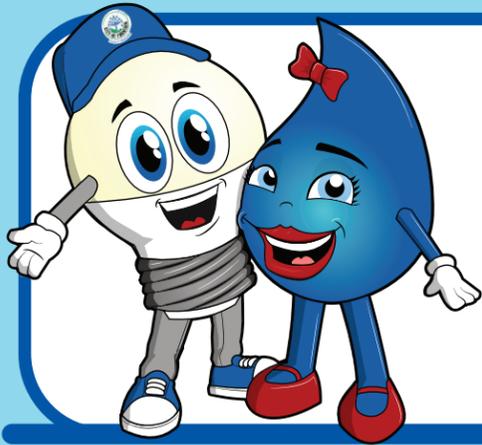


Bulbie & Blu's Water and Energy Adventure

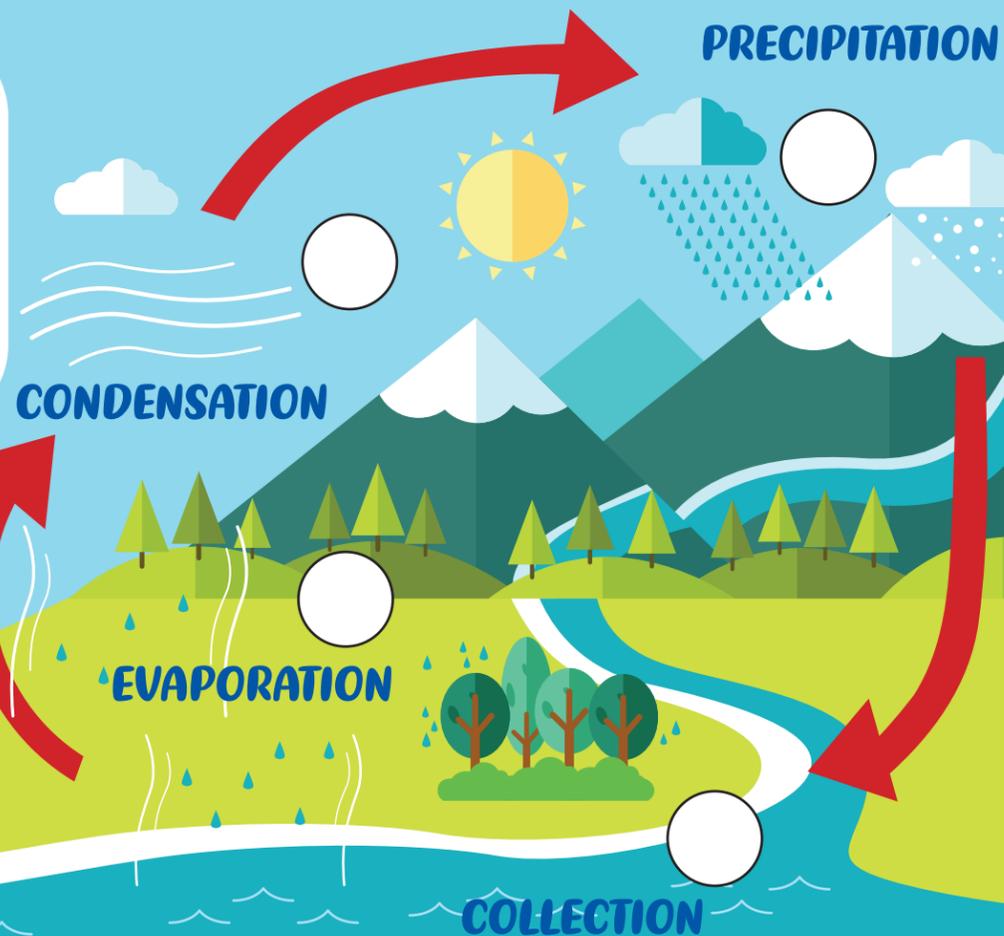




Join our friends, Bulbie and Blu, on a thrilling adventure where they explore the precious resources that have provided you with safe drinking water and reliable electricity for over 100 years. Throughout the journey, take action and pledge to be a Hometown Hero with Fountain Utilities, your Hometown Utility!

WATER CYCLE

The water we have on earth moves continuously between the atmosphere, lakes, rivers, oceans, and land in a process called "the water cycle." The water cycle has four distinct phases: evaporation, condensation, precipitation, and collection.



Place The Number In The Correct Circle:

1. When water is heated by the sun, some water rises into the air in vapor (gas) form; we call this process evaporation.
2. As water vapor rises, it cools down and turns into a liquid - a process called condensation. The liquid water attaches to tiny specs of dirt high in the sky and forms clouds.

3. When the water droplets in the cloud get too big and heavy for the air to hold them, they fall back down to earth in liquid form (rain) or solid form (snow/hail/sleet). This process is called precipitation.
4. This water gathers in lakes and oceans or flows into rivers and streams through the process called collection. From here, the water will eventually be heated and evaporate into the air all over again to restart the water cycle.

Solve the word scramble:

Water moves through the water cycle in three forms:

_____, _____, and _____,
 ISDOL DIQLUI
 _____, and can change
 AGS

from one form to another by heating and cooling.

WATERSHEDS

A watershed is an area of land where all the water drains into the same place. Watersheds act like a funnel, directing water from the surrounding areas into a body of water, like a river or lake. As the water drains downhill, it picks up sediment and other materials, carrying those materials to the final destination.

Many human activities, like construction projects, agriculture, and urban landscaping, can have negative effects on watersheds. Draw an "X" on top of the items that can change the flow of water and contaminate water supplies.

You can help keep our watershed clean and healthy by doing things like picking up after your pet, throwing garbage in the trash can or recycling bin, and never pouring chemicals down the storm drain.

Watersheds are home to animals and plants as well as people. Circle the different types of animals that can be found in our local watershed.

OUR LOCAL WATERSHED

Every area on Earth is part of a watershed. The City of Fountain is located in the Arkansas River basin watershed. This means that all the rain and snow that fall near your home or school will drain into the Arkansas River, which eventually flows into the Mississippi River.



FUN

FACT

Colorado is known as a headwater state because it is a major water source, providing water for 18 other states.

STORMWATER

Think about the last time it rained. Did you see any water running down the street and along the curb? The rainwater that hits the ground and runs into the street is called stormwater.

Storm drains are the metal grates you see at street corners, street sides and built into curbs. The purpose of storm drains is to prevent flooding by quickly diverting large volumes of water. Stormwater flows into storm drains, which transport stormwater to local rivers, lakes, and streams.



Can you guess how many storm drains are located in the City of Fountain?

- A. 65
- B. 256
- C. 645

If you guessed C, 645, you are correct!

WATER IS SCARCE

Water is distributed unevenly on Earth. It is available in different forms such as frozen water (ice and glaciers), fresh water (rivers and lakes), and salt water (oceans and seas). Of all the water on Earth, only 3% of the water is fresh water, and only 1% is available for human use. That's why it's so important to use water wisely!

GLACIERS



LAKES



OCEANS



Water is important

Draw some of the ways you and your family use water and share it with us on social media!

WATER QUALITY

As stormwater travels, it can pick up any pollutants that lie in its path, such as pet waste, litter, and fertilizers. Stormwater does not get cleaned at a water treatment plant before it enters our rivers and lakes. This means that anything the stormwater picks up will be carried directly into our local waterways, polluting the water supply for animals and people.



TAKE ACTION

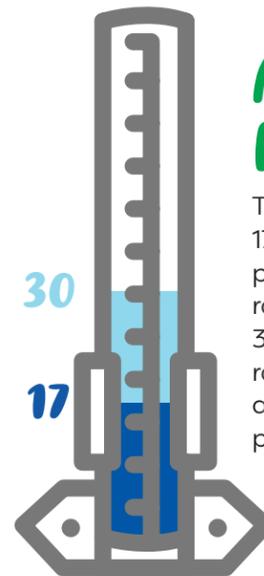
There are many simple things you can do to protect the environment and prevent stormwater pollution. **Draw a line connecting each phrase with the image that completes the sentence.**

- Pick up after your
- Throw your litter in the
- Ask your parents to use eco-friendly
- Never dump paint or chemicals down the
- Consider installing a rain barrel to collect



ANNUAL PRECIPITATION

The City of Fountain only receives 17 inches of rainfall, also known as precipitation, each year. The average rainfall across the United States is 30 inches. How is this measured? A rain gauge is used to measure the amount of precipitation over a set period of time.



- City of Fountain
- United States

DROUGHT

Since Colorado receives little rain and can have high temperatures, it is considered a semi-arid (partly dry) climate, which makes it prone to drought. A drought is a long period of very little snow and rainfall that can lead to a shortage of water. Colorado depends on snowmelt from the mountains for its water supply.



CAN YOU FIND EACH OF THESE WORDS HIDDEN IN THE WORD SEARCH?

- | | | |
|----------|----------|----------|
| CLIMATE | LAKE | SEA |
| COLORADO | OCEAN | SEMIARID |
| DROUGHT | RAINFALL | SNOWMELT |
| GLACIER | RIVER | WATER |

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

LAKES vs. RESERVOIRS

Do you know the difference between a lake and a reservoir?

Lakes are naturally occurring while a reservoir is a man-made body of water. Usually formed by building a dam across a flowing river, reservoirs are created to provide ongoing water storage.

YOUR WATER

Every day, Fountain Utilities provides **millions of gallons** of treated water to its customers. This water is stored in Pueblo Reservoir and in multiple water storage tanks. In the water world, water is commonly measured in acre-feet. What is an acre-foot? One acre-foot equals about 326,000 gallons, or enough water to cover the size of a football field to a depth of 12 inches (one foot). Fountain Utilities has the ability to store over 9,000 acre-feet of water - that's enough to cover 9,000 football fields.

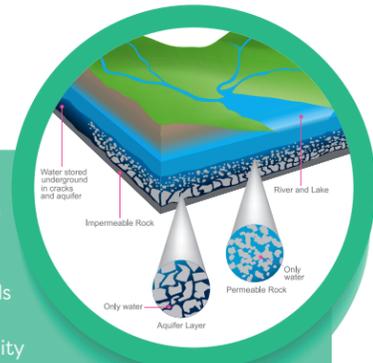
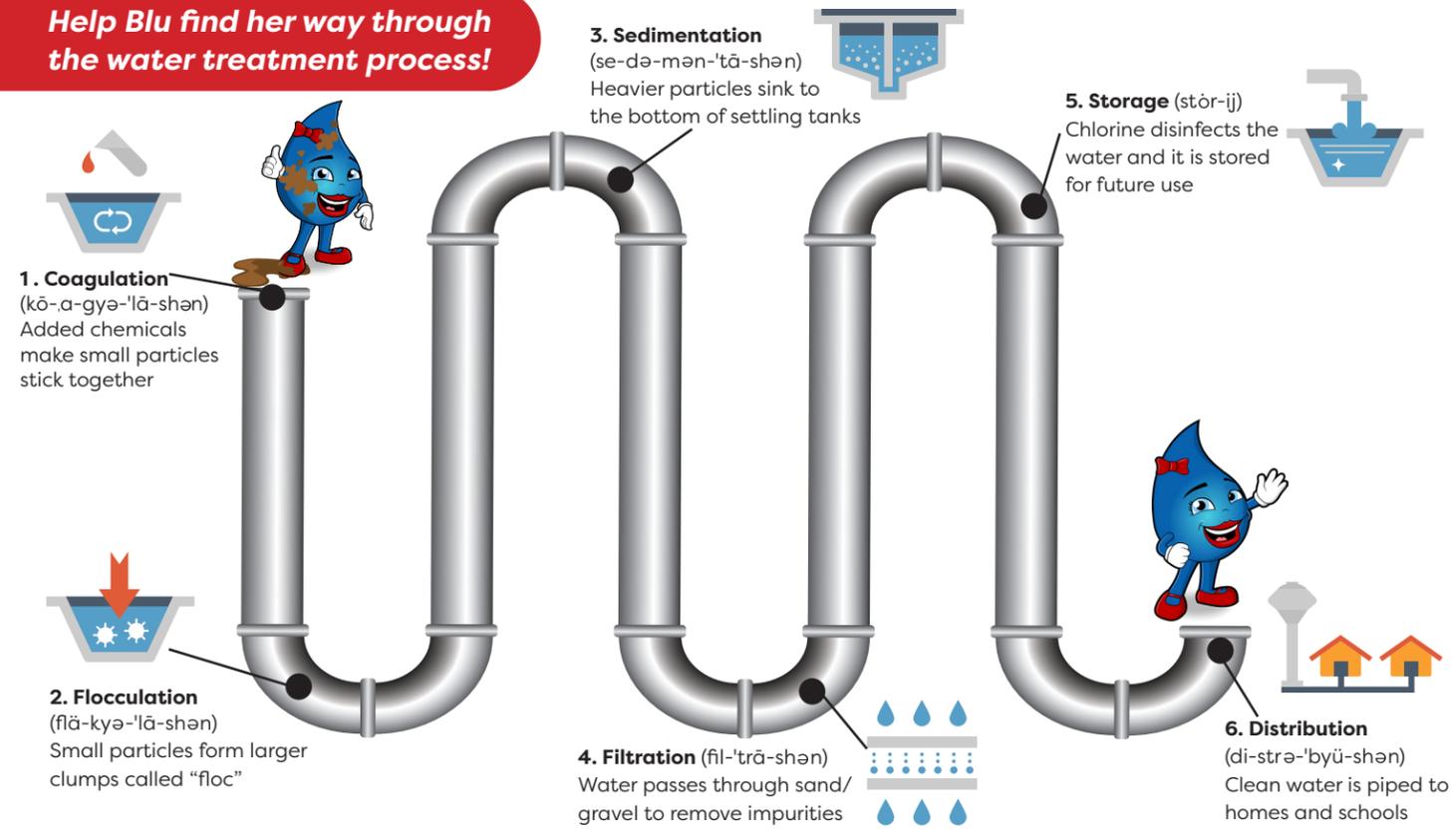


YOUR WATER TREATMENT

The Fountain Valley Authority treats and supplies about two million gallons of water to residents, visitors and businesses throughout our community each day. This water comes from snowmelt in the mountains and is piped into Pueblo Reservoir for storage. The water is then delivered to Fountain Valley Authority, where it is treated using multiple technologies before it is delivered safely to your faucet.

Groundwater and surface water contain both dissolved and suspended particles. Some particles float in the water, while others settle to the bottom. This mixture of water and floating particles is called suspension. Coagulation and flocculation are processes that help separate the suspended particles from the water.

Help Blu find her way through the water treatment process!



Fountain Utilities meets the needs of the community by delivering a combination of 70% surface water and 30% groundwater. Groundwater is located underground in large aquifers and must be pumped out of the ground from deep wells. Surface water is found in lakes, rivers and streams.

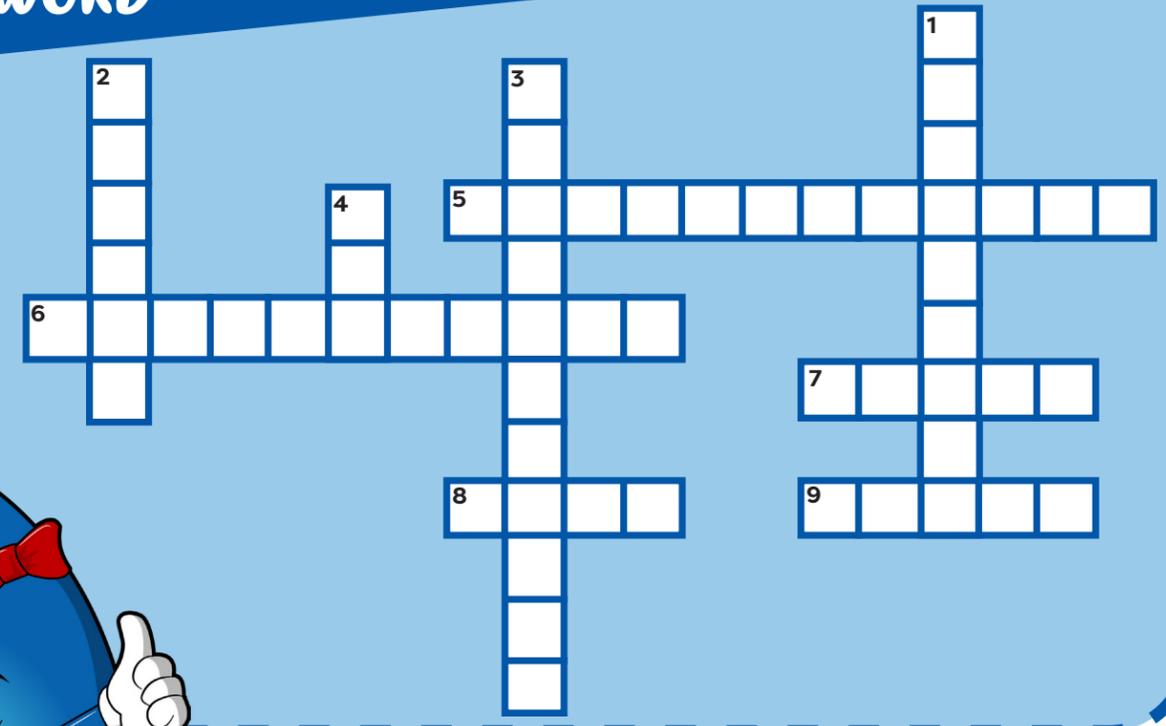


Granular Activated Carbon (GAC) water treatment removes groundwater contaminants and improves the taste of the treated water. These treatment plants deliver clean, safe, great-tasting drinking water.



Ion exchange is another method of groundwater treatment. During the ion exchange process, any contaminant molecules are removed from the water, making it safe to drink.

BLU'S WATER TREATMENT CROSSWORD



DOWN

- 1) The general term for cleaning up water
- 2) What the C in GAC starts for
- 3) Water that lies under the earth's surface
- 4) The acronym for Granular Activated Carbon

ACROSS

- 5) Impurities that are removed from the water
- 6) A process to clean groundwater
- 7) The opposite of dirty
- 8) Not dangerous
- 9) The natural resource Blu is made of

The answer key is:
 1) Treatment, 2) Carbon, 3) Groundwater, 4) GAC, 5) Contaminants, 6) Ion Exchange, 7) Clean, 8) Safe, 9) Water.

WATER CONSERVATION



Can you guess how much water an average family of four uses every day in Fountain?

- a) 50 gallons
- b) 75 gallons
- c) 100 gallons
- d) 200 gallons



each water jug = 20 gallons

If you guessed 200 gallons, you're right!

As our population grows, more people are using our limited water resources. There are many things each of us can do to conserve water and use the water we do have wisely. It can be as easy as turning off the water while you brush your teeth, taking shorter showers, and only running the clothes washer with full loads of laundry.

Most of the water we use is outdoors. We use more water outdoors than for showering and washing clothes combined! To reduce outdoor water use: 1) ask your parents to put in plants that require little or no water, 2) install a smart sprinkler system and fix any leaky sprinklers, 3) learn when and how much to water your yard to avoid overwatering.

Where's Blu's favorite summer hangout?

The Splash Pad at Aga Park! This hidden gem in Fountain uses recirculated water to keep kids cool all summer long.



Splash Pad at Aga Park
507 N. El Paso St

OUTDOOR WATERING



CYCLE AND SOAK

Instead of watering once a day for a long time, water in short bursts, three times a day. This allows water to absorb into the ground and reduce runoff.



AVOID WATERING MID-DAY

Water only in the early mornings or late evenings to minimize water loss from evaporation and wind.



CHOOSE THE RIGHT PLANTS

Replace a portion of your lawn with native and drought tolerant plants that need less water.

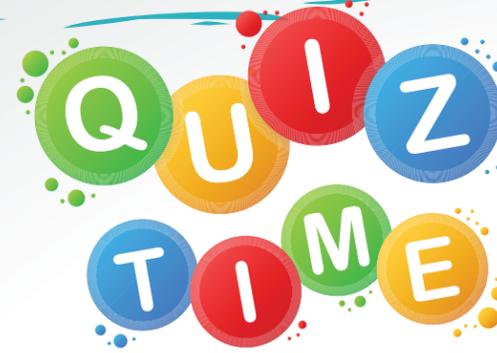


INSTALL SMART SPRINKLERS

Use water efficient technology like drip irrigation, rotating sprinkler nozzles, and smart irrigation controllers.

TAKE ACTION

Write down 3 ways you will pledge to save water inside and outside your home.



BLU'S WATER CAREERS QUIZ: WHICH WATER JOB IS RIGHT FOR YOU?

It takes a lot of devoted and skilled individuals working every day of the year to deliver safe drinking water to your home. Their jobs require different types of training and education, so it's never too soon to begin considering a career in water. Take Blu's short Water Careers Quiz to find out which water job you might enjoy most.

1 When your parents ask you to clean up your toys, what do you do first?

- A) Repair any broken or damaged toys.
- B) Clean the dirt off your toys.
- C) Start planning ways to get more toys.
- D) Find new ways to get your toys to last longer.

2 When it's time for dinner, what's your approach to eating?

- A) Move the food around so none of it piles up too high.
- B) Remove any suspicious looking green bits from the food.
- C) Figure out a way to exchange the food on your plate for other food.
- D) Eat some food now and save some food for later.

3 Which of these books would you most like to read?

- A) An adventure story that explains the journey of rainwater as it travels over the land.
- B) A science book that describes how water is cleaned and treated for human consumption.
- C) I'd rather look at a map of mountains, rivers and lakes that shows where water comes from.
- D) A guide book that shows me things I can do at home to save water.



If you chose mostly A's, you may enjoy learning to become a stormwater technician. This person makes sure the storm drains are clean and well-maintained so that stormwater can safely move through them.

If you chose mostly B's, you would make a great Water Treatment Plant Operator. This position is responsible for repairing pipes, pumps, filters, and other equipment that is used to clean our drinking water.

If you chose mostly C's, you would make a great Water Resource Planner. This person identifies new water sources in order to make sure enough water is available for current and future populations.

If you chose mostly D's, you may enjoy learning to become a Conservation Specialist. This position focuses on finding new ways to save water and motivates other people to use water wisely.

COLORADO SPRINGS



Fountain Utilities Electric Department

- Maintains 1.8 miles of transmission lines and 621 miles of distribution lines
- Delivers electricity to the City through Fountain's two substations: north and west
- Substations lower the power voltage to distribution lines that run both over head and underground
- Brings electricity to you and Fountain residents, businesses and schools

CITY OF FOUNTAIN

Fountain Creek

The Fountain Valley Authority

- Was formed by five local water utilities in El Paso County
- Operates a 50-mile pipeline and pumping stations to bring Arkansas River water from Pueblo Reservoir to El Paso County customers
- Operates the treatment plant located south of Fountain (near the Ray Nixon Power Plant) and provides most of Fountain's water supply
- Treats water from snowmelt using multiple stages of treatment technologies
- Provides Fountain with about two million gallons of water daily



Fountain Valley Water Authority

The Southern Delivery System (SDS)

A cost effective and environmentally responsible way to transport Arkansas River water stored in Pueblo Reservoir to Colorado Springs, Security, Fountain and Pueblo West

PUEBLO RESERVOIR

James W. Broderick Hydro Plant



PUEBLO



Well 1



Well 2



Well 3



Well 4



Groundwater Treatment Plant 1



James W. Broderick Hydro Plant



Aga Park



Fountain Utilities Customer Service

Southern Delivery System



Arkansas River

Arkansas River

FOUNTAIN UTILITIES ELECTRICITY

Fountain Utilities' electrical supply comes from a variety of sources. In order for you to flip a light switch or power on your smartphone, electricity is working hard behind the scenes. Join Bulbie as we explore the journey electricity takes from the power plant to you.



HOW ELECTRICITY IS TRANSMITTED

For electricity to get to you, it originates from a power plant and travels through high-voltage transmission lines to a substation where the voltage is reduced to make it safe to deliver to your home. Electricity is distributed through power lines, which are either buried underground or mounted above ground.

At the substation, a transformer lowers the electric voltage to make the power safe to use at homes, schools, and businesses. When it arrives and you flip that switch, you've completed the circuit and electricity will begin flowing.

Did you know Fountain has 150 miles of overhead power lines and 382 miles of underground power lines?



ELECTRICITY



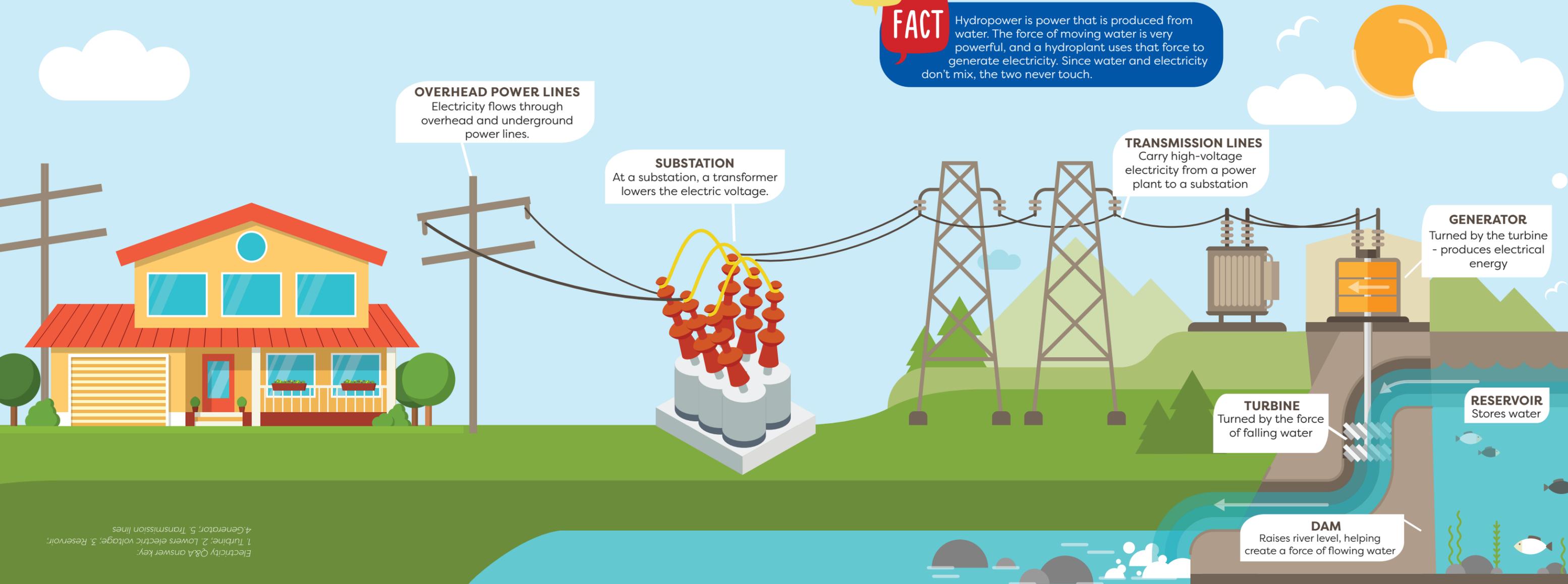
Look at the diagram and answer the questions below.

1. What is turned by the force of falling water? _____
2. At a substation, what does a transformer do? _____
3. Where is water stored? _____
4. What is turned by the turbine to produce electrical energy? _____
5. What carries electricity to homes and businesses? _____

FUN

FACT

Hydropower is power that is produced from water. The force of moving water is very powerful, and a hydroplant uses that force to generate electricity. Since water and electricity don't mix, the two never touch.



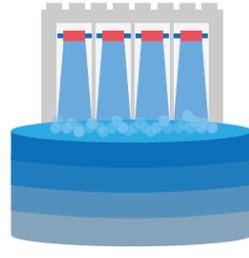
RENEWABLE & NON-RENEWABLE ENERGY

The Earth and Sun provide many renewable and non-renewable resources. Solar energy from the Sun, wind energy from windmills, and hydropower from flowing water are all examples of renewable energy sources that can be easily replenished. Non-renewable energy sources cannot be easily replenished and include nuclear power and fossil fuels like coal, oil, and natural gas. We can also use geothermal energy to make electricity. A geothermal power plant works by tapping into steam or hot water reservoirs underground. Using renewable energy sources like solar and wind power help stop the depletion of our natural resources by conserving fossil fuels and using clean energy.

Match the photo and draw a line to the energy source below:



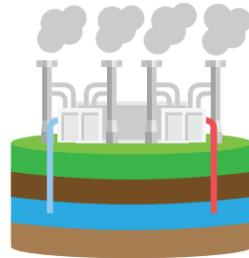
SOLAR



GEOTHERMAL



WIND



HYDRO



Did you know that Fountain Utilities receives hydropower energy from multiple sources? For more information, visit FountainUtilities.org/kidscorner

DE-CODE THE UNDERLINED WORDS IN THE SENTENCES

_____ has been used by _____ for over 2,700

years! Uses include _____

food and drying _____

CODE:

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



FUN FACT

⚡ Solar panels don't just work when the sun is out. They can still generate electricity when it is cloudy, but they don't make as much as they do in bright sunlight.

To find out how to build your very own pizza box solar oven, visit FountainUtilities.org/kidscorner

CONSERVATION & EFFICIENCY

What is the difference between energy conservation and energy efficiency?

Energy conservation means saving energy, or not using more energy than you need. For example, turning off computers, lights, and the TV when you are not using them are all examples of energy conservation.

Energy efficiency is using less energy to do something as well as, or better than, before. For example, if your washing machine uses less energy to do the same job as other clothes washers, it is an energy efficient washer.



Test your energy knowledge

Choose the letter that best matches the definitions below:

- The ability to do work: _____
- _____ energy comes from natural elements that can be converted into electricity.
- _____ are large machines that quickly turn water, steam, gas, air, or other fluids to create fuel.
- _____ is created from one of the three main types of fuel: fossil fuel, nuclear power, and renewable alternatives.
- Extreme weather can cause a _____.
- At a _____, a transformer lowers the electric voltage of power to make it safe to use at homes, schools and businesses.
- Electricity is distributed to _____ through power lines.
- _____ energy sources cannot be easily replenished.

A Transformers	B Substation
C Energy	D Clean
E Power Outage	F Turbines
G Electricity	H Non-renewable

Word answer key: 1. energy; 2. clean; 3. turbines; 4. electricity; 5. power outage; 6. substation; 7. transformers; 8. non-renewable

HOME ENERGY USE

Our homes and schools use energy all day, every day. In the kitchen, our refrigerator, dishwasher, and oven all require electricity. Lights, phones, and computers all need power to turn on. Every year, we use more energy than we did the year before and all of that energy adds up.

Clean energy is made from natural elements that can be converted into electricity without polluting the environment. For example, many homes have solar panels on the roofs. These special panels generate electricity by absorbing the heat and light from the sun.

ENERGY ISN'T FREE; all the electricity you use in your house costs money, so it is important to not waste it and instead use it wisely.



CONSUMPTION

Fountain Utilities provides power to homes, businesses, and schools throughout the community. The amount of energy consumed is called energy usage and it is measured in kilowatt-hours (kWh). A kilowatt is a metric that equals 1,000 watts of power. A 1,000-watt microwave will warm up a meal much faster than a 600-watt microwave.

Be a Hometown Hero! Remember to turn off your electronics when you're not using them.

Which appliance uses more kilowatts?
Write > (greater than) or < (less than)



1,000 kWh



1,500 kWh



850 kWh



1200 kWh



800 kWh



1,000 kWh



150 kWh



100 kWh

FUN

FACT

Did you know utility lines are located underground too? If these lines are hit while digging, you could be seriously injured. That is why it's important to call 811!

HOW WE USE ELECTRICITY

Electricity can be used or stored. For example, electricity can be stored in a battery and then used later to power a phone. It can also be used immediately to do things like turn on a light bulb, heat food in the microwave, or open a garage door. Write down some other ways you use electricity at home or at school:

Can you find the electric hazards in this scene? Circle the four outdoor hazards and remember to keep safety in mind!



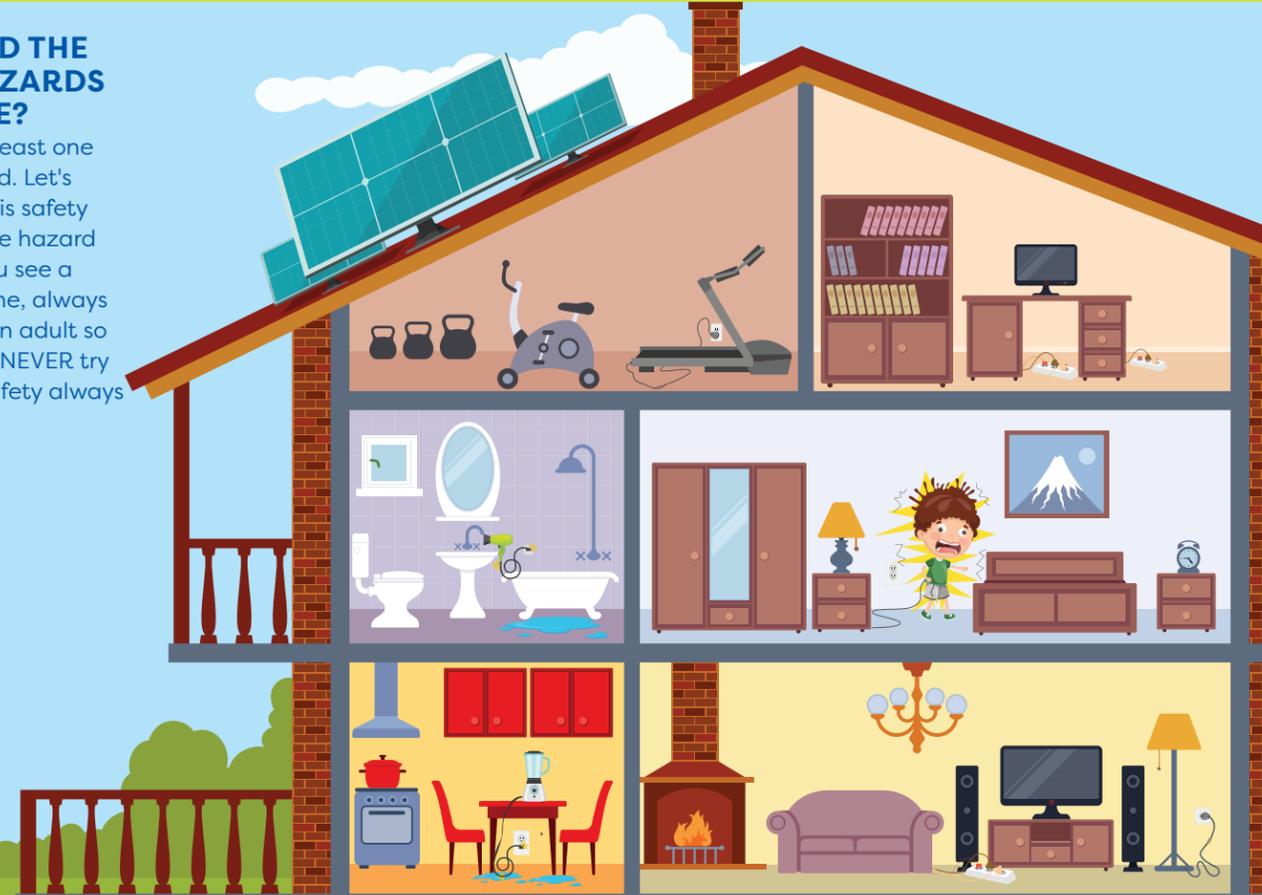
HAVE YOU PERFORMED A SAFETY AUDIT IN YOUR HOME?

Bulbie is here to help you complete this very important task! Most electrical hazards around the house are often preventable. Below is a quick and easy list of things you can look for in your home:

- Overloaded power strips
- Frayed power cords
- Appliances plugged-in near water sources
- Utilizing extension cords not meant for long term use
- Keep the power cord out of reach on hanging lights to prevent pulling
- Power cords that get wet can cause a nasty shock

CAN YOU FIND THE ELECTRIC HAZARDS IN THE HOUSE?

Each room has at least one preventable hazard. Let's help Bulbie with this safety audit by circling the hazard in each room. If you see a hazard in your home, always remember to tell an adult so they can fix it and NEVER try to fix it yourself. Safety always comes first!



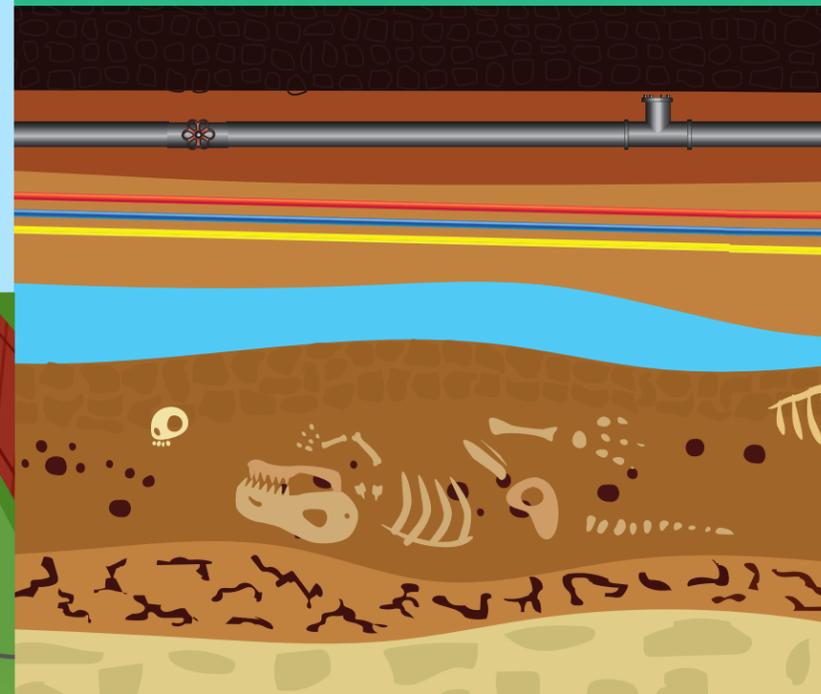
CAN YOU DIG IT?

Always have an adult call 811 before doing any type of digging to ensure you and your family stay safe! Professionals will mark the location of underground utility lines, such as water, natural gas and electricity so you know where it's safe to dig.



Call 811 before you dig!

Match the flags to the correct utility line:



ELECTRIC SAFETY

Have you ever walked across a carpet and felt a shock when you touched something? If you have, what you felt was static electricity. A real electric shock is far more powerful and dangerous. Electric safety hazards can be both indoors and outdoors.

Indoor Electrical Tips

- Never put fingers or other objects in an outlet.
- Don't overload a power strip with too many cords.
- Never use frayed or damaged power cords.
- Appliances should never be plugged-in close to water.



Outdoor Electrical Tips

- Avoid flying kites near overhead power lines.
- Never squirt high powered water toys at electrical power lines.
- Stay at least 10 feet away from power lines and electrical facilities.
- Don't go swimming in pools, lakes or oceans during a storm.
- Keep metallic balloons away from power lines by weighing them down and throwing them away after they deflate.



TAKE ACTION

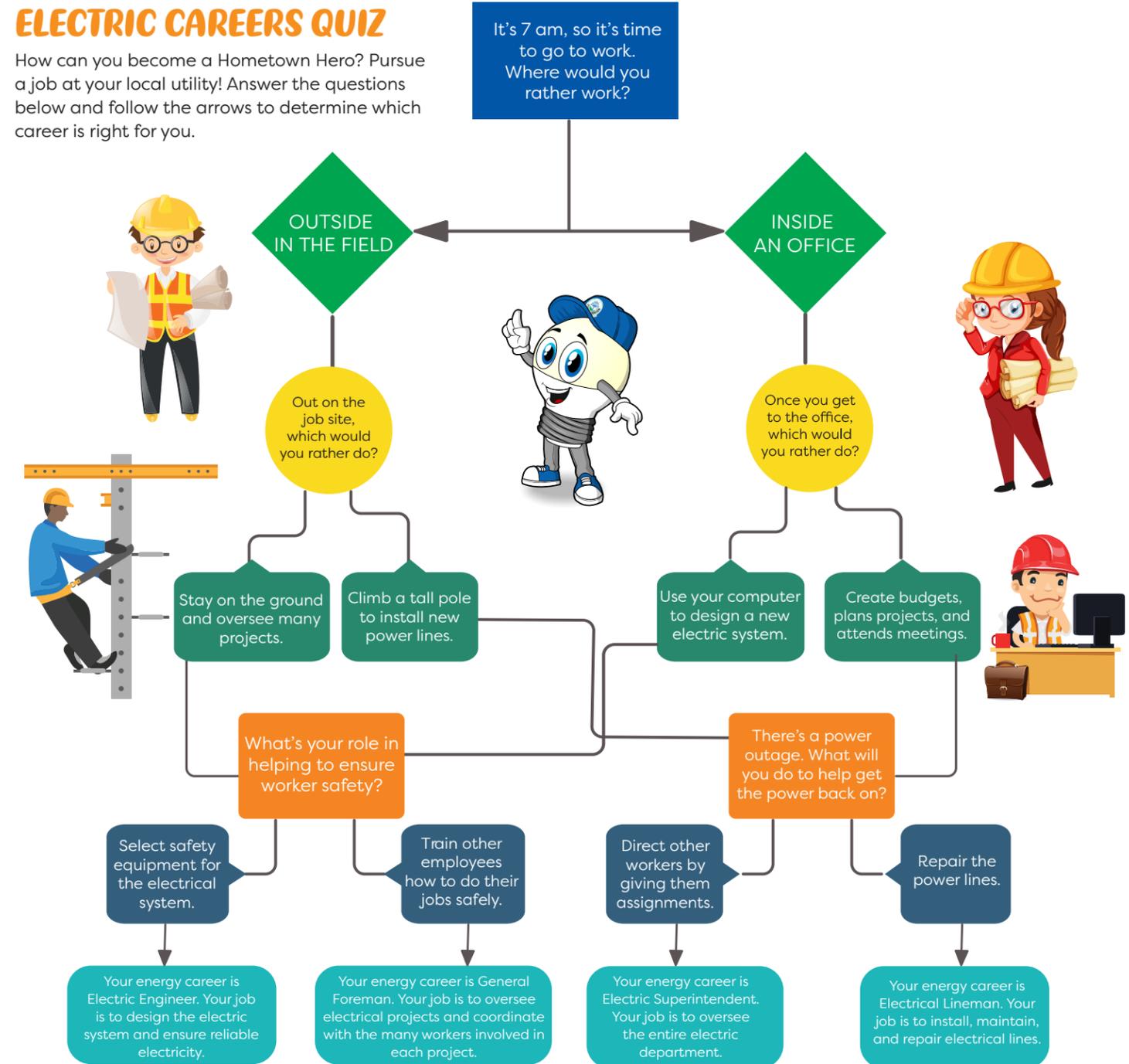
There are many ways you can conserve energy and help your whole family become more energy efficient.

1. Turn off lights and electronics when you leave the room.
2. Replace traditional light bulbs with LED lights that use 70-90% less energy.
3. Give your air conditioner a break and use a ceiling fan to cool your room.
4. Keep windows and doors closed when heating or cooling your home.

Circle two actions from the list that you will take to help save energy in your home, and write down one new action not listed. _____

ELECTRIC CAREERS QUIZ

How can you become a Hometown Hero? Pursue a job at your local utility! Answer the questions below and follow the arrows to determine which career is right for you.



OUTAGES

A power outage can last a short time or several days or even weeks. Extreme weather, such as lightning striking a power line or a tree falling on electrical equipment, can cause an outage.

BE PREPARED Help your family build an emergency kit. Check off all the items you would need during an extended power outage.

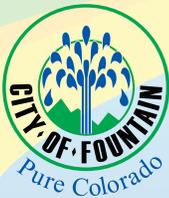
Fountain Utilities is one of the most reliable electric utilities in the nation!

- | | | |
|---|--|---|
| <input type="checkbox"/> Water | <input type="checkbox"/> Paper plates, cups and utensils | <input type="checkbox"/> Plants |
| <input type="checkbox"/> First Aid kit | <input type="checkbox"/> Change of clothes and shoes | <input type="checkbox"/> Tools |
| <input type="checkbox"/> Can opener | <input type="checkbox"/> Bicycle | <input type="checkbox"/> Nail polish |
| <input type="checkbox"/> Batteries | <input type="checkbox"/> Books and games | <input type="checkbox"/> Stapler |
| <input type="checkbox"/> Flash light | <input type="checkbox"/> Favorite toy | <input type="checkbox"/> Desk |
| <input type="checkbox"/> Non-perishable food (dried fruit, canned food) | <input type="checkbox"/> Curtains | <input type="checkbox"/> Water balloons |
| <input type="checkbox"/> Sleeping bag or warm blanket | <input type="checkbox"/> Stickers | <input type="checkbox"/> Pet supplies |
| <input type="checkbox"/> Candles | <input type="checkbox"/> Cell phone & charger | <input type="checkbox"/> Toothbrush, toothpaste, soap, toiletries |
| | <input type="checkbox"/> Trampoline | <input type="checkbox"/> Map |
| | <input type="checkbox"/> Candy | <input type="checkbox"/> Matches (let a grown-up handle these) |
| | <input type="checkbox"/> Refrigerator | |





**Pledge to be a Hometown Hero
and receive a free gift! Visit
FountainUtilites.org/kidscorner**



Questions or comments?
contact us at (719) 322-2010 or visit us
online at fountainutilities.org