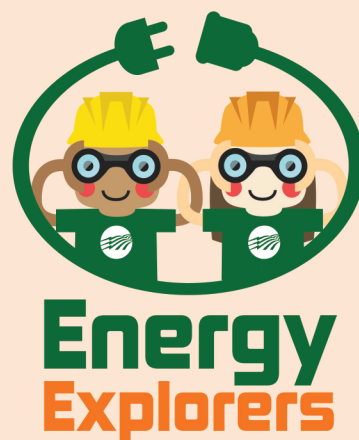


HOW MUCH DO YOU RELY ON ELECTRICITY?



Electricity plays a major part in our everyday lives. We depend on it for nearly everything we do! How much do you rely on electricity? List your favorite activities below and determine if they use electricity.

ACTIVITY	EQUIPMENT I USED	WAS ELECTRICITY USED?
read a book	lightbulb	yes
played video games	TV/gaming system	yes

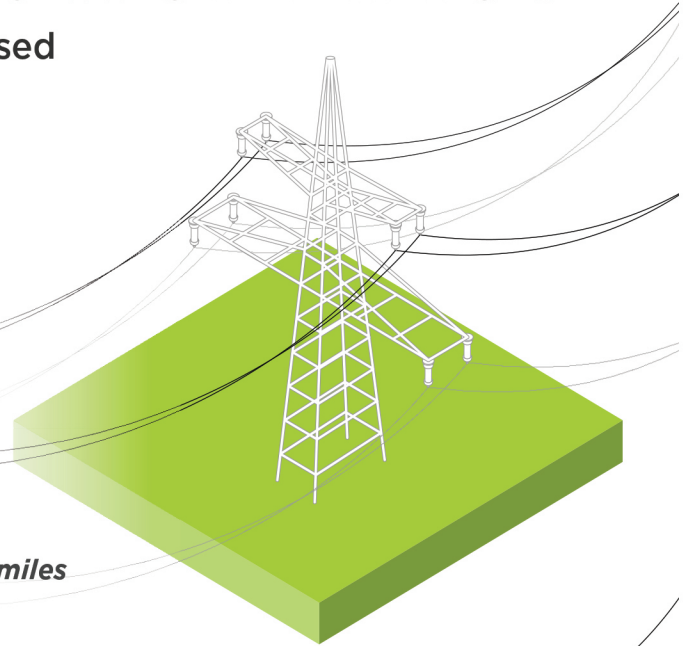
A Field Guide to Overhead Power Lines

High-voltage transmission lines are used to deliver electricity from generation plants to consumers.

HIGH-VOLTAGE TRANSMISSION LINES

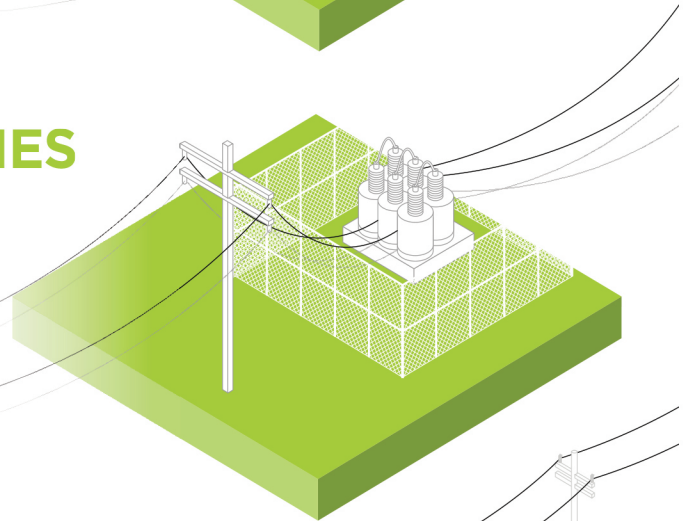
Large amounts of power, measured by watts, are delivered by transmission lines. These lines are energized with very high voltage in order to move the power long distances with minimal losses. Insulators on the towers prevent the power from flowing to the towers or the ground.

Electric cooperatives own and maintain 65,000 miles (6 percent) of the nation's transmission lines.



SUBSTATIONS AND SUB-TRANSMISSION LINES

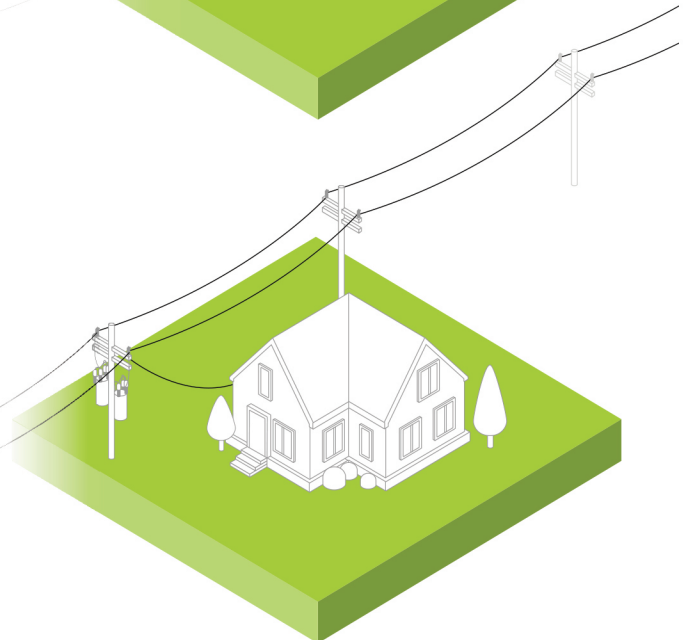
Transformers at transmission substations reduce the voltage from transmission levels to sub-transmission levels, typically ranging from 115,000 volts to 34,500 volts. Sub-transmission lines deliver power over shorter distances to distribution substations and large industrial sites. At distribution substations and large industrial sites, transformers reduce the voltage to a lower level, typically 7,200 volts or 14,400 volts.



DISTRIBUTION LINES

The lines typically seen along rural roads and next to homes are generally single phase distribution line, energized at 7,200 or 14,400 volts. Transformers on the utility poles lower the voltage to between 120 and 480 volts to serve residential homes and small businesses.

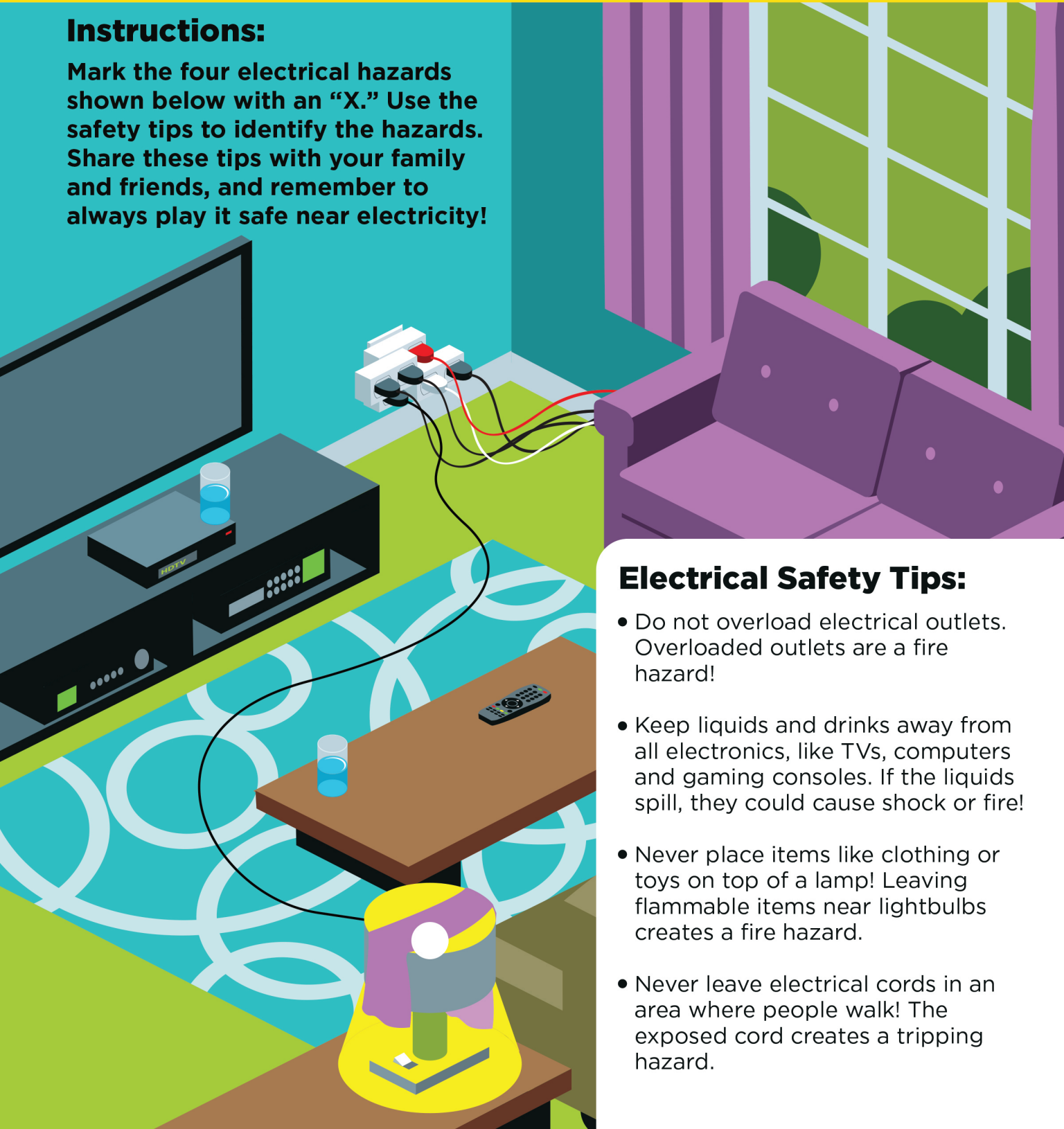
Electric cooperatives own and maintain 2.6 million miles (42 percent) of the nation's distribution lines.



Electrical Safety Activity

Instructions:

Mark the four electrical hazards shown below with an "X." Use the safety tips to identify the hazards. Share these tips with your family and friends, and remember to always play it safe near electricity!



Electrical Safety Tips:

- Do not overload electrical outlets. Overloaded outlets are a fire hazard!
- Keep liquids and drinks away from all electronics, like TVs, computers and gaming consoles. If the liquids spill, they could cause shock or fire!
- Never place items like clothing or toys on top of a lamp! Leaving flammable items near lightbulbs creates a fire hazard.
- Never leave electrical cords in an area where people walk! The exposed cord creates a tripping hazard.



STORM SAFETY CROSSWORD PUZZLE

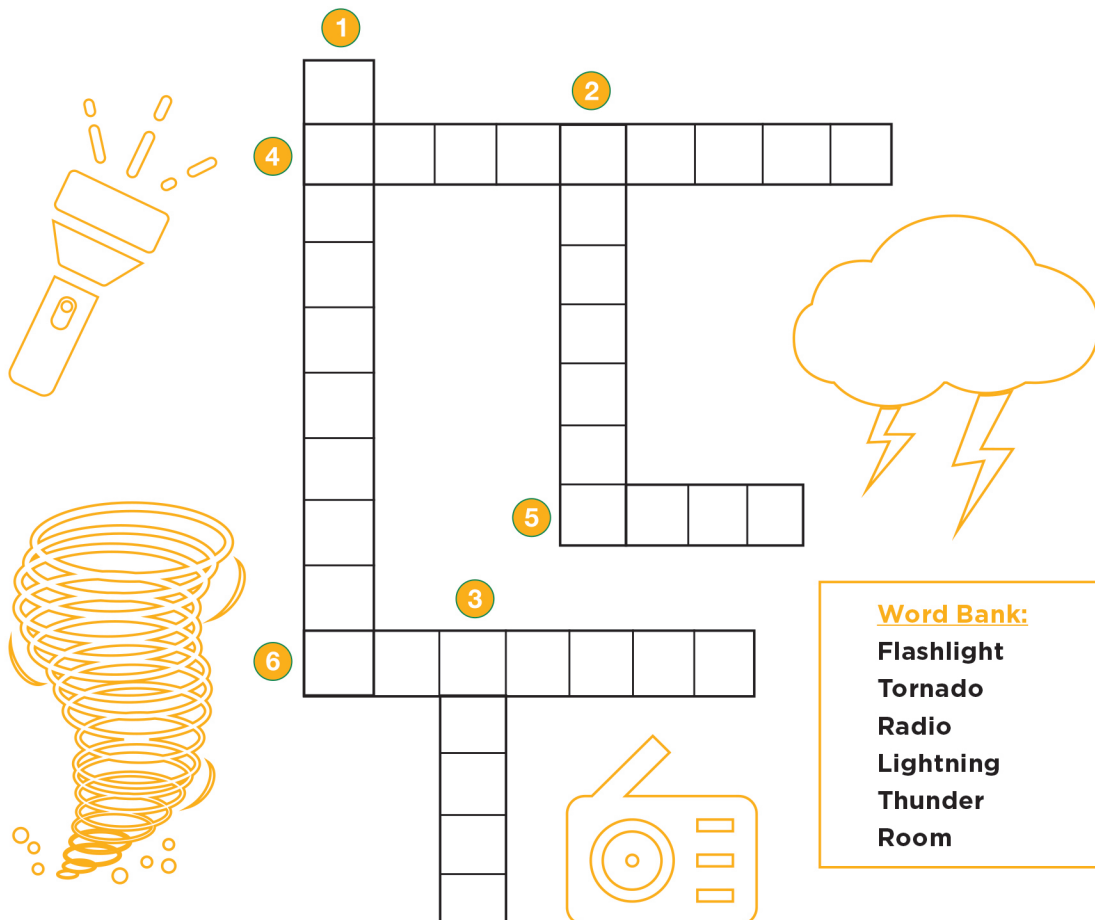
Spring has finally arrived with colorful flowers and warmer weather. But the season can also produce severe storms. The Energy Explorers want to remind everyone to stay safe when severe weather hits. Complete the crossword puzzle below and share these tips with your family and friends.

DOWN

1. Keep a _____ handy in case of a power outage.
2. If you hear _____ go inside. If you can hear it, you are close enough to be in danger from lightning.
3. Have a battery-powered weather _____ nearby so you can keep track of the severe weather.

ACROSS

4. Watch for signs of a thunderstorm, including dark skies, flashes of _____ or heavy winds.
5. If a tornado is heading your way, pick a safe _____ in your home where family can gather.
The safest places would be a basement, storm cellar or interior room.
6. Practice a family _____ drill at least once a year.



Why Electricity Is Dangerous

HAVE YOU EVER WALKED ACROSS CARPET AND RECEIVED A shock when you touched a doorknob or another person? What you felt was a buildup of static electricity.

But a real electric shock is a lot more painful and can be deadly. Here's what can happen:

- ▶ Muscles tighten up, making it almost impossible to pull away from the circuit.
- ▶ Lungs constrict, making it hard to breathe.
- ▶ Heartbeat is interrupted and blood vessels narrow.
- ▶ Burns and internal organ damage occur.
- ▶ Death may follow.

It sounds scary—and it is—but if you remember some simple safety rules, you can use electricity without getting hurt.

Humans Are Good Conductors

The human body is a good conductor of electricity. That means electricity flows easily through our bodies. Why? Because electricity moves quickly through water—and the human body is 70 percent water.

Another fact to remember is that electricity always tries to

find the easiest path to the ground—so don't get in its way. Maintain safe distances from electric lines at all times. Avoid using ladders, poles or other tools in situations where they may come into contact with overhead lines. Contact your electric cooperative if you need to work near power lines.

Accidents Happen Quickly

You might think that if you get shocked, you can pull away quickly and not get hurt. Electricity travels at nearly the speed of light, 186,000 miles per second, so the effects of electricity can be felt immediately. A person has almost no chance of avoiding the shock.

If the electricity is strong enough, muscles tighten so much that a person can't let go.

Anyone who touches someone who is being shocked can become part of the circuit, too. That's why you should never grab anyone who's been shocked. If an electrical accident happens, turn off or unplug the circuit if it's safe to do so; call 911 and tell the operator that someone has been involved in an electrical accident; and keep others away until trained help arrives.



ELECTRICITY SAFETY RULES

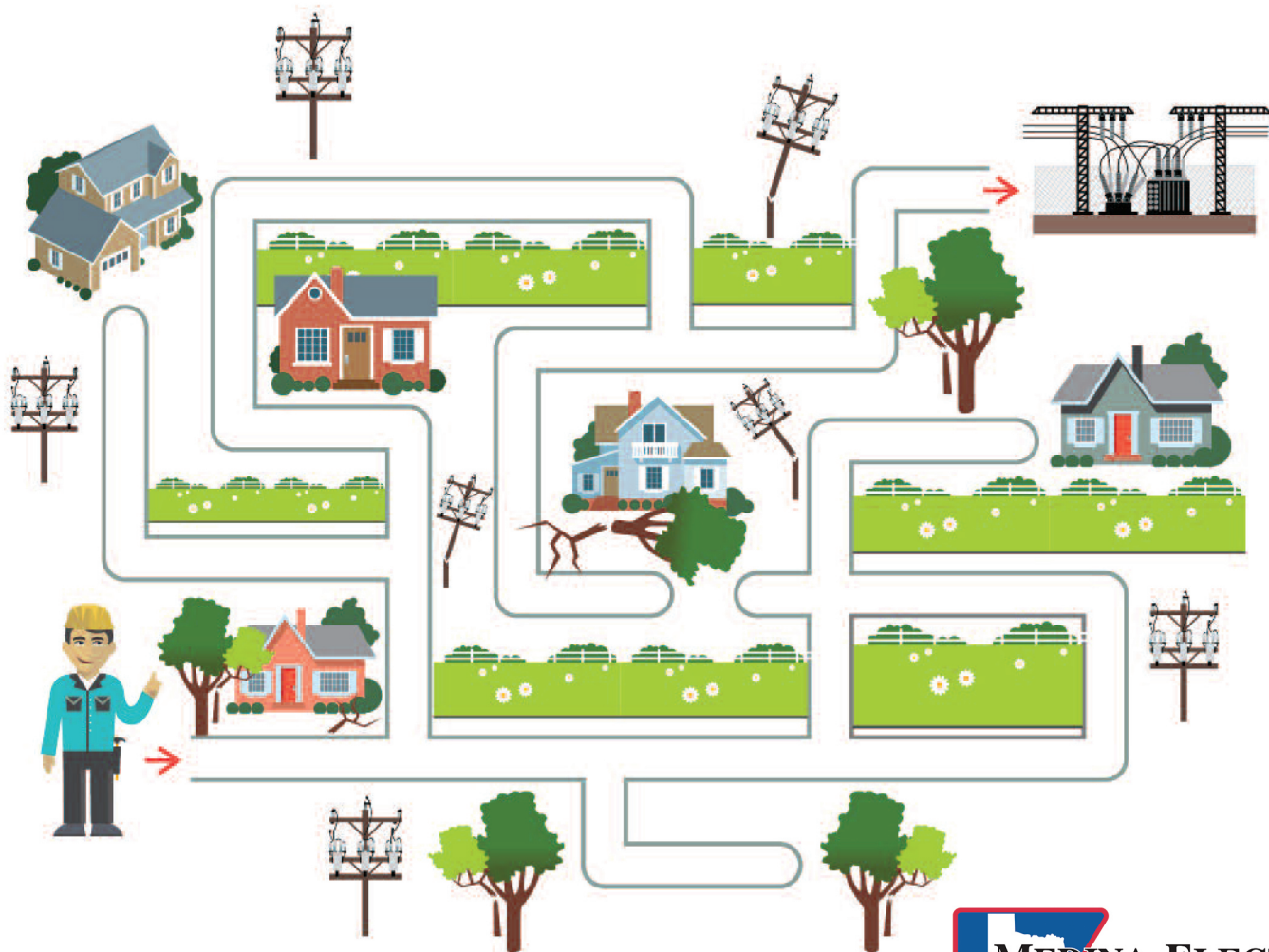
1. **Look up and look out for power lines** before you raise a ladder, climb onto a roof or climb a tree. Stay at least 35 feet away from overhead power lines.
2. **Don't ever play or work on or near** a green transformer box or climb the fence around an electrical substation.
3. **Keep electrical equipment away from water.** Most electrical accidents around the house happen when people use electricity near water.
4. **Don't plug a bunch of devices** into one outlet or extension cord. It could damage the electrical system in your house or even cause a fire.
5. **Make sure all electrical cords** are tucked out of the way to avoid a tripping hazard and to keep pets or small children away from them.
6. **Don't yank an electrical cord** from the wall. Instead, pull from the plug. Pulling on a cord can damage the appliance, the plug or the outlet.
7. **Don't fly drones or kites** near power lines or substations. A kite and its string may conduct electricity—sending it right through you to the ground.
8. **Install tamper-resistant receptacles.** Not only will it help keep kids safe, but covering outlets will also help save energy by stopping cold drafts.
9. **Make sure all electric appliances and tools** are in good repair.
10. **Don't use extension cords** for long-term electrical needs. They are intended for temporary use only.

HELP THE LINEWORKER REACH THE SUBSTATION



Lineworkers work in dangerous conditions to restore electricity after major storms and other types of power outages. Many times, lineworkers make substation repairs to get the power back on.

Can you help the lineworker get to the substation?



**MEDINA ELECTRIC
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