

# Electricity: A First Look

1 videocassette..... 18 minutes

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## INTRODUCTION

*Electricity: A First Look* provides young students with an overview of basic principles of electricity. Through clear, simple examples, it explains how we use and depend on electricity; the differences between static electricity and current electricity; how electricity is made; how circuits and switches work; and what conductors and insulators are. The video also shows vivid examples of how and why electricity can be dangerous and provides tips on how to use electricity safely.

The program shows students performing a variety of experiments with electricity. It also provides an opportunity for the teacher to stop the program so that students can explore a problem posed by the program. In this way, the video not only promotes learning about electricity; it also encourages viewers to actively engage in the scientific process.

**Grade level:** This video is appropriate for use with students in grades 1 through 4.

## BEFORE VIEWING THE VIDEO

Before showing the video, you may want to acquaint students with some key terms, including: *energy*, *static electricity*, *current electricity*, *conductor*, and *insulator*. Write these terms on the chalk board and discuss them, referring if necessary to the glossary in this guide.

## OBJECTIVES

After viewing the video, students will be able to:

- explain that electricity is a form of energy.
- compare static electricity to current electricity.
- describe many ways in which people use electricity.
- describe different ways electricity can be produced.
- explain what a circuit is.
- explain how switches work.
- describe what conductors and insulators are.
- appreciate the importance of using electricity safely.

## PROGRAM SUMMARY

The program begins by asking viewers what their lives would be like if there were no electricity to light their homes and run their appliances and machines. It explains that for most of human history, people did not have electricity to help make their lives easier.

The program then points out that humans did not invent electricity. Lightning is a form of electricity found in nature. Viewers also learn about static electricity, and students in the video demonstrate static electricity by rubbing a balloon and comb with something woolen. The narrator explains that *static* means that it stays in one place.

Static electricity is compared to current electricity, which moves from one place to another. A student demonstrates how it is possible to make current electricity by moving a magnet back and forth inside a coil of wire.

The program describes how batteries and solar panels make current electricity. The video explains how windmills use the power of wind to spin a magnet inside a coil of wire to make current electricity, and how generators in a power station make current electricity with giant magnets.

Next, the video demonstrates how electricity made by power plants reaches us by traveling over power lines. It describes how these power lines form a circuit. It then demonstrates a simple circuit using a battery-and-bulb setup and shows what happens when this simple circuit is broken by cutting one of the wires going from the battery to the bulb.

Then the narrator asks viewers what would happen if a student in the video were to use a paper clip to connect the two ends of the cut wire. The program provides an opportunity for the teacher to pause the video to give viewers a chance to discuss and answer this question.

When the program resumes, it shows how the paper clip completes the circuit, and the bulb lights up. The narrator describes how the paper clip is a switch that can break, or open, a circuit to turn things off and close a circuit to turn things on.

The video notes that the paper clip is made of steel, and steel is a good conductor. It explains that an insulator does not conduct electricity well. The program demonstrates how a rubber eraser does not conduct electricity between the two ends of the cut wire in the battery-and-bulb setup.

Finally, there is a visit to the Lineman's Academy, run by the Long Island Power Authority (LIPA). Here, linemen put on a demonstration that vividly illustrates the dangers of metal poles touching overhead wires and of downed wires touching fences and trees. A representative of LIPA describes precautions that students should take around their own homes to keep electricity safe.

A brief summary concludes the video.

## REVIEW QUESTIONS

1. Describe some ways that electricity is useful to us.  
*Answers will vary. The program describes how electricity lights our homes, runs machines, starts cars, and other things. Students should be encouraged to come up with their own examples.*
2. What is static electricity?  
*Static electricity is electricity that stays in one place.*
3. How can you make static electricity?  
*The program shows how you can make static electricity by rubbing a balloon or a comb on something woolen. Students may be able to think of other ways.*
4. What is current electricity?  
*Current electricity moves from one place to another.*
5. Describe how you can make current electricity.  
*The program describes how students can make current electricity by moving a magnet back and forth inside a coil of wire.*
6. What is a circuit?  
*A circuit is the circular path or loop electricity takes from where it is made to where it is used and back again.*
1. What happens when you break a circuit?  
*The current can no longer flow.*
8. What is a switch?  
*A switch is something that can open or close a circuit and thus turn something on or off.*

9. What are some examples of switches?  
*Examples will vary. Switches in the program include light switches and switches to a variety of appliances. Students should be encouraged to think of their own examples.*
10. What is a conductor?  
*A conductor is something that conducts electricity well. Examples of good conductors include a steel paper clip and an aluminum pole.*
11. What is an insulator?  
*An insulator is something that does not conduct electricity well. An example of an insulator is a rubber eraser.*
12. Why do people who work with power lines wear rubber gloves and arm coverings?  
*The rubber insulates them from the electric current in the power lines.*
13. What are some things you should do or not do to be safe with electricity?  
*Answers will vary. Examples in the program include not touching an overhead power line with a metal pole, not touching a fence on which a power line has fallen, not putting anything metal into an electric outlet, not putting electric cords under a carpet, not having a radio or electric appliance near water in a bathroom, and avoiding frayed wires. Students should be encouraged to think of other examples.*

## **ACTIVITIES AND TOPICS FOR DISCUSSION**

### **1. Safety**

The program stresses the importance of electrical safety. Point out to students that the activities in the video show students experimenting with electricity using a weak hobby battery. Emphasize that they should never experiment with electricity from sockets or outlets.

### **2. What Is Electricity?**

Because the program is aimed at very young students, it does not describe electricity in terms of atoms and electrons. If you feel students are ready for more information, describe to them how all matter is made up of atoms, and that atoms contain particles called electrons that can move from one atom to another. An electric current is the flow of electrons through matter. In a wire carrying an electric current, electrons move from atom to atom in the wire.

### **3. Making Electricity from Magnets**

The program shows a student making current electricity with a bar magnet and a coil of wire. If your students try this activity, they should keep the two jars with the wire coiled around them at least three feet apart. This way, the magnet itself won't cause the compass needle to move.

They can use clay to hold the compass in one of the jars. The compass should be positioned so that, when pointing north, the needle is aligned with the lip of the jar rather than pointing into or out of the jar.

### **4. Making Magnets from Electricity**

The compass needle in the activity in the video moves because an electric current moving through a wire creates a magnetic field around the wire. If the wire is coiled, the

magnetic field gets stronger. An electric current moving through a coil like this makes an electromagnet.

Students can make an electromagnet by attaching the two ends of a wire to a battery and coiling the middle part of the wire around a nail or iron rod. When current moves through the wire, both the wire and the nail or rod become magnetic.

Have the students use the nail or rod to pick up steel paper clips. Then have them unhook the wire from the battery and try to pick up the paper clips again. Ask them why the nail doesn't pick up the paper clips now. If they need help, tell them that the nail is magnetic only when an electric current flows through the wire coiled around the nail.

### **5. Static Electricity**

The program shows two activities with static electricity. Here are two other activities that illustrate static electricity.

- a. Ask students to pour salt and pepper on a piece of waxed paper. Then have them charge a balloon by rubbing it with a piece of wool. Tell the students to slowly bring the balloon close to the mixture of salt and pepper and observe what happens.

The pepper particles are attracted upward to the balloon first because they are less dense and lighter in weight. At closer range, the salt particles will also move upwards and stick to the balloon.

- b. For a variation of the experiment in which a charged comb bends a stream of water, do the experiment in the dark. When you hold the comb close to the water, you should see a spark jump from the comb to the water.

## **6. Electricity and Circuits**

To illustrate how electricity flows only through a closed circuit, ask the students to join hands in a circle. Tell them to imagine that the circle is an electrical wire. Ask one student to squeeze the hand of the student to his or her left and tell the other students to continue the squeezing in turn around the circle. Let the squeezing go around the circle a couple of times. Then have one student step out of the circle to break the circle.

Ask what happened. Explain that just as the squeezing was unable to continue once the circle was broken, electricity is unable to flow when a circuit is opened.

## **7. Conductors and Insulators**

To illustrate conductors and insulators, bring a piece of electrical cord to class. Strip the plastic or rubber insulation from one end. Point out to students that the metal wire inside the cord conducts an electric current to a lamp or appliance. The rubber or plastic covering on the outside keeps the current from flowing where it should not go and makes it safe to handle the cord .

## **8. Resistance**

Resistance is a measure of how well electricity flows through a material. Good conductors have low resistance. Good insulators have a high resistance.

The video shows that a light bulb glows because the thin wire inside gets hot. Students may think that good conductors are used in a light, but the wire in a light bulb does not conduct the current well. Point out to students that the wire gets hot and glows because it resists the flow of electricity. Explain that a toaster is another appliance that uses resistance to produce heat in its wires.

## GLOSSARY

**battery:** device that converts chemical energy into electricity

**circuit:** circular path of an electric current, going from where the electricity is made to where it is used and back again

**coil:** electrical conductor such as a copper wire wound in a spiral shape

**conductor:** material such as steel or copper through which an electric current passes easily

**current electricity:** electricity that flows from one place to another

**energy:** ability to do work

**generator:** machine that produces electricity

**insulator:** material such as rubber through which an electric current does not pass easily

**magnet:** object that has a magnetic field and is able to attract iron and steel

**pylon:** tower used to support electric cables

**solar panel:** device that turns the energy of sunlight into electric energy

**static electricity:** electric charge, often caused by rubbing two things together, that does not move as a current

**switch:** device that turns an electric current on or off by making or breaking a circuit

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## SCRIPT

Title: *Electricity: A First Look*

**Narrator:**

Imagine this: what if all the lights in your home suddenly went out, and your radio stopped playing, and your television went blank?

What if cars couldn't start, and washing machines couldn't wash clothes, and hair dryers couldn't dry hair?

This was the way life used to be. Instead of electric lights, people lit their homes with candles or kerosene lamps. Instead of using washing machines, they washed their clothes by hand. Instead of cars, there were horses and buggies. Instead of television and radio, people depended on reading and other ways to entertain and inform themselves. In many ways, electricity has changed the way people live.

Electricity is a form of energy. Energy helps us do work. The energy of electricity runs different kinds of machines. Electricity lights our cities, towns and homes.

We depend on electricity in many ways, but we didn't invent electricity. Before we knew how to use electricity, it was part of the natural world around us. The flash of lightning and the sound of thunder are powerful displays of the energy of electricity.

Here's another way you can see the energy of electricity. Rub a comb on a piece of wool, like a woolen glove or sock. Then bring it close to a small stream of water coming from a faucet.

The water bends towards the comb. The energy of electricity draws the water closer to the comb.

Here's something else to try. Rub a balloon on a piece of wool, and then stick the balloon against the wall.

The electricity that makes the water bend or makes the balloon stick to the wall is called static electricity. Static means that it stays in one place. Static electricity is caused by rubbing two things together...like a balloon and a piece of wool.

Lightning is also a form of static electricity. It is caused when air rubs against drops of water in clouds.

Static electricity is different from the kind of electricity we use in our homes and schools. This kind of electricity is called current electricity.

Think of the current or flow of water in a river. Just as the water in a river flows from one place to another, current electricity moves from one place to another. Current electricity flows from an electric outlet along a wire to a lamp.

You can do an experiment to show how to make current electricity. Wrap some electrical wire several times around the opening of an empty jar. Wrapped like this, the wire forms a coil.

Leave the two ends of the wire free, and have an adult strip the plastic coating off the ends.

Wrap another wire around the lip of a slightly bigger glass jar, and inside put a compass...like this. The two ends of this wire should be free and the plastic coating should be stripped off.

Join the two sets of wires by twisting them together. This is how the setup should look when you are finished.

Now, take a bar magnet and slide it quickly up and down inside the coil wrapped around the jar without the compass. Look at the compass in the other jar while you do this.

The needle moves back and forth. The needle moves because moving the magnet up and down creates an electric current that flows through the wire. The electric current makes the wire magnetic, and this moves the needle of the compass.

A battery is another way of making an electric current. It contains chemicals that work together to make electricity. Small batteries make an electric current that is weak, but still strong enough to light a flashlight.

A car has a larger and much stronger battery. When a driver turns the key, he or she depends on the electricity made by the battery to start the engine.

These solar panels make electricity in another way...by changing the energy of sunlight into electrical energy.

These windmills in a desert near Palm Springs, California, show yet another way of making electricity. They produce electricity in a way similar to how you can make electricity—by moving a magnet inside a coil of wire.

The muscles in your arm provide the energy to move the magnet up and down. The wind provides energy that turns the blades of each windmill. The spinning blades, in turn, spin a magnet that is inside a coil of wire.

In the future, wind power may become an important source of electric energy; but, today, most homes, schools, and businesses still get their electricity from power plants such as this one.

Inside these power plants are large generators.

Most generators in a power plant make electricity the same way the windmills do...by spinning a magnet inside a coil of wire.

The electricity created by power stations is often made far away from where it is used...for example, in our homes. In order to get to our homes, the electric current is first carried by thick wires called cables. These cables are carried high above the ground by towers called pylons. You may see pylons, and the electric cables they carry, crisscrossing the land.

The electric current in these thick cables eventually reaches smaller wires, such as those carried on top of telephone poles; and then the current flows through wires that go into homes, schools, and businesses.

There are really two sets of wires and cables that come from a power plant and go into a home. One set carries electricity from the power plant to homes and other places where it's needed, and the other carries electricity back to the power plant.

Together, they form a kind of loop called a circuit. An electric current travels in a circuit. It can only go to where it is needed if it can get back to where it started. If the circuit is somehow broken, then the electric current stops flowing.

This battery-and-light-bulb setup is an example of a small circuit. The bulb is connected to the battery by two wires. One wire carries electricity from the battery to the bulb.

Inside the bulb there is a very thin wire. As electricity flows through this wire, it gets very hot and glows, giving off light.

The other wire carries electricity from the bulb back to the battery.

Here is a slightly different setup. One of the wires has been cut, and the two ends are connected to screws. The bulb doesn't light up because the circuit is broken, or opened.

What do you think will happen if you put a paper clip on top of the two screws?

Your teacher can pause the video here to let you answer the question. Otherwise the program will resume in 10 seconds.

*pause*

What happens when you put a paper clip on top of the two screws?

The bulb lights up. The bulb lights up because the paperclip carries the electric current from one screw to the other.

The paper clip acts as a switch. A switch is something that lets you close or open a circuit.

Many of the circuits in a home have switches. These switches allow you to turn things on or off.

When you switch something off, you break, or open, the circuit. When you switch something on, you close the circuit.

Look around and you can see many different kinds of switches.

**Students:**

On!

Off!

On!

Off!

**Narrator:**

Look once again at the paper clip. The paper clip is made of steel. Steel and many other metals carry an electric current very well. Anything that carries—or conducts—an electric current easily is a good conductor.

Rubber, on the other hand, is not a good conductor.

Things that don't carry an electric current well are called insulators. If you put this rubber eraser on top of the two screws, the bulb doesn't go on because the rubber doesn't conduct the electric current from one screw to the other.

People who work on electric power lines wear special clothing to protect them, including rubber gloves and sleeves that insulate them from the electric current.

And this brings up another point. Electricity can be dangerous.

Subtitle: *Being Safe with Electricity*

On Long Island, New York, there is a special school called the Lineman's Academy, where people learn to climb poles and work on electric cables.

Hank Delach and Tracy Burgess Levy work for the Long Island Power Authority, which runs this school. Hank Delach is one of the teachers.

**Hank Delach:**

A lineman is someone who works on our wires and poles that take electricity from our power plants and delivers it out to your homes.

One of the main reasons for this facility is that electricity is very dangerous, and you have to understand how it works and why it works.

**Narrator:**

Several experienced linemen at the academy put on a demonstration for our camera to show how dangerous electricity can be.

This is an aluminum pool skimmer. It is used to clean swimming pools. Aluminum is a metal that is an excellent conductor of electricity.

Look what happens when it comes close to touching an overhead electric wire. Make sure you never let a pole like this come close to an electric line. If you were holding the pole, you could be severely burned and risk being electrocuted.

In a storm, a wire can come down and still be live, which means that it still carries an electric current. If it falls onto

a fence, it electrifies the fence. If you were to touch a fence on which a live wire has fallen, you could be severely injured and even killed.

Wood is not as good a conductor of electricity as metal, but the electric current in a power line is so strong that a downed wire can still damage a tree and be dangerous to anybody nearby.

Tracy Burgess Levy, who works with Hank Delach at the Long Island Power Authority, explains some other simple precautions to take around the home to keep electricity safe.

**Tracy Burgess Levy:**

Electricity is part of everyday life. We turn on a light switch, we flip on a computer, we use a microwave or any electrical device... it's part of our lives, but electricity can also be dangerous. It's something that has to be treated with respect.

Make sure you don't put anything into a wall socket. ...no safety pins...no coins. That is live electricity in there. You can actually become electrocuted if you put something into a socket.

Don't have a radio that's plugged into a wall near a bathtub or even in your bathroom at all. It is not safe. If that were to fall into the water, you would actually charge that water and you would be electrocuted.

You should never run electrical cords underneath carpets. That becomes heated. Electricity is heat. You could cause a fire in your home very easily.

If you have a frayed wire, and you would know that because the insulation is coming out, or the plastic had been bent and you can see metal...make sure that it's discarded right away. That is not safe, and you can get an electrical shock just by handling the cord.

If you have something plugged into a wall, make sure you never use the wire to unplug it. Always unplug it at the plug itself. Because if you pull that wire you can fray that wire and get an electrical shock just by handling that wire.

**Narrator:**

In this program we saw that electricity is a form of energy, and that we use the energy of electricity to do work.

We saw that there are different kinds of electricity.

**Students:**

Static electricity stays in one place.

Current electricity moves from one place to another.

**Narrator:**

We saw how we can make electricity by moving a magnet inside a coil of wire,

and how power stations have large generators that use magnets to make electricity.

We saw how the electricity made by power plants reaches our homes and schools over cables and wires,

and that circuits carry an electric current from where it is made to where it is needed and then back again.

Switches work by opening a circuit to turn things off...

and closing a circuit to turn things on.

We saw that metals like steel make good conductors,  
and that rubber is a good insulator because it does not  
conduct electricity well.

We saw that we need to be careful with electricity because  
electricity can be dangerous,

but if we treat it with care and respect, electricity is useful  
to us in many ways.

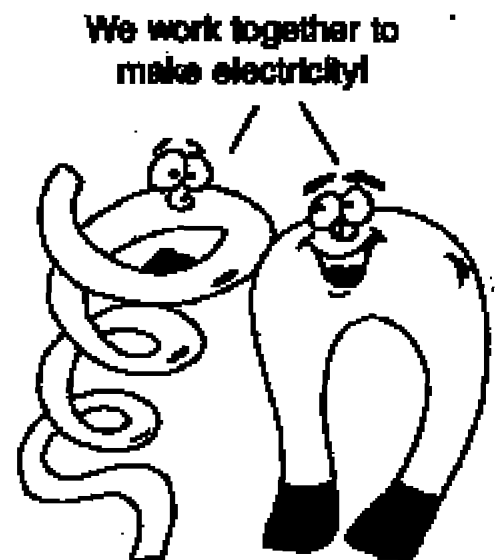
**END**

# Electricity Review

Fill in each blank with the best word from below.

static                      flows                      sun                      current  
switch                      cables                      magnet                      rub

1. Lightening is a powerful form of \_\_\_\_\_ electricity.
2. We use \_\_\_\_\_ electricity to run machines in our homes.
3. We can make electricity with a coil of wire and a \_\_\_\_\_.
4. Static electricity is made when two things \_\_\_\_\_ together.
5. Current electricity \_\_\_\_\_ from one place to another.
6. Solar panels on roofs use heat from the \_\_\_\_\_ to make electricity.
7. Electricity is carried by \_\_\_\_\_ from power plants to homes.
8. A \_\_\_\_\_ opens and closes a circuit.



# True or False

Write a "T" beside each true sentence and an "F" beside each false sentence.

1. \_\_\_\_\_ Lightning happens when water in a cloud rubs against a



2. \_\_\_\_\_ Current electricity flows through a wire like water in a



3. \_\_\_\_\_ Electricity is made in a



and sent to our homes.

4. \_\_\_\_\_ A



uses energy from the wind to make electricity.

5. \_\_\_\_\_ We can make electricity using wire and a



6. \_\_\_\_\_ A



carries electrical currents to our homes.

7. \_\_\_\_\_ A



opens and closes a circuit.

8. \_\_\_\_\_ Before electricity, people used

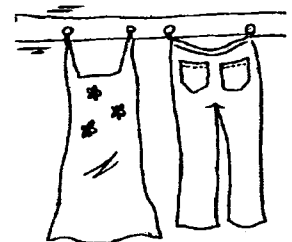
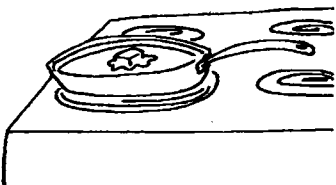
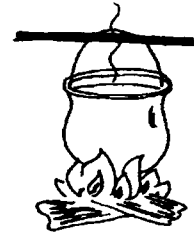
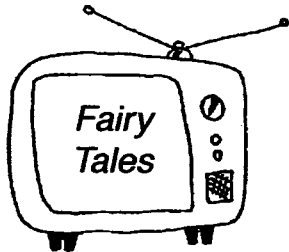
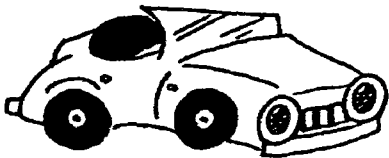
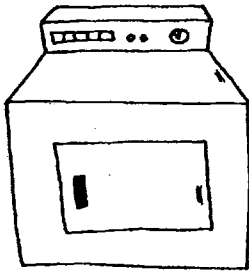
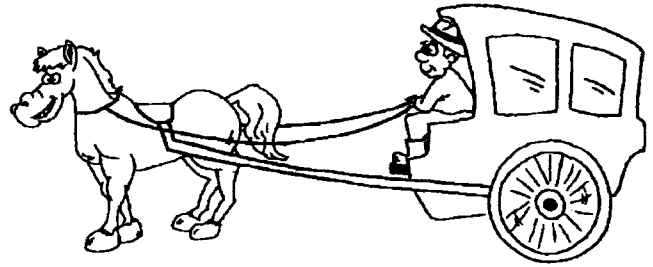
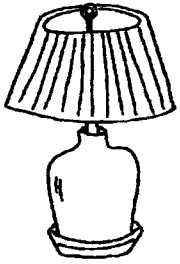


to read at night.

# Electricity Match-up

Each item on the left uses electricity to help us do work.

Match each item with the thing that helped us do the same job before electricity was discovered.



Name \_\_\_\_\_

Date \_\_\_\_\_

# Word Search

Look up and down in the puzzle to find the words below. Circle each word you find.

ELECTRICITY

CURRENT

STATIC

BATTERY

COIL

PYLON

CIRCUIT

SWITCH

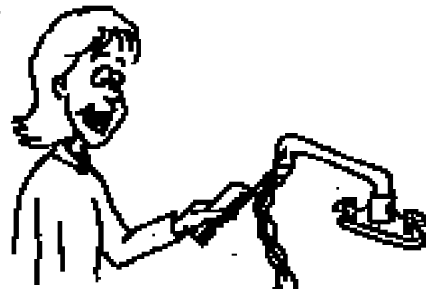
A	H	R	D	W	C	T	O	K	V	O
X	T	B	H	C	O	I	L	A	E	P
N	A	S	D	U	Z	R	K	M	N	Y
B	C	N	O	R	H	W	D	S	K	L
A	P	C	I	R	C	U	I	T	L	O
T	H	T	M	E	A	J	B	A	C	N
T	J	B	E	N	Y	R	Q	T	X	G
E	L	E	C	T	R	I	C	I	T	Y
R	S	G	P	J	S	M	G	C	P	L
Y	B	S	W	I	T	C	H	L	D	Q

# Static or Current?

Label each example of static electricity with an "S." Label each example of current electricity with a "C."



1. \_\_\_\_\_



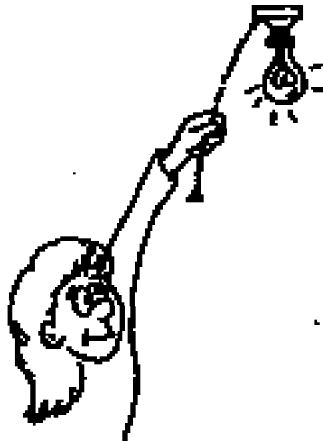
2. \_\_\_\_\_



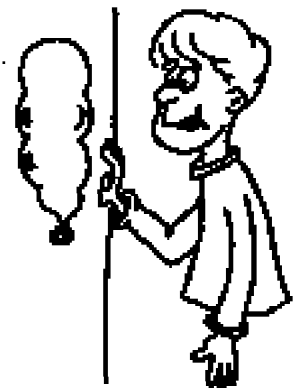
3. \_\_\_\_\_



4. \_\_\_\_\_



5. \_\_\_\_\_



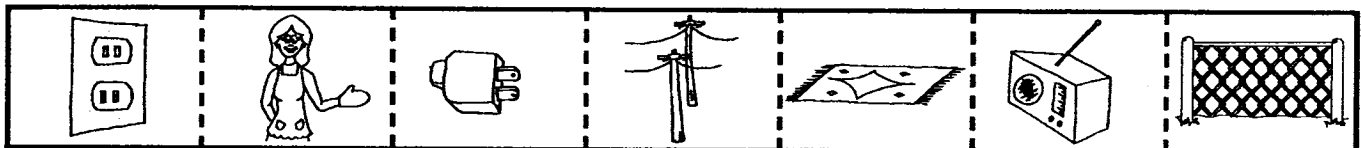
6. \_\_\_\_\_

Name \_\_\_\_\_ Date \_\_\_\_\_

# Electrical Safety

Cut out the pictures at the bottom, then glue each picture to the correct blank.

1. Never touch \_\_\_\_\_ that have fallen to the ground.
2. Watch out for wires that have fallen onto a \_\_\_\_\_ .
3. Never put anything inside a \_\_\_\_\_ .
4. Don't keep a \_\_\_\_\_ near the sink or bathtub.
5. Never place an electrical cord under a \_\_\_\_\_ .
6. Always unplug something by pulling on the \_\_\_\_\_ .
7. If you see a broken or split wire, tell a \_\_\_\_\_ right away.



Name \_\_\_\_\_

Date \_\_\_\_\_

7

# Which One?

Finish each sentence by circling the correct word or words.

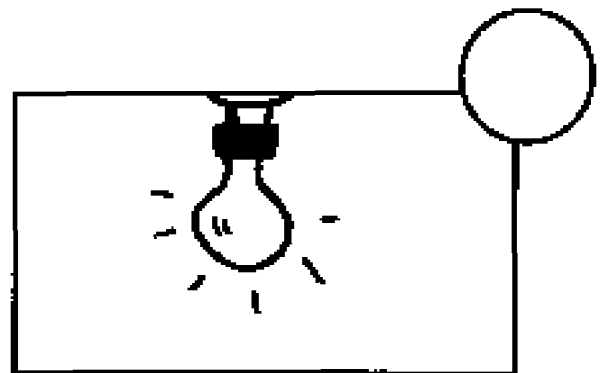
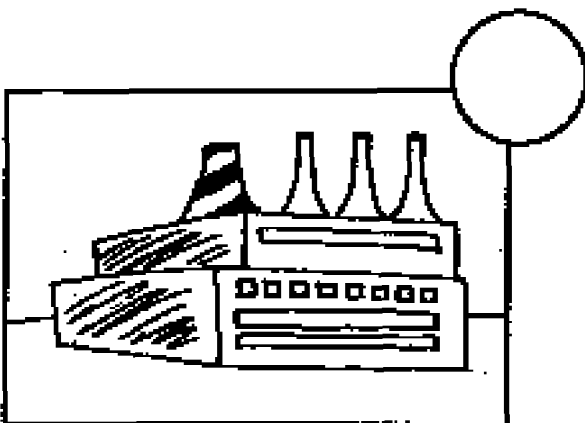
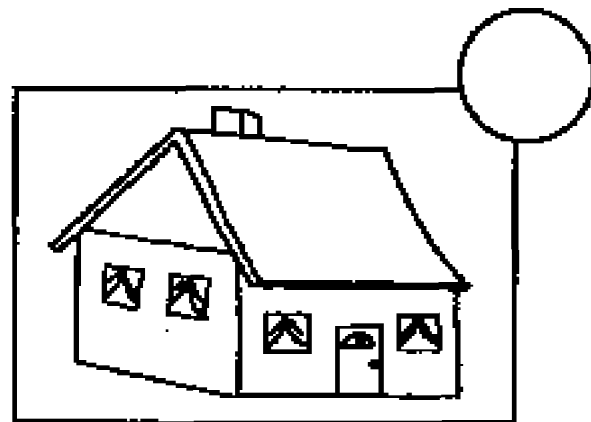
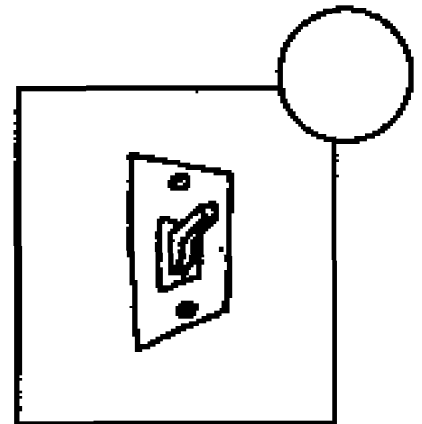
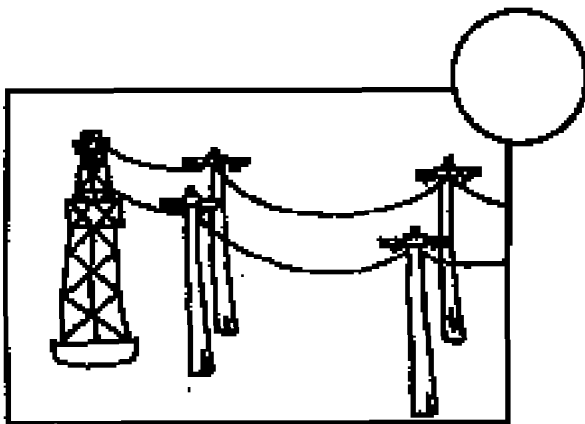
1. Electricity is energy that helps us:                      work                      sleep.
  
2. Current electricity flows from a plug to a:                      cloud                      cord.
  
3. A car starts by using electricity from a:                      windmill                      battery.
  
4. A solar panel on a roof makes electricity  
by using heat from:                      the sun                      magnets.
  
5. Electricity travels in a loop called a:                      circuit                      phone.
  
6. Something that is good at carrying  
an electric current is called:                      an insulator                      a conductor.
  
7. Placing an electric cord under a rug  
can start a:                      fire                      coil.

Name \_\_\_\_\_

Date \_\_\_\_\_

# Power Cycle

Each picture shows a step in the cycle that brings power to our homes. Number each picture in the correct order. The first one is done for you.



# Solutions for Pages 1-2

Name \_\_\_\_\_ Date \_\_\_\_\_ 1

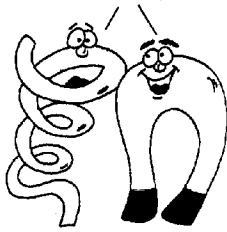
## Electricity Review

Fill in each blank with the best word from below.

static      flows      sun      current  
switch      cables      magnet      rub

1. Lightening is a powerful form of static electricity.
2. We use current electricity to run machines in our homes.
3. We can make electricity with a coil of wire and a magnet.
4. Static electricity is made when two things rub together.
5. Current electricity flows from one place to another.
6. Solar panels on roofs use heat from the sun to make electricity.
7. Electricity is carried by cables from power plants to homes.
8. A switch opens and closes a circuit.

We work together to make electricity!











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Name \_\_\_\_\_ Date \_\_\_\_\_ 2

## True or False

Write a "T" beside each true sentence and an "F" beside each false sentence.

1. F Lightening happens when water in a cloud rubs against a .
2. T Current electricity flows through a wire like water in a .
3. T Electricity is made in a  and sent to our homes.
4. F A  uses energy from the wind to make electricity.
5. T We can make electricity using wire and a .
6. F A  carries electrical currents to our homes.
7. T A  opens and closes a circuit.
8. T Before electricity, people used  to read at night.

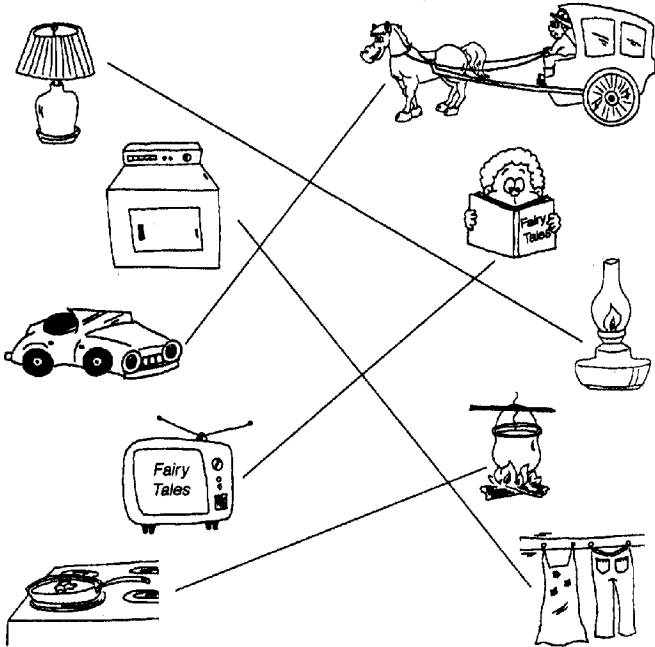
© Rainbow Educational Media

# Solutions for Pages 3-4

Name \_\_\_\_\_ Date \_\_\_\_\_ 3

## Electricity Match-up

Each item on the left uses electricity to help us do work.  
Match each item with the thing that helped us do the same job before electricity was discovered.



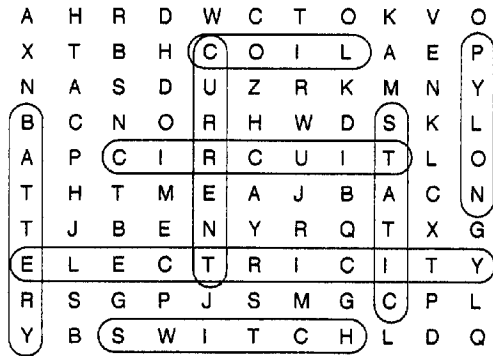
© Rainbow Educational Media

Name \_\_\_\_\_ Date \_\_\_\_\_ 4

## Word Search

Look up and down in the puzzle to find the words below. Circle each word you find.

ELECTRICITY  
CURRENT  
STATIC  
BATTERY  
COIL  
PYLON  
CIRCUIT  
SWITCH



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# Solutions for Pages 5-6

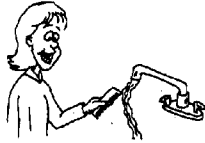
Name \_\_\_\_\_ Date \_\_\_\_\_ 5

## Static or Current?

Label each example of static electricity with an "S." Label each example of current electricity with a "C."



1. S



2. S



3. C



5. C



4. C




6. S


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Name \_\_\_\_\_ Date \_\_\_\_\_ 6

## Electrical Safety

Cut out the pictures at the bottom, then glue each picture to the correct blank.


1. Never touch  that have fallen to the ground.


2. Watch out for wires that have fallen onto a .

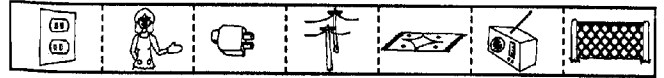
3. Never put anything inside a .

4. Don't keep a  near the sink or bathtub.

5. Never place an electrical cord under a .

6. Always unplug something by pulling on the .

7. If you see a broken or split wire, tell a  right away.



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# Solutions for Pages 7-8

Name \_\_\_\_\_ Date \_\_\_\_\_ 7

## Which One?

Finish each sentence by circling the correct word or words.

1. Electricity is energy that helps us:  work  sleep.
2. Current electricity flows from a plug to a:  cloud  cord.
3. A car starts by using electricity from a:  windmill  battery.
4. A solar panel on a roof makes electricity by using heat from:  the sun  magnets.
5. Electricity travels in a loop called a:  circuit  phone.
6. Something that is good at carrying an electric current is called:  an insulator  a conductor.
7. Placing an electric cord under a rug can start a:  fire  coil.

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Name \_\_\_\_\_ Date \_\_\_\_\_ 8

## Power Cycle

Each picture shows a step in the cycle that brings power to our homes. Number each picture in the correct order. The first one is done for you.

The illustrations are numbered 1 through 5. Illustration 1 shows a power plant with three cooling towers. Illustration 2 shows high-voltage power lines supported by towers. Illustration 3 shows a house with a power cord leading to a wall outlet. Illustration 4 shows a close-up of a wall outlet with a plug inserted. Illustration 5 shows a glowing light bulb.

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