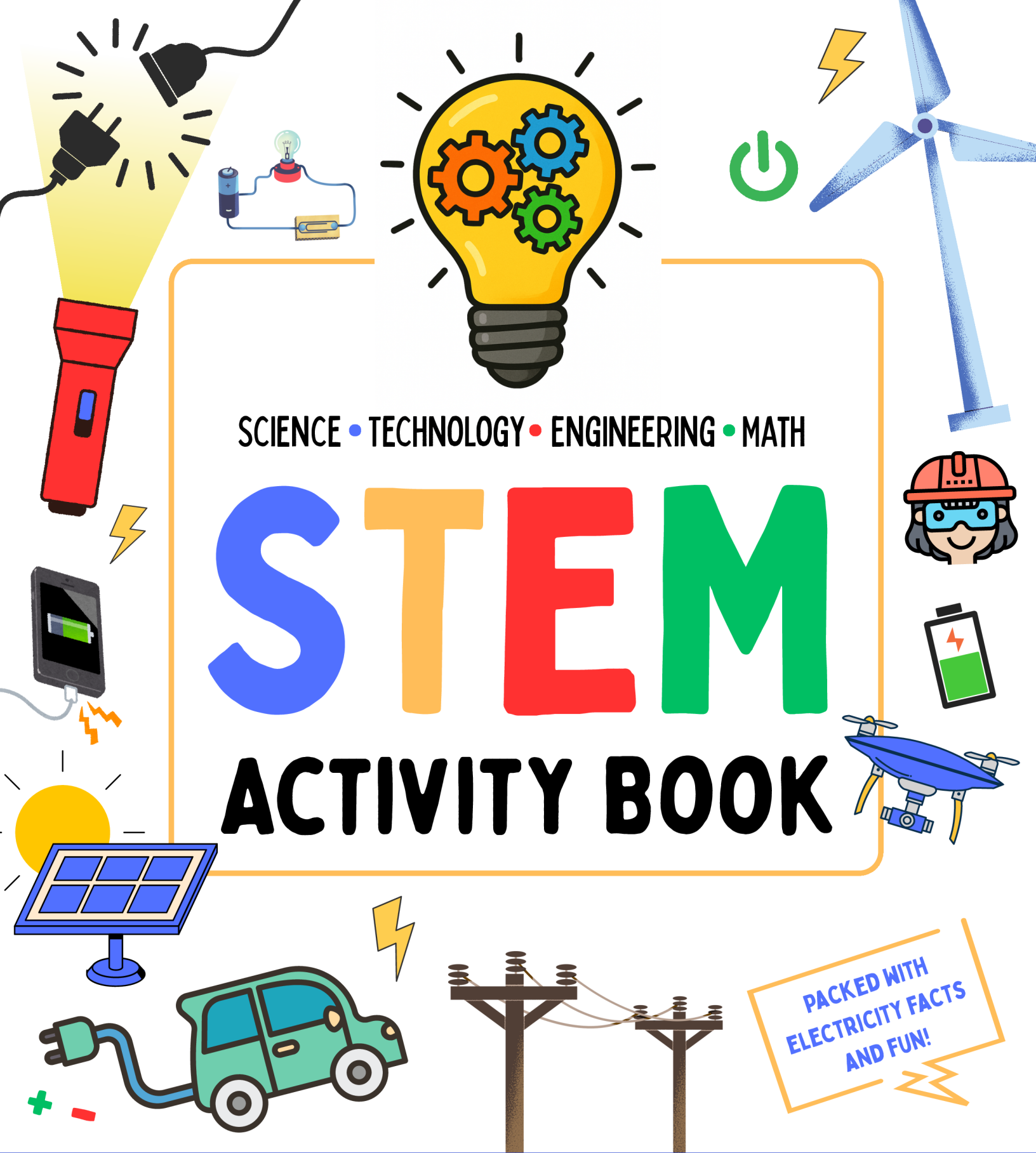




SCIENCE • TECHNOLOGY • ENGINEERING • MATH

STEM

ACTIVITY BOOK

PACKED WITH
ELECTRICITY FACTS
AND FUN!



San Patricio Electric Cooperative, Inc.

A Touchstone Energy® Cooperative



WHAT IS ELECTRICITY?

Electricity is a kind of energy — and energy makes things move, light up, heat up or work! Electricity is made of tiny particles called electrons. These electrons move from one atom to another — and when they start flowing in a line, it's called an electric current. That current travels through wires and powers things like lights, computers, TVs and video games!

You can't always see electricity but you can see what it *does*. It turns on your light, charges your tablet and even makes the fridge run!

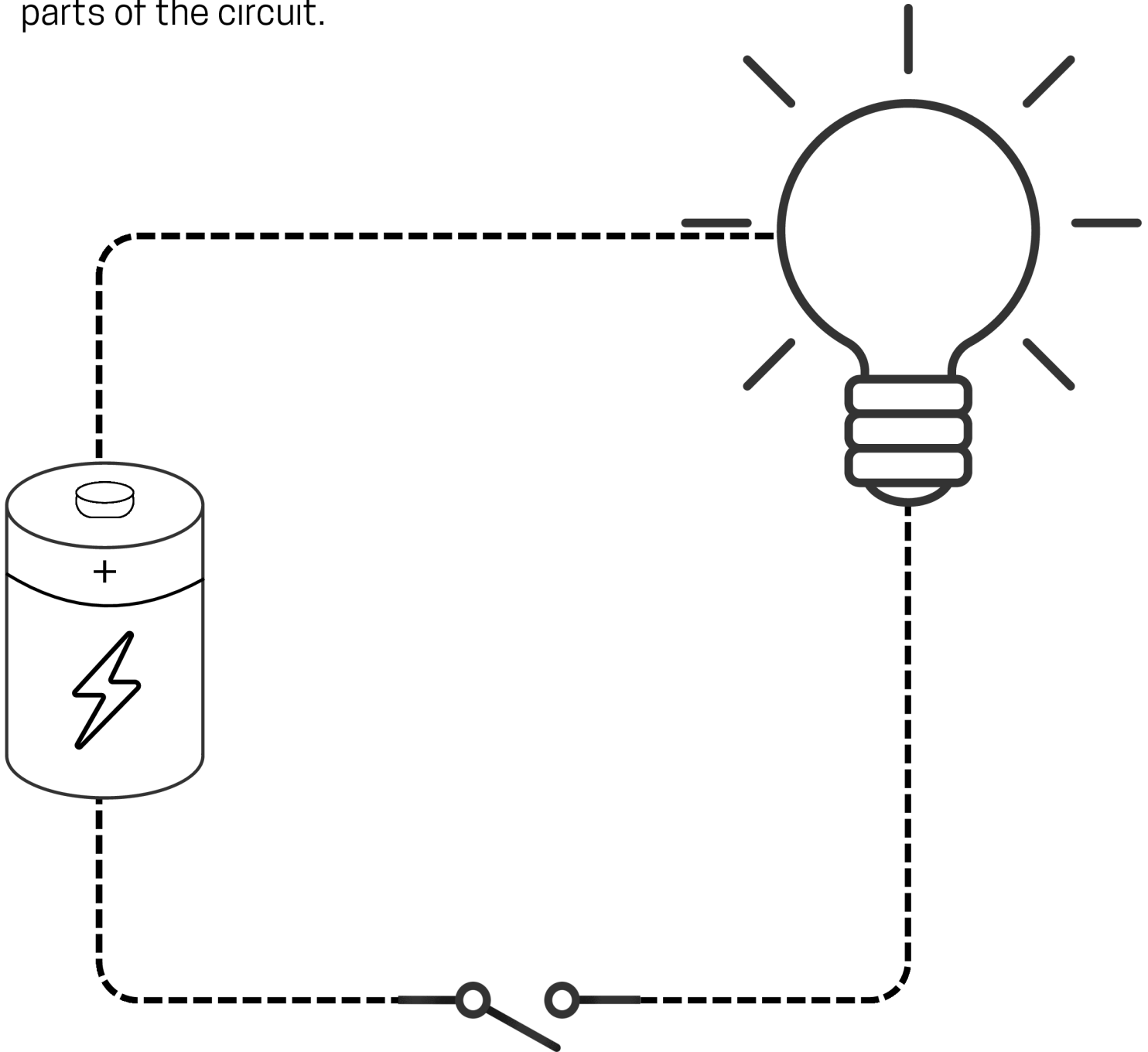
Draw and color a picture of something in your house that uses electricity!



Fun fact! Electricity travels super fast - as fast as the speed of light. That's more than 186,000 miles per second!

COMPLETE THE CIRCUIT!

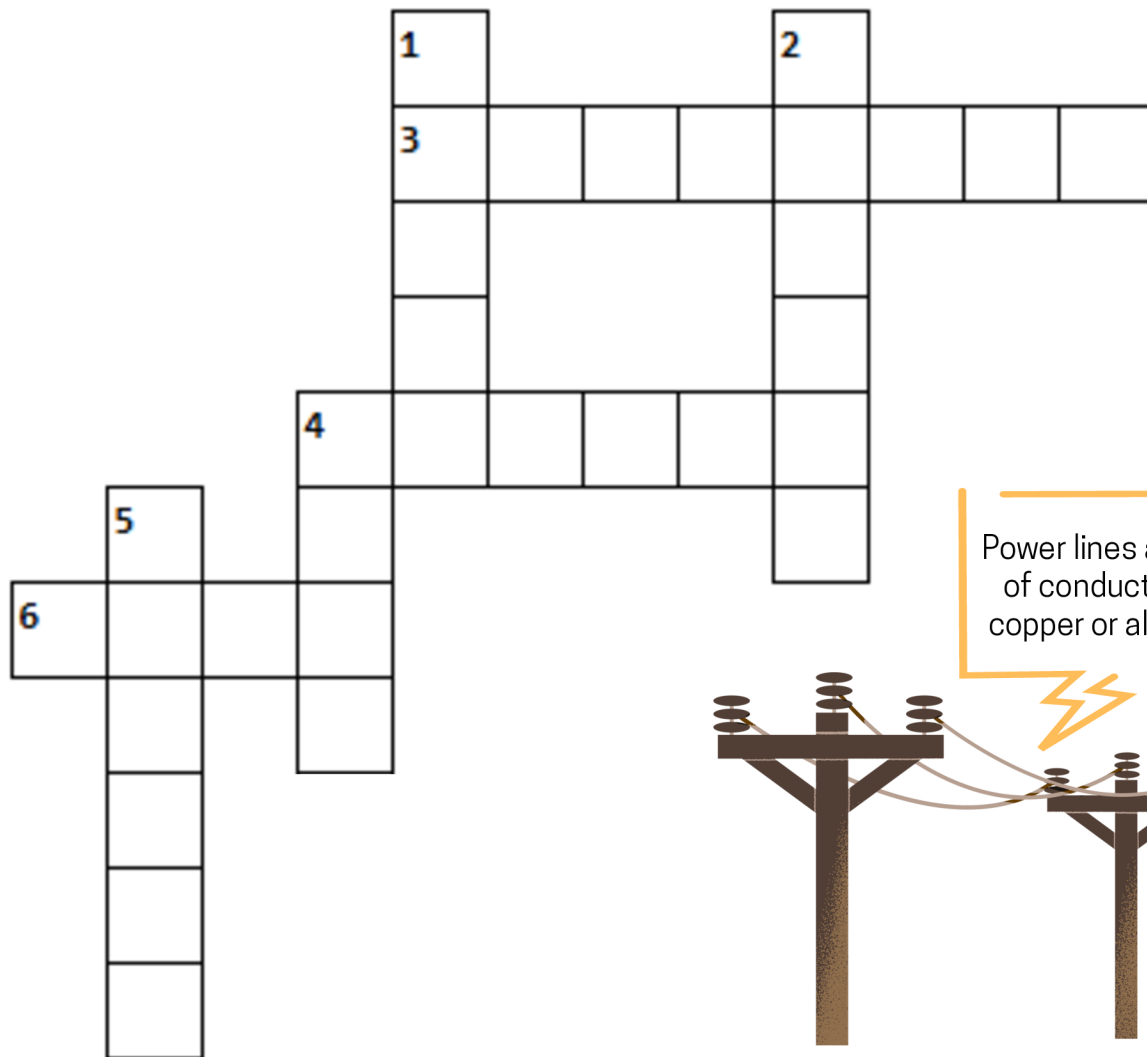
Help the electricity flow. Trace the path from the battery to the light bulb and back. Be sure to close the loop! Then color the parts of the circuit.



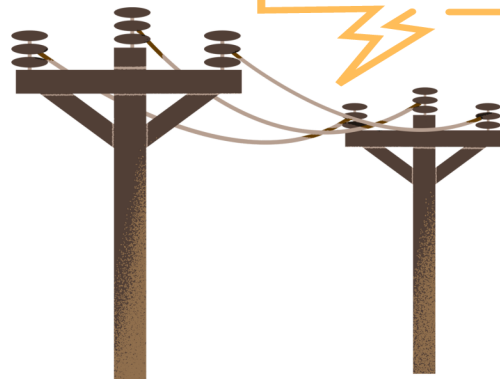
A **circuit** is a path that electricity follows. When the circuit is closed (like a complete loop), the electricity flows and the light turns on! When the circuit is open (the loop is broken), electricity can't flow and the light turns off. Circuits are how electric co-ops bring power to your home!

CONDUCTOR CROSSWORD

A **conductor** is a material that allows electric current to flow through it easily. Your co-op uses conductors on our power lines to get power to your home. Complete this crossword to learn about some common conductors of electricity!



Power lines are made of conductors like copper or aluminum.



ACROSS

3. A silver colored metal used for cookware, foil and power lines.
4. An alloy made of copper and tin that exhibits good conductivity.
6. This expensive, shiny yellow metal is known for its resistance to corrosion and high conductivity.

DOWN

1. A liquid that can conduct electricity.
2. The most conductive metal.
4. Largely composed of water, when this comes into contact with electricity, electric shock can occur.
5. A widely used conductor for electrical applications.

INSULATOR INVESTIGATOR!

Electricity needs a path of travel – but not all materials let it pass through. An **insulator** is a material that does not let electricity flow through it easily. Insulators help keep us safe from electric shock! SPEC uses insulators so electricity doesn't go where it shouldn't.

Can you find what stops electricity in its tracks? Circle the items below that are insulators.



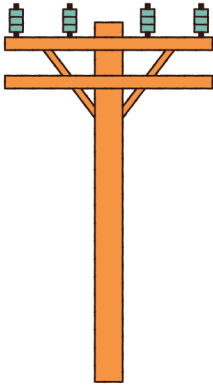
RUBBER



GLASS



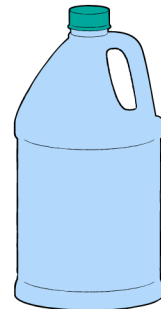
GOLD



WOOD



HUMAN BODY



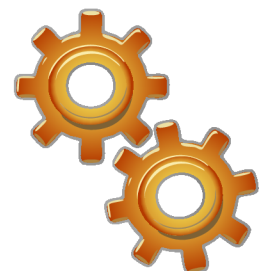
PLASTIC



SILVER



PORCELAIN

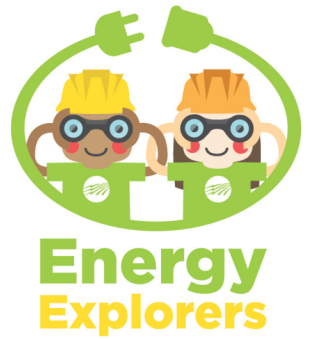


COPPER

Answer: Rubber, Glass, Wood, Plastic and Porcelain are all insulators of electricity!

GEARED FOR SAFETY

Co-op **lineworkers** wear speacial gear to help them stay safe on the job. Can you match the descriptions below to the correct safety equipment?



1. These provide extra protection while lineworkers work with heavy materials that could fall near their feet.

2. This material keeps lineworkers safe from electrical hazards.

3. This protects lineworkers from head injuries and falling debris.

4. These insulated protectors keep lineworkers safe from electrical shock while working on power lines.

5. These keep debris away from lineworkers' eyes while on the job.

6. This is a handy piece of safety gear that holds tools and other equipment.

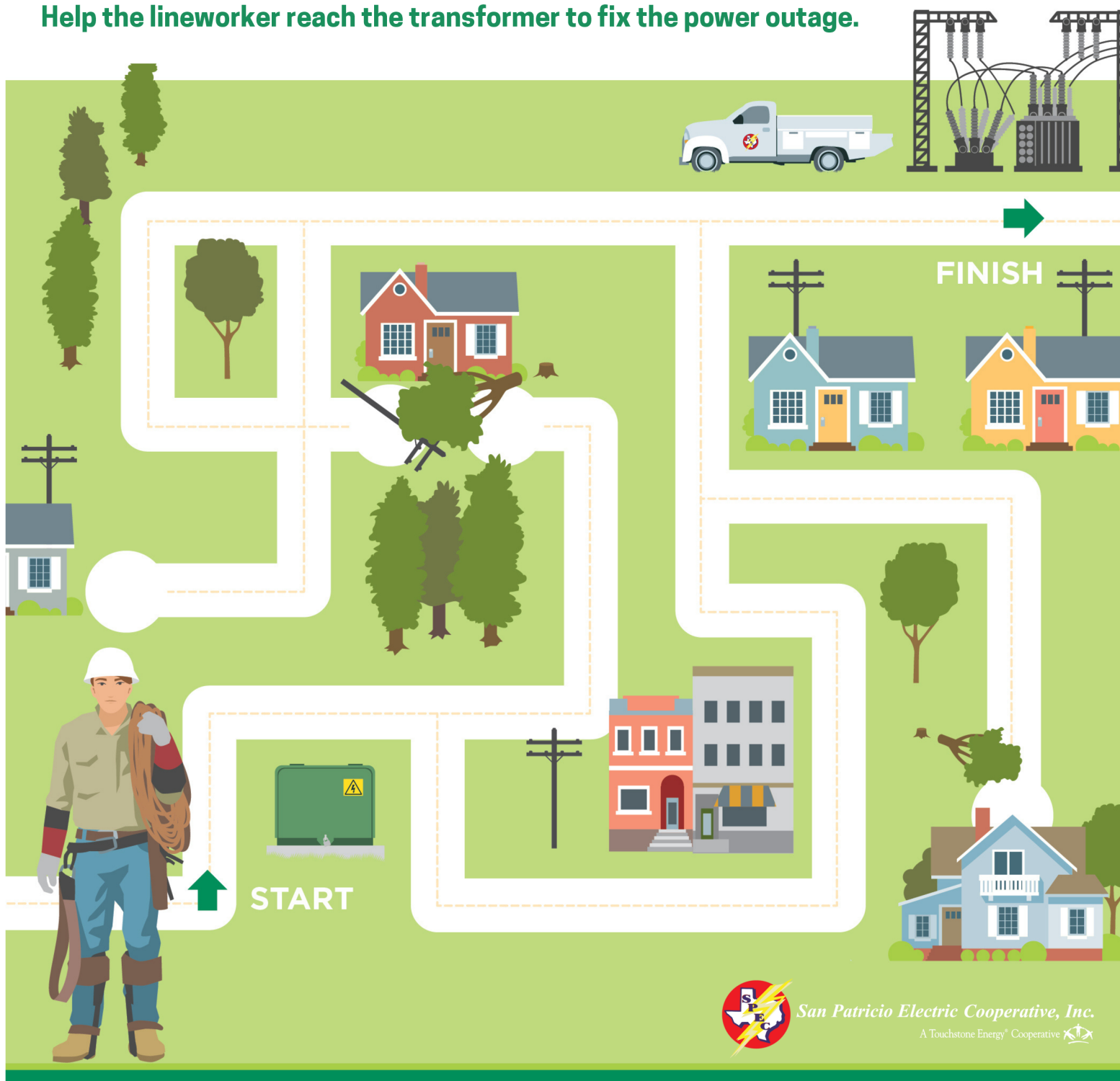
Answers: 1. Work Boots 2. Flame-Resistant Clothing 3. Hard Hat 4. Insulated Gloves 5. Safety Goggles 6. Equipment Belt

HELP THE LINEWORKER RESTORE POWER

Occasionally, severe weather can cause power disruptions. When outages occur, our lineworkers get to work! They restore power as quickly and safely as possible.



Help the lineworker reach the transformer to fix the power outage.



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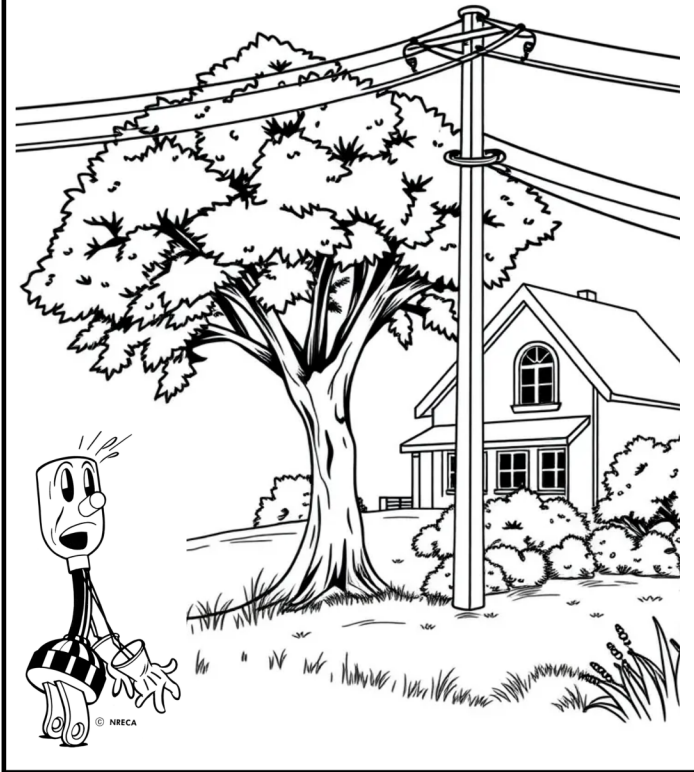
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THANK YOU FOR KEEPING
THE POWER ON!

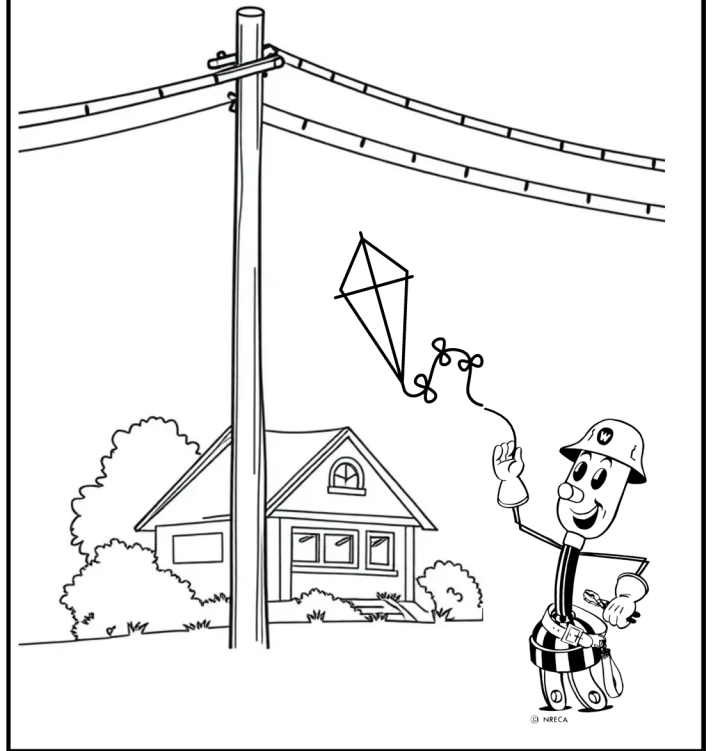


PLAY IT SAFE AROUND ELECTRICITY!

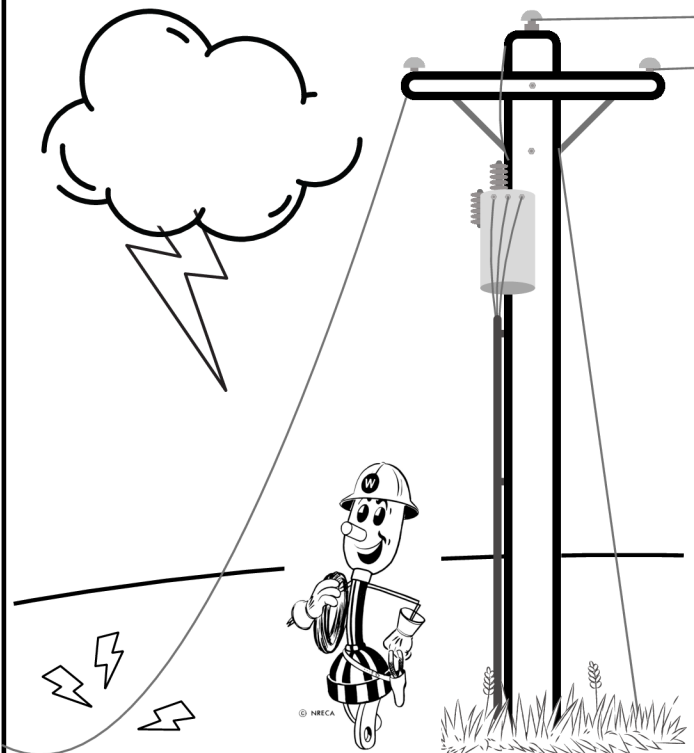
Never climb trees near power lines!



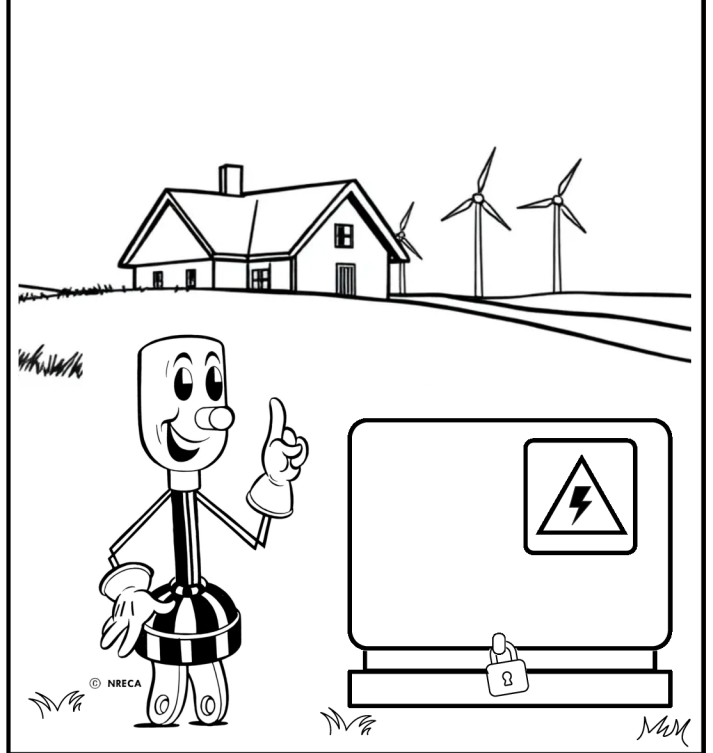
Keep kites away from power lines!



Never go near down power lines!



Don't play on transformers!





SOLAR ENERGY WORD SEARCH

Did you know solar panels turn sunlight into electricity? When the sun shines on the panels, tiny particles of light hit cells on the panels to create a flow of energy, like magic sunlight turning into power! The electricity then travels across power lines and can be used to light up homes, charge gadgets and more.

Can you find all the words associated with solar energy in the puzzle below?



WORD BANK

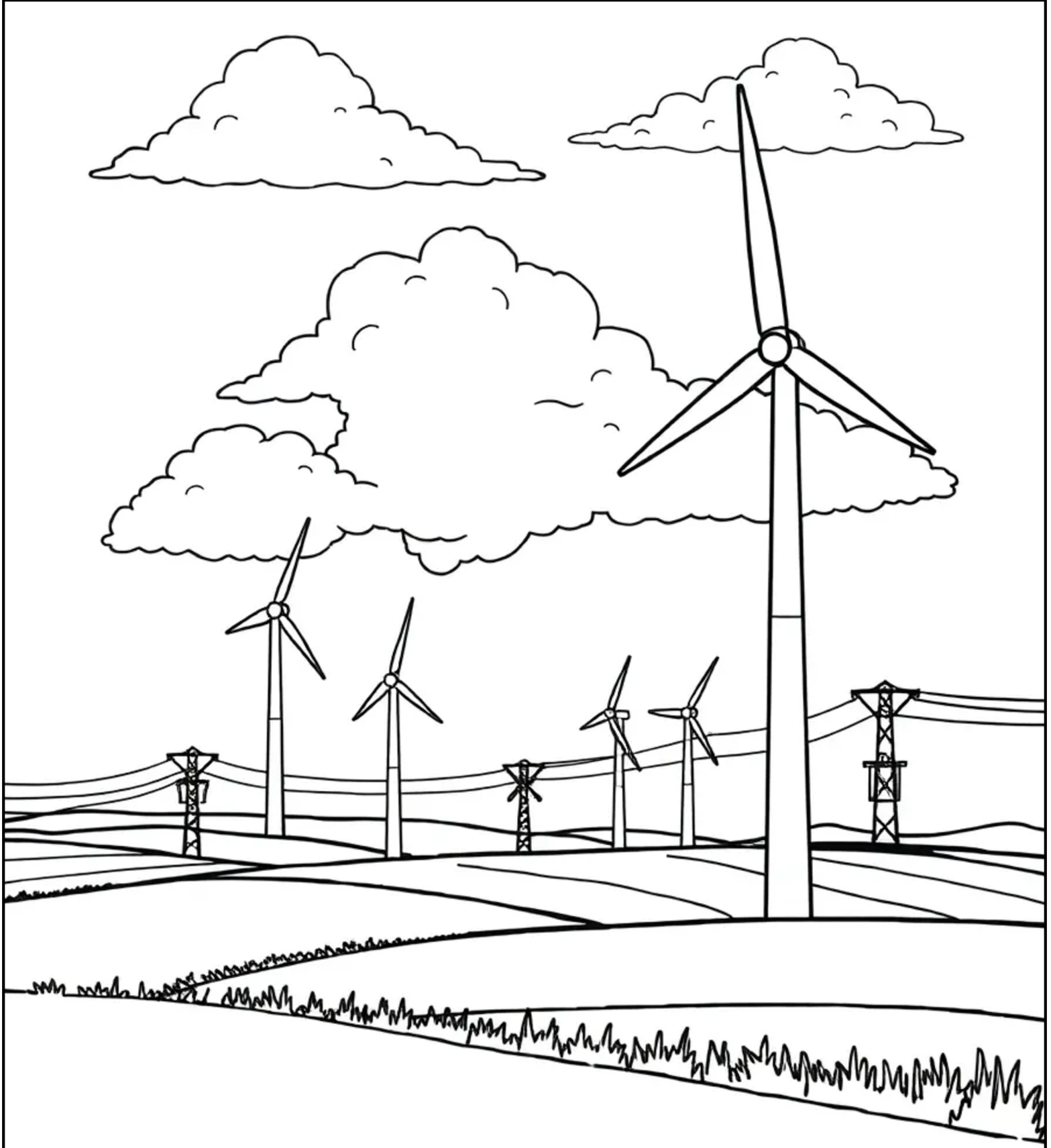
Solar	Sunlight
Panel	Efficiency
Renewable	Installation
Energy	Rooftop



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

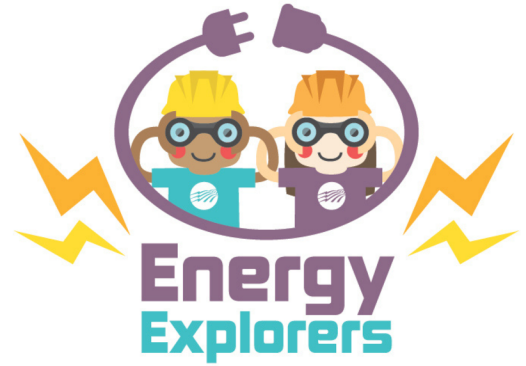
WIND WORKS!

Wind turbines turn wind into electricity! Inside the top of the turbine is a machine called a generator. When the wind spins the blades, the blades turn the generator – creating electricity! That electricity then travels through power lines to homes and businesses in our community!

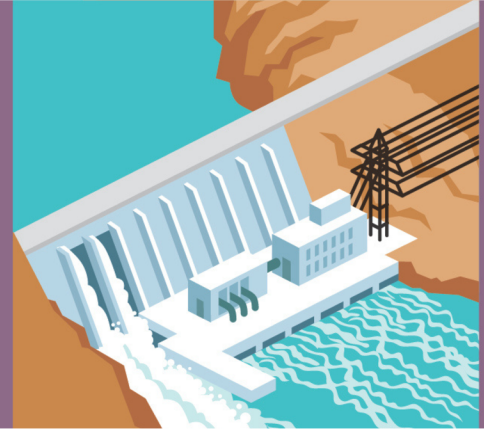


HYDROPOWER WORD SCRAMBLE

You know it's never safe to mix electricity and water. But did you know that large amounts of flowing water can be used to create electricity? It's called hydropower, and it's made from the movement of water.



Read the facts about hydropower below, then unscramble each **bolded** word. Check your work in the answer key.



1. **YROHD** means “water” in Greek.

2. Water flowing down a **EVRRI** is used to spin large turbines that help make the hydroelectricity.

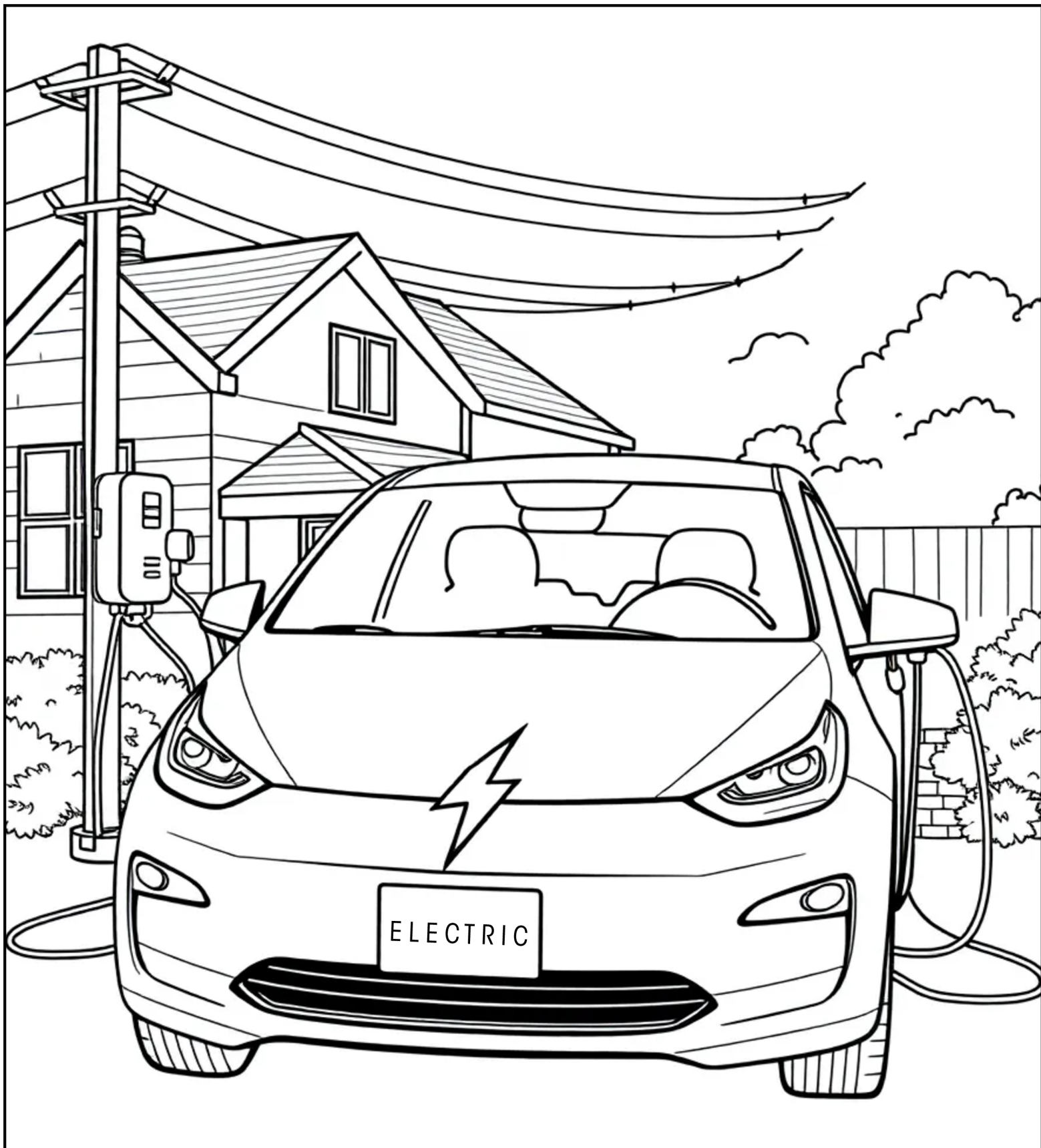
3. When the turbines spin, a large **TROAEGREN** spins, which makes the electricity.

4. The amount of water used to generate hydropower is controlled through use of large **MDAS**.

5. Hydropower is a form of **ELNERAEWB** energy.

THE FUTURE IS ELECTRIC

Electric vehicles, or EVs, are cars that run on electricity instead of gasoline. They have a big battery inside that stores energy. When the battery sends power to the motor, the car can move. EVs need to be plugged in to charge the battery, just like charging a tablet or phone.





Get ready to spark curiosity with San Patricio Electric Cooperative's STEM Activity Book! Packed with fun, age-appropriate activities, this book introduces kids to the science, technology, engineering and math behind electricity in an engaging and creative way.

As an electric cooperative, we're a source of power—and information. This book helps children understand how electricity works, where it comes from and how co-ops like ours deliver it safely and reliably to homes and communities. From circuits and conductors to renewable energy and lineworker gear, each page encourages hands-on learning to inspire the next generation of problem solvers.



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