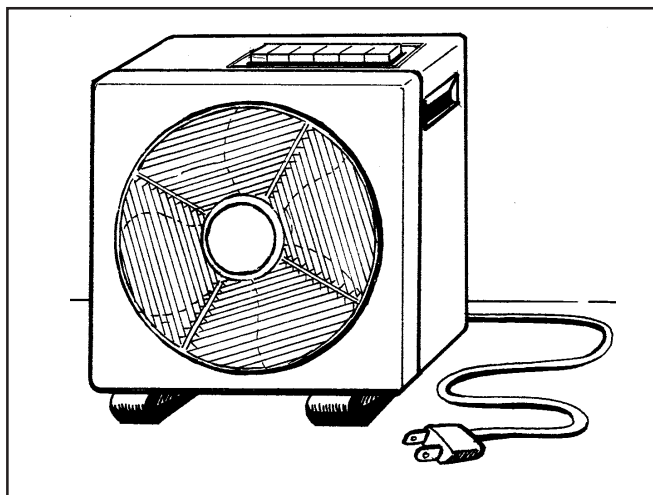


Let's Learn

Almost everything we use now is powered by electricity. Imagine a normal day in your life. In how many ways does electricity make things easier for you? Before you answer this, let's first learn what electricity is.

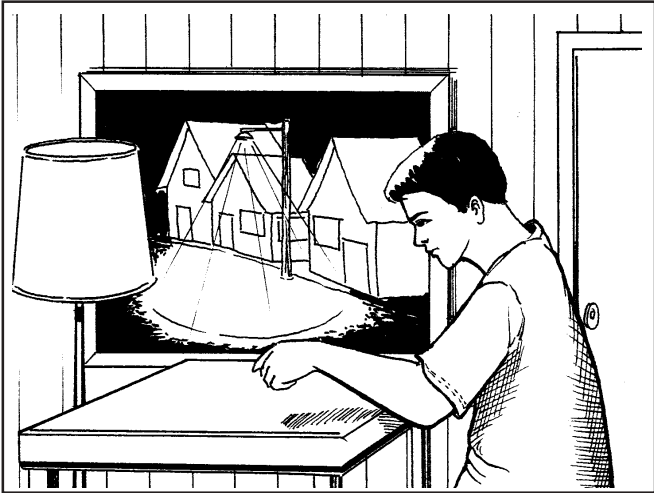
Electricity is a form of energy. We can't see it but we can see how it makes objects work. An appliance like an electric fan that uses electrical energy has a motor inside it. The spinning part of a motor is the **rotor**. It is connected to electrical wires. Electricity makes the motor work.

Look at the electric fan below. If you plug it into an electrical outlet and switch it on, electricity will flow through the wires. It will then make the rotor spin. This is how electricity makes the blades of the electric fan move. The same principle works in the case of many other appliances.



Electricity makes life more comfortable. Here are some examples of other uses of electricity.

We use electricity to light our homes.



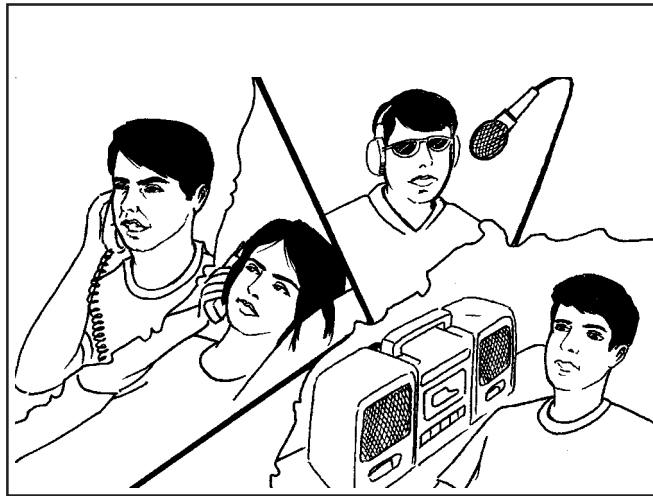
Because of electricity, a computer works.



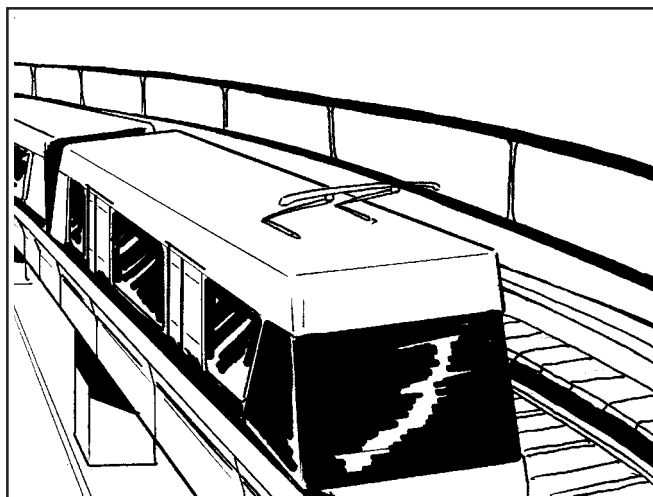
We use electricity to cook our food.



It is because of electricity that people can communicate through the radio or telephone.



The light rail transit or LRT is also powered by electricity. It brings people to different places quickly.



It is easier to polish the floor using an electric floor polisher instead of a coconut husk.





Let's Try This

Name at least three activities at home that are done more easily with the help of electricity.

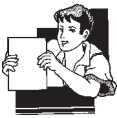
1. _____
2. _____
3. _____

Compare your answers with those in the *Answer Key* on page 40.



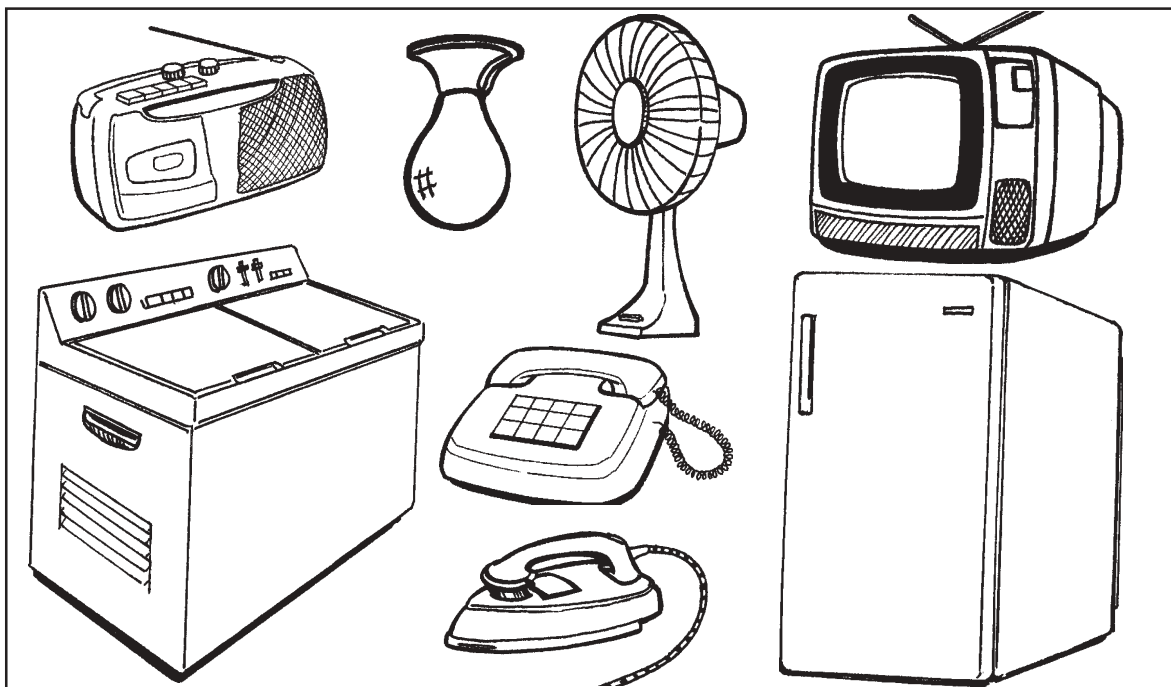
Let's Remember

Electricity is very useful to us because it powers appliances that make our work easier and our life more comfortable. Electricity gives us light through bulbs and fluorescent lamps. It makes our flat iron, TV, radio, electric fan and other appliances work.



Let's Learn

Let's study the appliances shown below. Usually, at the back of each electric appliance, you will see a label that tells you how much electricity it consumes.



Look at the labels found at the back of electric appliances in your home. What does a label like *600 w* on an airpot, or *170 w* on a refrigerator mean?

A label such as the ones mentioned is called the **wattage** of an electrical appliance. The “w” is read as watts. **Watt** is a unit for measuring electrical power or wattage. One thousand watts is equivalent to one kilowatt.

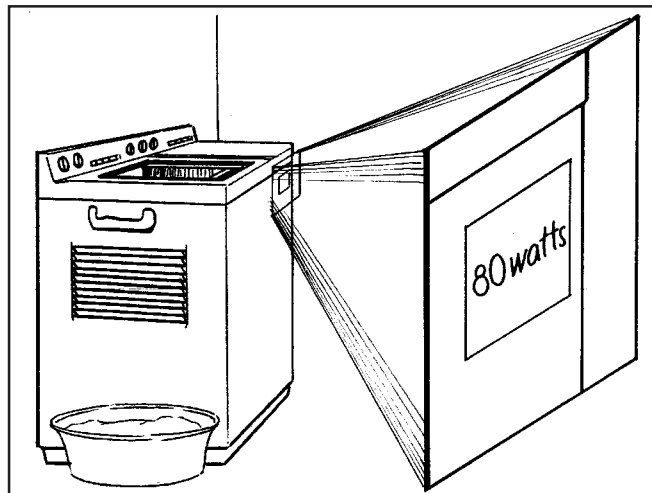
1,000 watts = 1 kilowatt

1,000 w = 1 kw

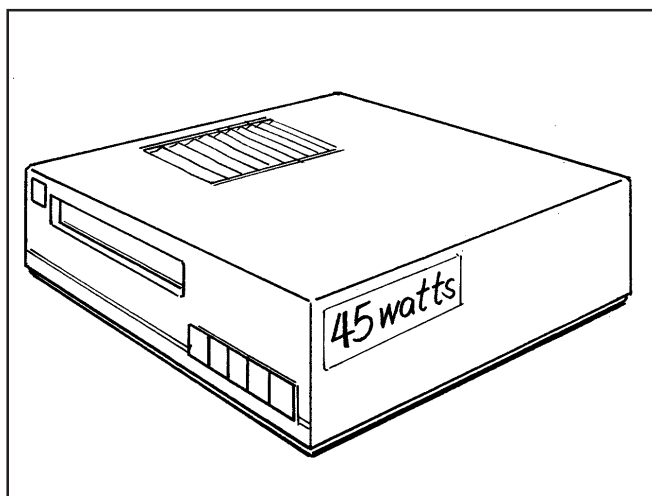
Wattage tells us how much electricity an electric appliance consumes every time you use it.

For example:

A non-automatic washing machine consumes 80 watts per hour.



A VHS player consumes 45 watts per hour.



The wattage of an electrical appliance is constant or it does not change. The wattages of common appliances are given in the table below. It will help you in buying and using appliances.

Appliances	Wattage (w)	Appliances	Wattage (w)
Range (4 burners)	8200	Stereo (mini-component)	145
Range (2 burners)	3300	Refrigerator (8 ft ³)	130
Water Heater	3000	Refrigerator (7 ft ³)	120
Stove (8-inch coil hot plate)	2200	Desk fan (18 inches)	120
Water heater (instant, portable)	1600	Refrigerator (6 ft ³)	100
Stove (6-inch coil hot plate)	1500	Ceiling fan (2 blades)	100
Oven (mini)	1500	Incandescent bulb	100
Air conditioner	1420	Box fan (16 inches)	80
Turbo broiler	1000	Television set (color, 14 inches)	80
Oven (microwave)	1000	Sewing machine	75
Bread toaster (2-way)	800	Television set (color, 12 inches)	65
Vacuum cleaner	800	Fluorescent lamp (28 inches, 28w, including ballast)	53
Oven toaster	750	Incandescent bulb	50
Airpot	600	Tape recorder (cassette)	50
Coffee maker	600	VHS Player	45
Flat iron (standard)	600	Television set (black & white, 14 inches)	36
Washing machine (automatic)	585	Fluorescent lamp (21 inches, 20w, including ballast)	32
Rice cooker (1 liter)	585	Television set (black & white, 12 inches)	32
Stereo (component system)	450	Video tape recorder	30
Water pump	373	Video tape rewinder	30
Hair dryer	320	Incandescent bulb	25
Blender	300	Rechargeable light and fan	12
Washing machine (non-automatic)	280	Family computer	10
Clothes dryer	280		
Computer (w/ monitor)	225		
Computer printer	175		
Refrigerator (11 ft ³)	170		
Stereo (solid state)	160		

Source: Meralco

The standard unit of measurement for length of time is **hour (h)** and the wattage of an appliance is in **watts. Kilowatt-hour (kwh)**, on the other hand, is the standard unit of measurement for the consumption of electricity.

1,000 watt-hours = 1 kilowatt-hour

1,000 wh = 1 kwh



Let's Try This

Do you want to know how to compute the power consumption of your appliances?

You only need to multiply the wattage of your appliance by the number of hours you used it. You should use the standard units of measurement for length of time, wattage and the power consumption.

EXAMPLE 1:

Appliance: flat iron

Wattage: 600 w

Number of hours it was used: 5 hours

Electricity it consumed:

$$600 \text{ watts} \times 5 \text{ hours} = 3000 \text{ watt-hours}$$

The standard unit of measurement for the consumption of electricity is kilowatt-hour (1 kilowatt-hour = 1000 watt-hours). Based on this, 3000 wh is equivalent to 3 kwh ($3000 \div 1000 = 3$).

ANSWER: 3 kwh

EXAMPLE 2:

Appliance: sewing machine

Wattage: 75 w

Number of hours used: 8 hours

SOLUTION:

$$\begin{array}{r} 75 \text{ w} \\ \times 8 \text{ h} \\ \hline 600 \text{ wh} \end{array}$$

Electricity it consumed: 600 watt-hours

Computing for the kilowatt-hour:

$$\begin{array}{r} 0.6 \text{ kwh} \\ 1000 \overline{)600.0 \text{ wh}} \\ \underline{-600.0} \\ \text{x} \end{array}$$

ANSWER: 0.6 kwh

EXAMPLE 3:

What if you have more than one of the same appliance at home? For example, suppose that you have three incandescent bulbs with a wattage of 50 w each. How will you know how much electricity the three bulbs consume in 5 hours?

Appliances: 3 incandescent bulbs

Wattage: 50 w

Number of hours used: 5 h

Electricity consumed:

SOLUTION:

$$\begin{array}{r} 50 \text{ watts} \\ \times 3 \text{ units} \\ \hline 150 \text{ watts} \\ \times 5 \text{ hours} \\ \hline \mathbf{750 \text{ watt-hour}} \end{array}$$

Computing for the kilowatt-hour:

$$\begin{array}{r} \mathbf{0.75 \text{ kwh}} \\ 1000 \overline{)750.00} \\ \underline{700.0} \\ 50.00 \\ \underline{50.00} \\ \text{X} \end{array}$$

ANSWER: 0.75 kwh



Let's Remember

Power or electric consumption is based on the wattage of an appliance and the length of time it was used.



Let's Solve This Problem

Compute how much electricity the appliance consumed. Show your solution.

Appliance: desk fan (18 inches)

Wattage: 120 w

Number of hours used: 9 h

SOLUTION:

Electricity it consumed: _____ wh or _____ kwh

Compare your answer with that in the *Answer Key* on page 40.



Let's See What You Have Learned

1. Give at least three uses of electricity.

2. Compute how much electricity an 8 ft³ refrigerator consumes in seven hours. You can find the wattage for this kind of refrigerator in the table on page 12. Show your solution.

SOLUTION:

Compare your answers with those in the *Answer Key* on pages 40–41.



Let's Remember

- ◆ **Electricity** is a form of energy that makes appliances work.
- ◆ The **wattage** of an appliance tells you how much electricity it consumes.
- ◆ **Watt** is a unit for measuring wattage or electrical power.

$$1,000 \text{ watts} = 1 \text{ kilowatt}$$

$$1,000 \text{ w} = 1 \text{ kw}$$

- ◆ **Hour (h)** is the standard unit of measurement for length of time. **Watt (w)** is for the **wattage** and **kilowatt-hour (kwh)** is for the consumption of electricity.

$$1,000 \text{ watt-hours} = 1 \text{ kilowatt-hour}$$

$$1,000 \text{ wh} = 1 \text{ kwh}$$

- ◆ To compute how much electricity an appliance consumes, multiply its wattage by the number of hours it was used.

Consumption of electricity = wattage x no. of hours

$$(\text{wh}) = (\text{w}) \times (\text{h})$$

- ◆ To convert from watt-hours to kilowatt-hours, divide the amount in watt-hours by 1,000.
- ◆ To compute for the electrical consumption of more than one unit of the same appliance, multiply its wattage by the number of units. Then, multiply the product by the number of hours the appliances were used.

How Can You Save on Electricity?

How much do you spend every month on electricity? Do you think it is too much for your budget? More savings on electricity means more money that you can spend for other things. Do you want to know of ways to save on your electric consumption?

In this lesson, you will learn ways to lessen your electric consumption so you can save money.



Let's Read

Read the comic strip below.







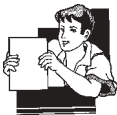
Let's Think About This

Did you learn anything from the comic strip? Answer the following questions.

1. What was Aling Marta's problem?

2. What did Aling Meding suggest to her?

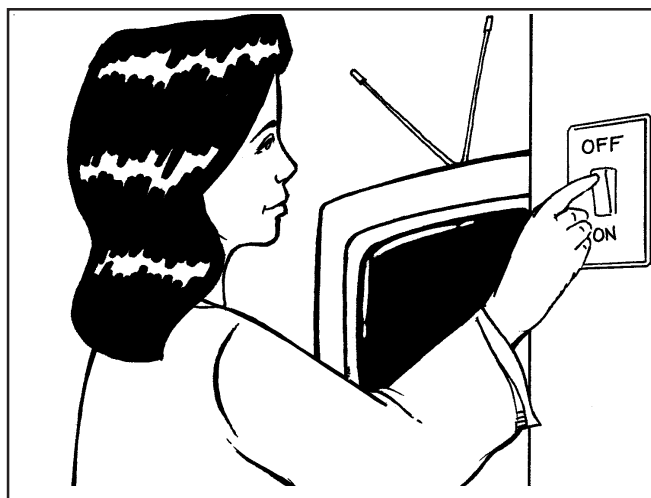
Compare your answers with those in the *Answer Key* on page 41.



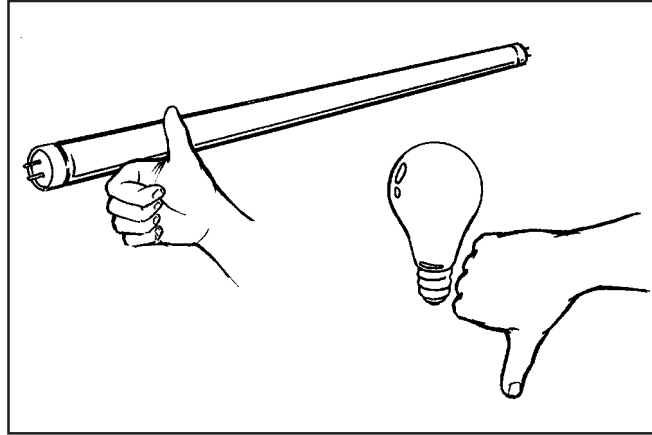
Let's Learn

You pay a high price for electricity not only because the rates are high. It also depends on how you use your appliances. If you do not know how to use them well, then you are using too much electricity needlessly. There are a lot of easy ways by which you can save on electricity at home. Try to practice the energy saving tips below and see if there is a reduction in your electric bill.

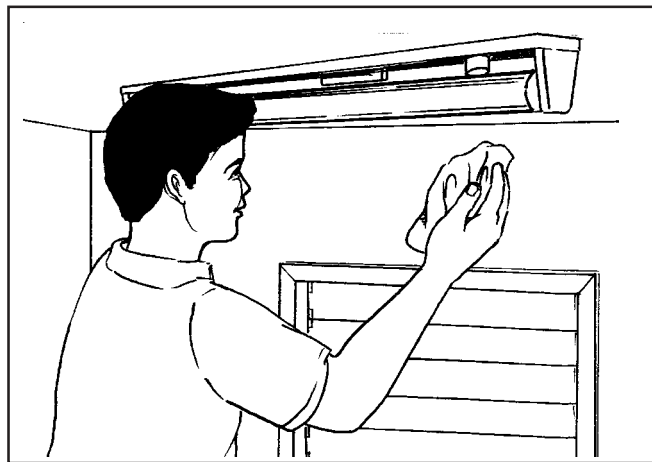
1. Turn off your appliances when you are not using them.



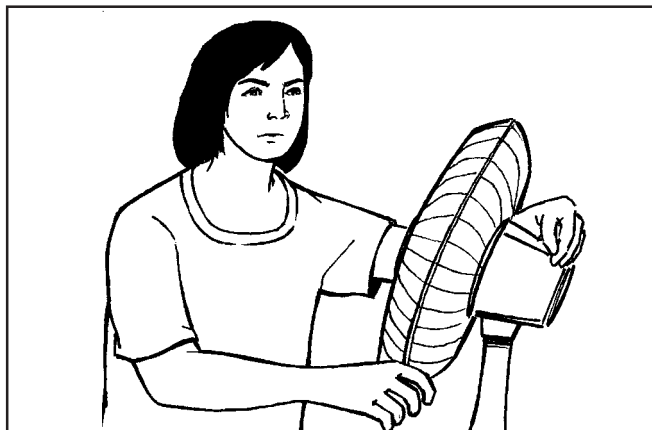
2. Choose wisely the electric appliances that you buy. Use fluorescent lamps instead of incandescent bulbs. Fluorescent lamps consume less electricity and give as much or even more light than incandescent lamps.



3. Keep your electric appliances in good working condition. Clean lamps regularly.



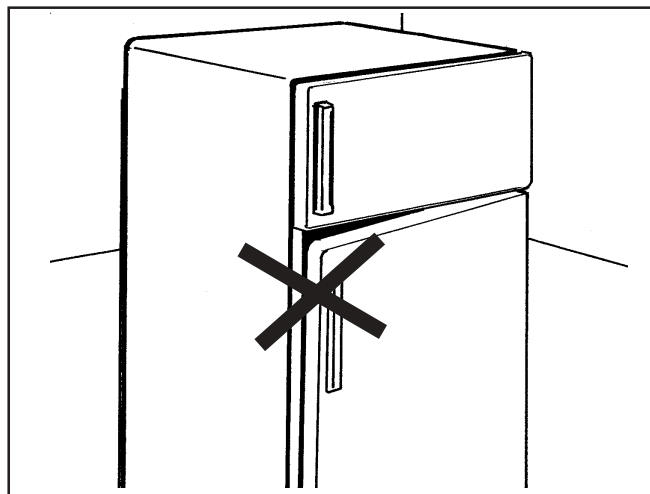
4. If you feel cool enough, set the fan to “low.” Lock the head of the fan when you need it in one direction only. Best of all, turn fans off when not using them.



5. Clean the coils at the back of your refrigerator.



6. Make sure that your refrigerator's door is always closed.



7. Avoid opening and closing your refrigerator repeatedly.



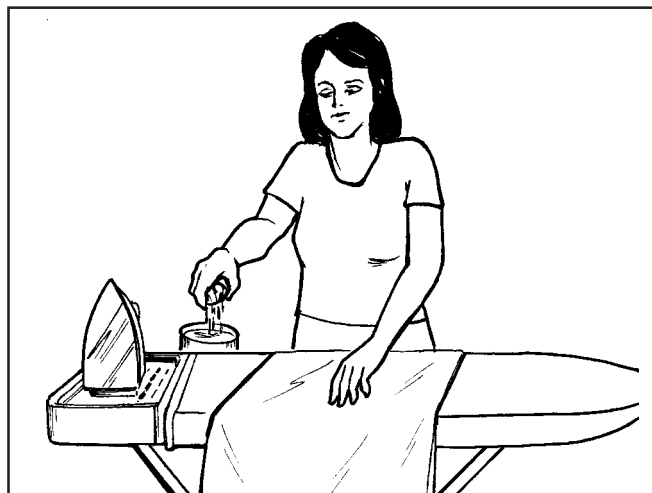
8. Hang your clothes under the sun instead of using a spin dryer.



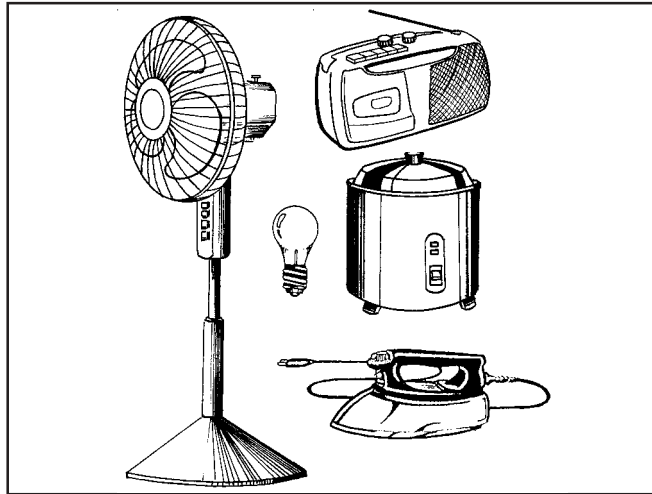
9. Set a specific day for ironing your clothes. Iron them in bulk instead of only a few pieces at a time.



10. Do not dampen your clothes too much before ironing them. They take longer to iron.



11. Buy appliances that have a low wattage. They use up less electricity.



Let's See What You Have Learned

Identify two electric appliances you have at home. Explain how you can save on electricity when using these appliances.

Compare your answers with those in the *Answer Key* on page 41.



Let's Remember

- ◆ Saving on your electric consumption means saving your money.
- ◆ There are easy and effective ways to cut down your electric consumption.
- ◆ Some tips on saving on electricity are:
 - turn off your appliances when you are not using them;
 - keep your electric appliances in good working condition; and
 - choose wisely the electric appliances that you buy—the lower the wattage, the better.

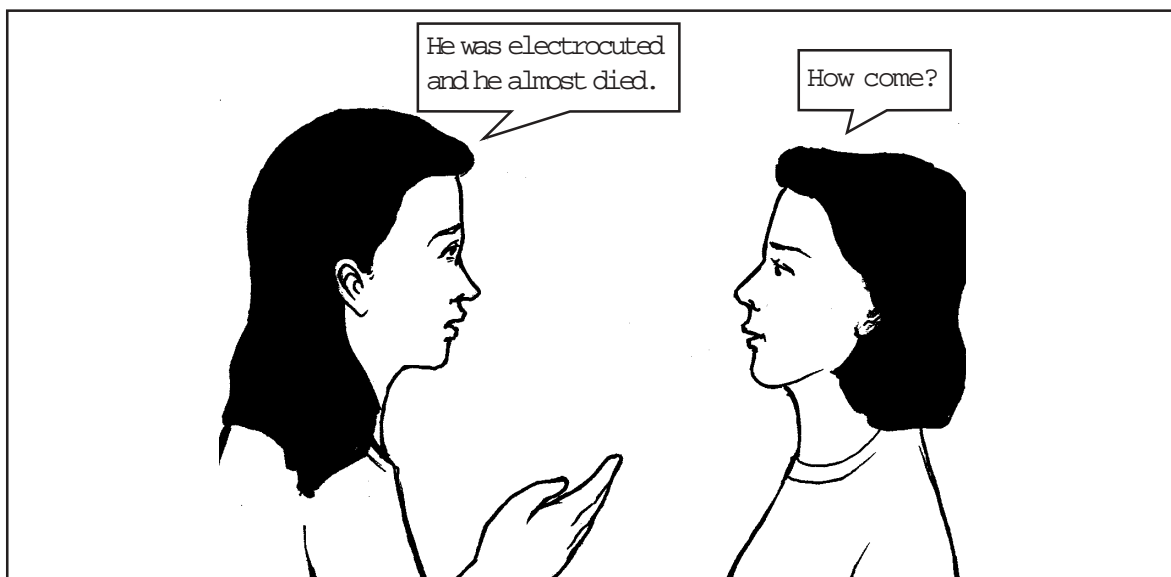
Electrical Safety

Electricity is very useful to us. However, when it is used carelessly, it can also be very dangerous. Electricity can cause electric shock and burns. At worst, it can kill people.

In this lesson, you will learn ways to avoid electrical accidents at home. You will also learn what to do in case these accidents happen.



Let's Read





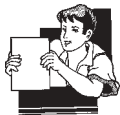
Let's Think About This

1. What accident were the characters in the story talking about? How did the accident happen?

2. How was the victim saved?

3. Based on the story, why is it important to learn about electrical safety?

Compare your answers with those in the *Answer Key* on pages 41–42.



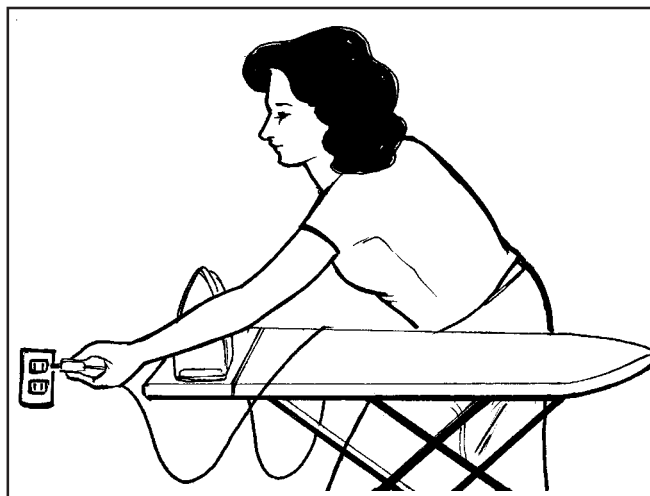
Let's Learn

Have you ever had an accident related to electricity? What caused it? Have you experienced stepping on the wet floor, and then, you touched the handle of a refrigerator? What did you feel? You felt an electric shock, right?

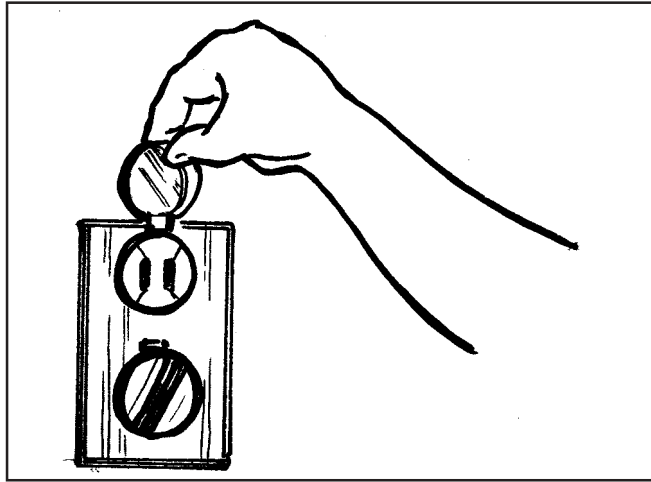
You know that if you were careful, that would not have happened. Most electrical accidents happen due to carelessness. But there are ways by which you can avoid these accidents. It is good to learn about electrical safety. Who knows, one day this knowledge might save you and your family or friends.

Here are some safety measures you can take to prevent electrical accidents from happening.

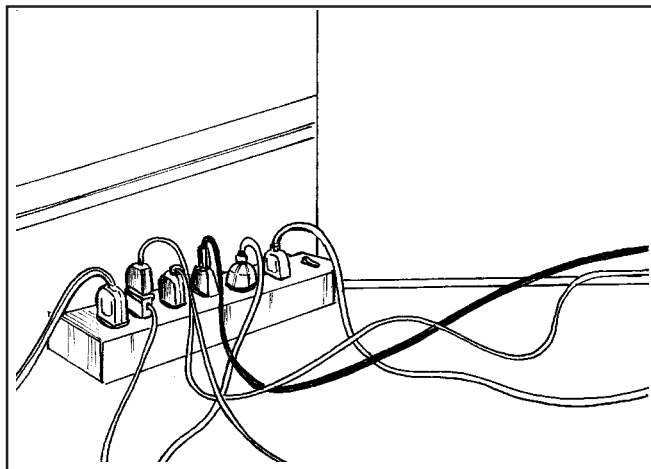
1. When you are not using your appliances, turn them off.



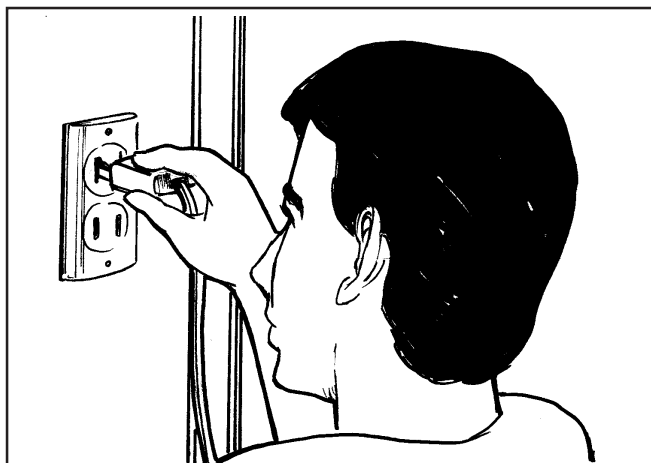
2. Cover electrical outlets with plastic caps especially if there are children in your home. This will prevent them from putting things inside or playing with the outlets. The plastic caps can be bought in most appliance or electrical stores.



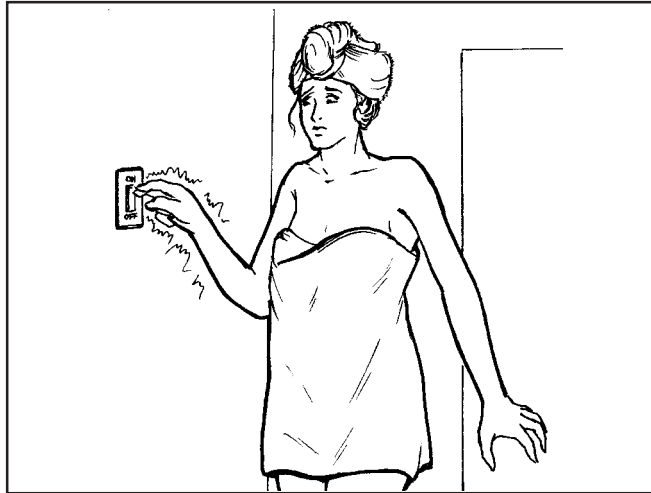
3. Do not plug too many appliances into an outlet. An overloaded outlet, called an “octopus connection,” can cause fire.



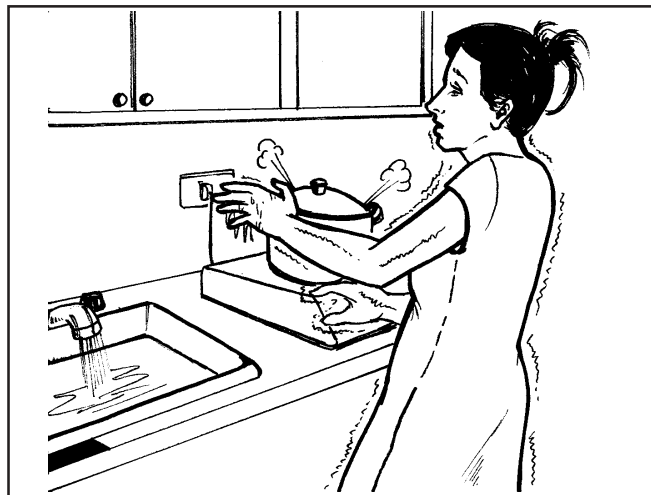
4. Pull the plug, not the wire.



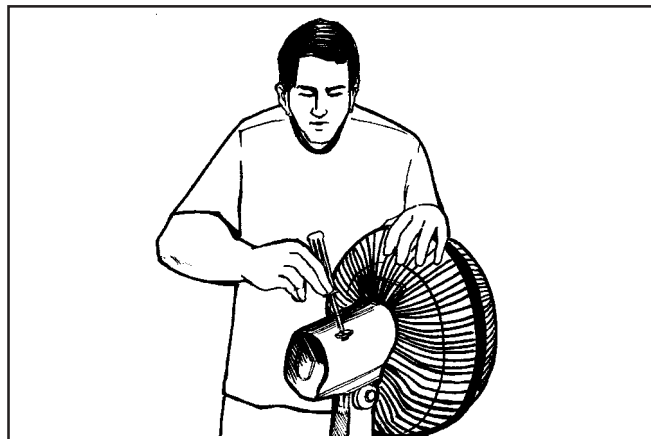
5. Do not touch light switches or plugs of appliances when your hands are wet or when you are standing on a wet surface.



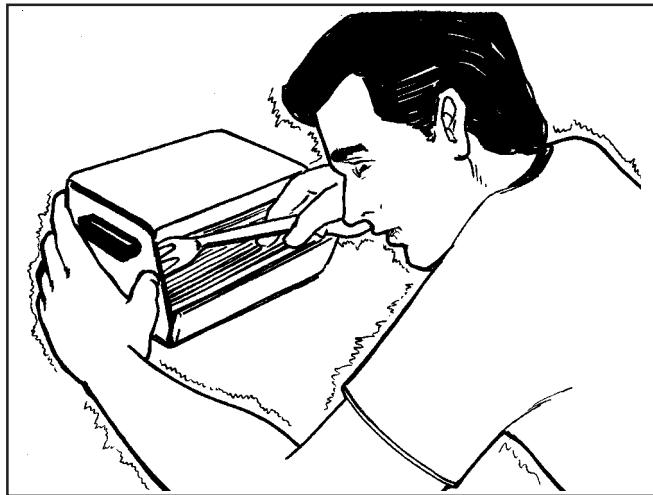
6. Do not place electric appliances near water. It can cause electrocution.



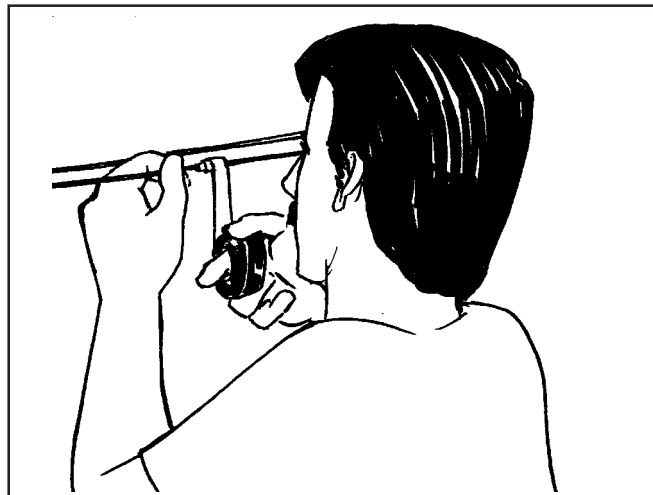
7. Call a qualified electrician if you want to repair your faulty wiring or broken appliances. Do not repair them yourself if you are not trained to do so.



8. Do not put a metallic object inside an electric outlet or appliance.



9. Cover exposed electrical wires with electric tape.



Let's Review

Answer each question briefly.

1. What would you do with your electrical outlets if you have small children in your home?

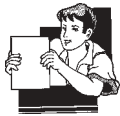
2. What should you not do when your hands are wet or when you are standing on wet surfaces?

3. What should you do if you have faulty wiring or broken appliances?

4. What should you do when you are not using your appliances?

5. How should you disconnect an appliance from an electrical outlet?

Compare your answers with those in the *Answer Key* on page 42.



Let's Learn

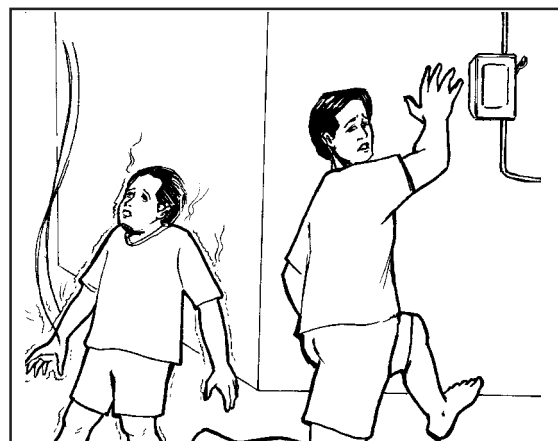
Do you know how dangerous contact between your body and electricity can be? It can kill you. Have you seen anyone experiencing an electric shock in an accident? What did you or the people around do to help him/her?

Accidents happen when you least expect them. Aside from knowing about electrical safety, you should also know what to do in case an electrical accident happens.



If someone inside your home meets an electric accident:

- ◆ Don't touch the victim. You could get electrocuted yourself. Unplug the appliance first. Or turn the power off at the main switch.



- ◆ If you can't turn the power off, use a dry wooden broom handle or dry clothing to separate the victim from the power source.

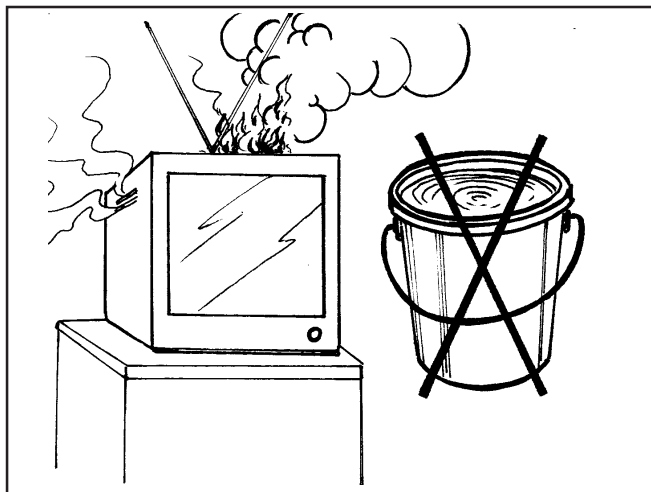


- ◆ Get medical assistance.



If there is an electrical fire:

- ◆ Unplug the burning or smoking appliance. **NEVER** throw water on the fire or appliance.



- ◆ Get everyone out of the house at once.



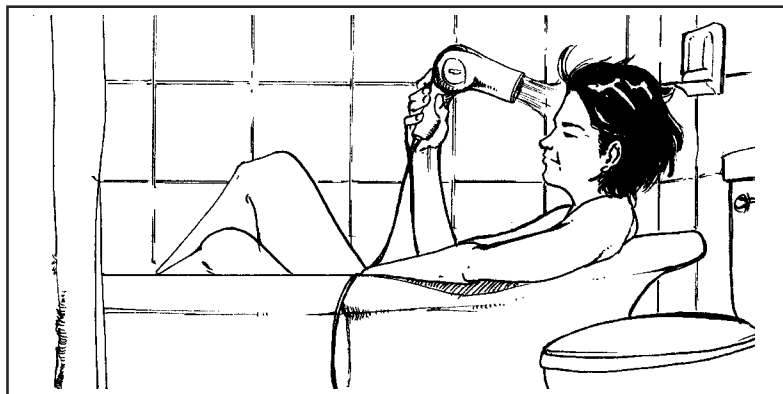
- ◆ Call the fire department. Report your name and address and that you have an electrical fire.



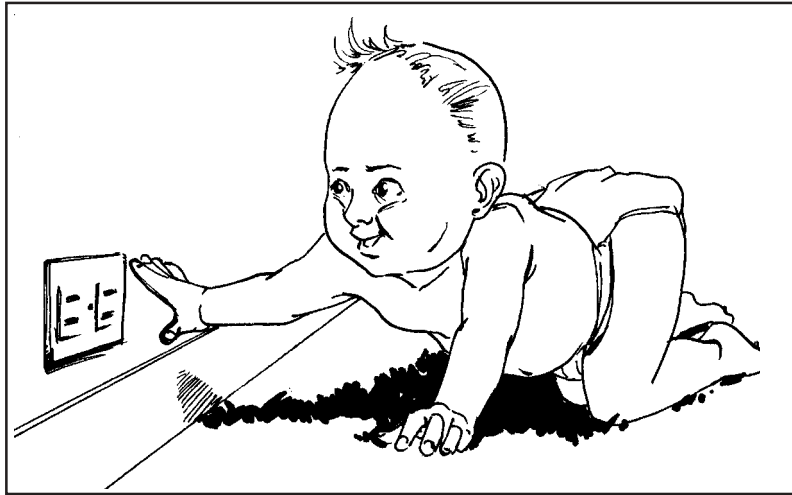
? Let's See What You Have Learned

- A. What electrical safety measure is being violated (or not followed) in each picture? Write your answers in the blanks.

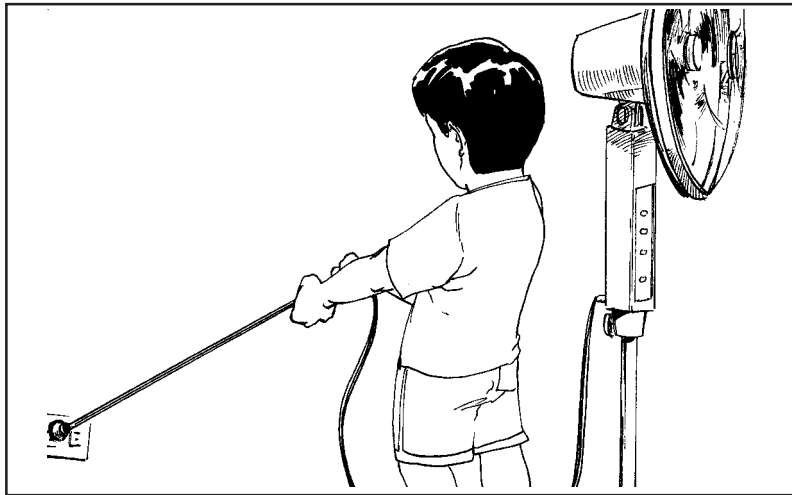
1.



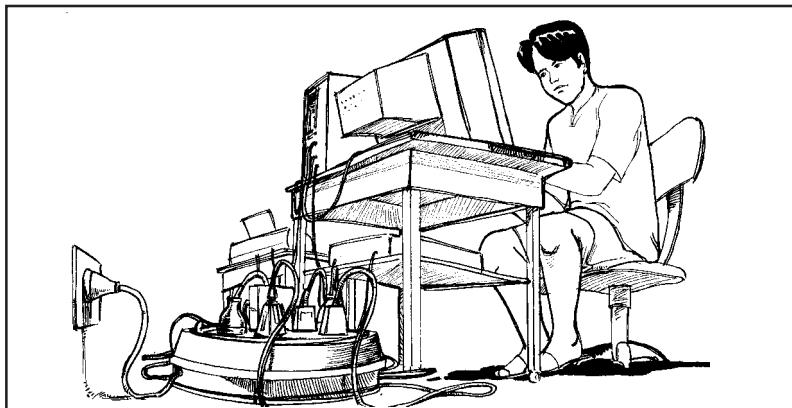
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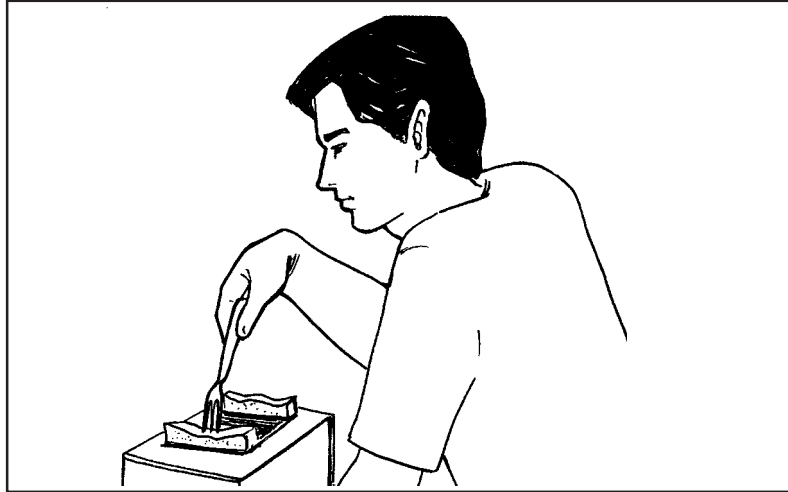
3.



4.



5.



B. What should you do in each situation?

1. Your son was playing in your living room when he got an electric shock from inserting a fork into the power outlet.

2. You overloaded your power outlet, causing an electrical fire.

Compare your answers with those in the *Answer Key* on page 42.



Let's Remember

- ◆ Knowing about electrical safety and knowing what to do in case of an electrical accident can save lives.
- ◆ There are safety measures that you can take to prevent electrical accidents from happening.
- ◆ There are also certain things that you should or should not do in case an electrical accident happens.

Well, you have reached the end of this module. Congratulations! Your persistence and eagerness to learn paid off. Did you learn a lot from this module? Did you enjoy reading it?

Below is a summary of the module's main points to help you remember them better.



Let's Sum Up

The module tells you that:

- ◆ **Electricity** is a form of energy that makes appliances work.
- ◆ The **wattage** of an appliance tells how much electricity it consumes.
- ◆ **Watt** is a unit for measuring wattage or electrical power.

$$1,000 \text{ watts} = 1 \text{ kilowatt}$$

$$1,000 \text{ w} = 1 \text{ kw}$$

- ◆ **Hour (h)** is the standard unit of measurement for length of time. **Watt (w)** is for the wattage and **kilowatt-hour (kwh)** is for the consumption of electricity.

$$1,000 \text{ watt-hours} = 1 \text{ kilowatt-hour}$$

$$1,000 \text{ wh} = 1 \text{ kwh}$$

- ◆ To compute how much electricity an appliance consumes, multiply its wattage by the number of hours it was used.

$$\text{Consumption of electricity} = \text{wattage} \times \text{no. of hours}$$

$$(\text{wh}) = (\text{w}) \times (\text{h})$$

- ◆ To convert from watt-hours to kilowatt-hours, divide the amount in watt-hours by 1,000.
- ◆ To compute for the electrical consumption of more than one unit of the same appliance, multiply its wattage by the number of units. Then, multiply the product by the number of hours the appliances were used.
- ◆ Saving on your electric consumption means saving your money.
- ◆ There are easy but effective ways to cut down on your electric consumption. To save on electricity, you should:
 - turn off your appliances when you are not using them;
 - keep your electric appliances in good working condition; and
 - choose wisely the electric appliances that you buy.
- ◆ Knowing about electrical safety and knowing what to do in case of an electrical accident can save lives.

- ◆ There are safety measures that you can take to prevent electrical accidents from happening.
- ◆ There are also certain things that you should or should not do in case an electrical accident happens.



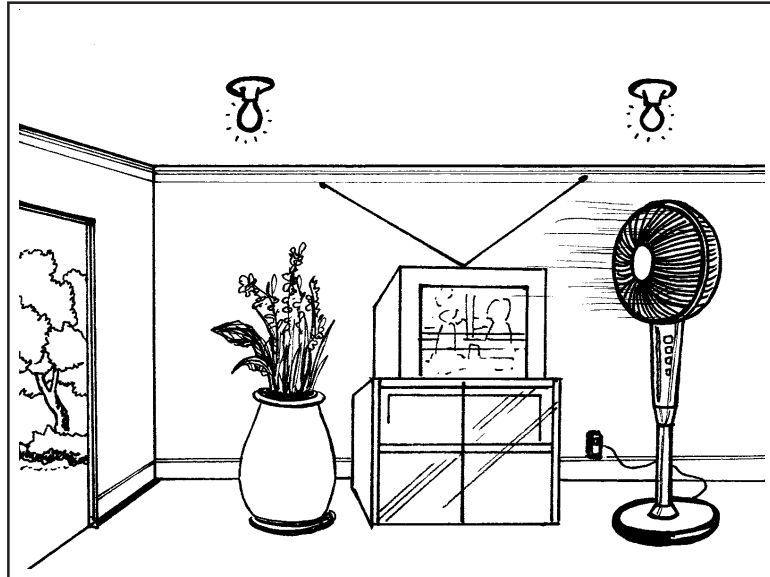
What Have You Learned?

A. Compute how much electricity the appliances in the situations below consume. Refer to the table on page 12 to get the wattage of each appliance. Show your solution.

1. Paula sells fruit shakes. She has two blenders that she uses seven hours a day. How much electricity do the blenders consume in seven hours?

2. Aling Maria has a small tailoring shop which is open eight hours a day. Inside it, there are three sewing machines and two 18-inch desk fans. How much electricity do these appliances consume in a day?

- B. Loleng pays a big amount for electricity every month. Look at her living room below on a typical day, and notice how electricity is wasted. What can you advise Loleng so she can save on her electric consumption?



- C. Look at the pictures below. Identify what the person is doing wrong in each picture. Write your answers on the blanks below each picture.

1.



2.



D. What would you do if you saw your little daughter in an electrical accident? She was holding a broken wire of your electric fan plugged into an outlet.

Compare your answers with those in the *Answer Key* on pages 43–45.



Answer Key

A. Let's See What You Already Know (pages 2–3)

A.

1. (c) — The only wise thing to do among the choices is to push the victim away from the source of electricity with a dry wooden broom handle. Splashing water on the victim (a) will kill him. If you pull him away from the source of electricity with your bare hands (b), you could get electrocuted yourself. Calling a doctor won't be wise, either. Electrocution needs immediate response.
2. (d) — You should keep your electric appliances away from water to avoid electrocution.
3. (b) — To save on electricity, you should open the windows during daytime to let the light come in.
4. (d) — To avoid causing electrical fire, you should not plug in too many appliances in one outlet.
5. (c) — $600 \text{ w} \times 1\frac{1}{2} \text{ h} = 900 \text{ wh}$

B. The following are sample answers. You may give other answers which may also be correct.

1. I can save on electricity if I will set a specific day to iron all our clothes. Also, I should not dampen the clothes too much before ironing them.
2. If I have a broken appliance, I would call a qualified electrician to fix it.

B. Lesson 1

Let's Think About This (pages 6–7)

1. As shown in the four situations, electricity makes appliances work. Without electricity, we wouldn't be able to use appliances like washing machines, fans, flat irons and refrigerators.
2. My life would be very different if there was no electricity. I would not be able to finish all the household chores with such ease, speed and efficiency. Washing clothes, ironing and cooking would be much harder. I also would not be able to enjoy listening to music in the radio and watching my favorite shows on TV.

Let's Try This (page 10)

Below are sample answers. The learner may give other answers that may also be correct.

1. washing clothes
2. polishing the floor
3. cooking

Let's Solve This Problem (page 15)

Appliance: desk fan (18 inches)

Wattage: 120 w

No. of hours used: 9 h

SOLUTION:

$$\begin{array}{r} 120 \text{ w} \\ \times 9 \text{ h} \\ \hline 1,080 \text{ wh} \end{array}$$

$$\begin{array}{r} 1.08 \text{ kwh} \\ 1000 \overline{)1080.00 \text{ wh}} \\ \underline{1000} \\ 80.0 \\ \underline{} \\ 80.00 \\ \underline{80.00} \\ \text{x} \end{array}$$

Electricity it consumed: 1,080 wh or 1.08 kwh

Let's See What You Have Learned (pages 15–16)

1. Some sample answers:
 - a. Electricity gives us light.
 - b. Electricity powers a computer.
 - c. Communication through the telephone is possible because of electricity.
2. Appliance: Refrigerator (8 ft³)
Wattage: 130 w
No. of hours used: 7 h

SOLUTION:

$$\begin{array}{r} 130 \text{ w} \\ \times 7 \text{ h} \\ \hline 910 \text{ wh} \end{array}$$

$$\begin{array}{r}
 0.91 \text{ kw} \\
 1000 \overline{)910.00 \text{ wh}} \\
 \underline{910.0} \\
 10.00 \\
 \underline{10.00} \\
 \text{x}
 \end{array}$$

Electricity consumed: 910 wh or 0.91 kwh

C. Lesson 2

Let's Think About This (page 19)

1. Aling Marta paid a big amount for electricity this month.
2. Aling Meding suggested to her to practice the easy-to-do energy saving tips that the electric company gave her. Maybe the electric company told Aling Meding to:
 - turn off their appliances when they are not using them;
 - use fluorescent lamps instead of incandescent bulbs;
 - clean their lamps regularly;
 - make sure that the refrigerator door is always closed; and
 - do all the ironing of clothes at one time.

Let's See What You Have Learned (page 23)

Below are sample answers. The learner may give other answers which are also correct.

1. *light bulbs.* I can save on electricity if I will switch the bulbs off when light is not needed like during the daytime or when going to bed. I can also save on electricity by using fluorescent bulbs instead of incandescent bulbs.
2. *refrigerator.* I can save on electricity if I will avoid opening the door of the refrigerator too often. I should also make sure that the refrigerator's door is always closed.

D. Lesson 3

Let's Think About This (page 25–26)

1. The characters were talking about a boy who got involved in an electrical accident. While he was playing, he inserted a spoon into the electrical outlet.

2. The boy's aunt got a broom and used its dry wooden handle to push him away from the outlet.
3. It is important to learn about electrical safety because it can save lives.

Let's Review (pages 29–30)

1. I would cover electrical outlets with plastic caps.
2. I should not touch light switches or plug appliances.
3. I should call a qualified electrician to fix faulty wiring or broken appliances.
4. I should turn them off.
5. You should pull the plug, not the wire.

Let's See What You Have Learned (pages 32–34)

A.

1. Do not place electric appliances near water. It can cause electrocution. Only electric plugs (or plastic caps) should be inserted into an outlet.
2. Cover electrical outlets with plastic caps especially if there are small children in your home.
3. Pull the plug, not the wire.
4. Do not plug too many appliances into an outlet.
5. Never put a metallic object inside an electric outlet or appliance.

B.

1. I would immediately turn the power off at the main switch. I would get our blanket and wrap it around him. Then, I would pull him away from the power outlet. I would get medical assistance afterwards.
2. I would turn the power off at the main switch or unplug the smoking appliance. Then we would get out of our house and call the fire department.

E. What Have You Learned? (pages 36–38)

A.

1. appliances: 2 blenders
wattage: 300 w each
no. of hours used: 7 h

SOLUTION:

$$\begin{array}{r} 300 \text{ w} \\ \times 2 \\ \hline 600 \text{ w} \\ \times 7 \text{ h} \\ \hline 4,200 \text{ wh} \end{array}$$

$$\begin{array}{r} 4.2 \text{ kwh} \\ 1000 \overline{)4200.0 \text{ wh}} \\ \underline{4000} \\ 200.0 \\ \underline{200.0} \\ \text{x} \end{array}$$

electricity consumed: 4,200 wh or 4.2 kwh

2. a. appliances: 3 sewing machines
wattage: 75 w each
no. of hours used: 8 h

SOLUTION:

$$\begin{array}{r} 75 \text{ w} \\ \times 3 \\ \hline 225 \text{ w} \\ \times 8 \text{ h} \\ \hline 1,800 \text{ wh} \end{array}$$

$$\begin{array}{r} 1.8 \text{ kwh} \\ 1000 \overline{)1800.0 \text{ wh}} \\ \underline{1000} \\ 800.0 \\ \underline{800.0} \\ \text{x} \end{array}$$

electricity consumed: 1,800 wh or 1.8 kwh

- b. appliances: 2 18-inch desk fans
 wattage: 120 w each
 no. of hours used: 8 h

SOLUTION:

$$\begin{array}{r} 120 \text{ w} \\ \times 2 \\ \hline 240 \text{ w} \\ \times 8 \text{ h} \\ \hline 1,920 \text{ wh} \end{array}$$

$$\begin{array}{r} 1.92 \text{ kwh} \\ 1000 \overline{)1920.00 \text{ wh}} \\ \underline{1000} \\ 920.0 \\ \underline{900.0} \\ 20.00 \\ \underline{20.00} \\ \text{x} \end{array}$$

electricity consumed: 1,920 wh or 1.92 kwh

total amount of electricity consumed:

$$\begin{array}{r} 3 \text{ sewing machines} = 1.8 \text{ kwh} \\ + 2 \text{ 18-inch desk fans} = 1.92 \text{ kwh} \\ \hline \end{array}$$

Answer: 3.72 kwh

B.

Loleng should turn off the lights during daytime. She should open the windows to let the light come in. When the weather is cold or nobody is using the fan, it should be switched off. The television should also be switched off when nobody is watching.

C.

1. The woman in the picture can get electrocuted because her hands are wet. She should not touch light switches or plugs of appliances while her hands are wet.
2. When you are not using your electrical appliances, turn them off. Leaving appliances still plugged on after using them, like the flat iron in the picture, can cause electrical fire.

D.

I would turn the power off at the main switch and get a blanket or an object that is dry and non-metallic. Then, I would pull the wire from my daughter using the blanket. I would get medical assistance afterwards.



Glossary

Appliance Any electrical device that is used to do a specific task

Consumption The buying and using of goods or services

Device Something made for a special purpose

Electricity An energy that powers appliances

Electric outlet A specially shaped set of holes into which an electric appliance's plug is inserted

Electrocution Happens when electricity flows through a victim's body. The victim may not be able to move his/her body to get away from the electric shock. This can cause burns or even death.

Energy The ability to do work

Fluorescent lamp A tubular lamp emitting white light

Grope To search by feeling with the hands

Incandescent bulb An electric bulb that usually emits yellow light

Plug A plastic or rubber device that is pushed into an electric outlet to connect with the power supply

Power interruption Brownout; an electrical power failure or power cut

Switch A device used to open and close a circuit, or to turn on and off an appliance



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