1 Answer the questions in your own words.

1. What are the three parts of an atom?_____
2. When is electricity created?_____
   _____
3. Name a few examples of static electricity. _____
   _____
4. Name a few examples of current electricity. _____
   _____
5. What does a battery have in it to keep it charged?_____
   _____
6. What are good conductors? Give examples_____
   _____
7. What are good insulators? Give examples _____
   _____
8. How is an electric current created? _____
   _____
9. How can you stop a current from flowing?_____
10. A current that flows back and forth is called _____
11. How can a wire produce heat?_____
    _____
12. How is the wiring in buildings and other objects protected? _____
    _____
13. What can electric shock lead to? _____
14. What should you do during a thunderstorm?_____
    _____
15. How is electricity measured? _____
16. How much is one horsepower? _____
17. How is mechanical energy transformed to electrical energy? _____
    _____
18. How do river power stations work? _____
    _____
19. What does a transformer do?_____
20. How is electricity transported from one place to another?_____
    _____

2

Multiple Choice Task

Choose the correct answer for each question

1. **A kilowatt-hour is the energy**
    a. of one hundred watts for one hour.
    b. of one watt for one hour.
    c. of ten light bulbs for one hour.
    d. of a thousand watts for one hour.
2. **Fuses protect wiring from**
    a. changing the flow of electrons.
    b. exploding.
    c. becoming too hot.
    d. producing too much electricity.
3. **A current that flows in both directions is called**
    a. an undercurrent.
    b. a direct current.
    c. an alternating current.
    d. a changing current.
4. **A transformer**
    a. is a power line that transforms electricity.
    b. protects your house from too much voltage.
    c. changes the amount of watts a device uses.
    d. changes the voltage of electricity.
5. **Generators are used to**
    a. transform electrical energy into mechanical energy.
    b. transform steam into electrical energy.
    c. transform mechanical energy into electrical energy.
    d. transport energy to houses.
6. **Static energy**
    a. stays in one place.
    b. always moves in a closed circuit.
    c. does not have any electrons.
    d. is only produced by lightning.
7. **In a thunderstorm you should stay inside a car because lightning**
    a. only hits the metal of the car.
    b. hits the tires, which have a lightning rod.
    c. always hits the glass windows.
    d. only hits trees and high buildings.
8. **Conductors are materials that**
    a. electricity cannot pass through.
    b. lead electricity to the ground.
    c. electricity passes through easily.
    d. you wear to protect yourself.

3 **Match the words with their definitions**.

A	source
B	blade
C	fuse
D	friction
E	current
F	wire
G	circuit
H	lightning
I	generator
J	conductor
K	appliance
L	copper
M	turbine
N	steam
O	plug in
P	liquid
Q	transformer
R	steel
S	socket
T	resistance

	machine that produces electricity
	the heat that is produced when you rub objects against each other
	white gas that water produces when it boils
	a complete circle
	fluid, watery substance
	flat metal object that water flows against
	material that stops electricity going though it
	electrical object that you use in the house
	strong metal that can be formed
	piece of wire that stops the flow of electrons
	a motor that moves a special wheel around
	material in which electrons move freely
	to connect an electrical object to the electricity supply of a house
	the flow of electricity through a piece of metal
	powerful flash of light in the sky
	place in the wall where you can plug something in
	where something comes from
	reddish brown metal that lets electricity pass through easily
	machine that changes electricity from one voltage to another
	thin piece of metal

4 **TRUE or FALSE. Decide if the following statements are TRUE or FALSE and tick them off. If the statement is False write the correct sentence into the box.**

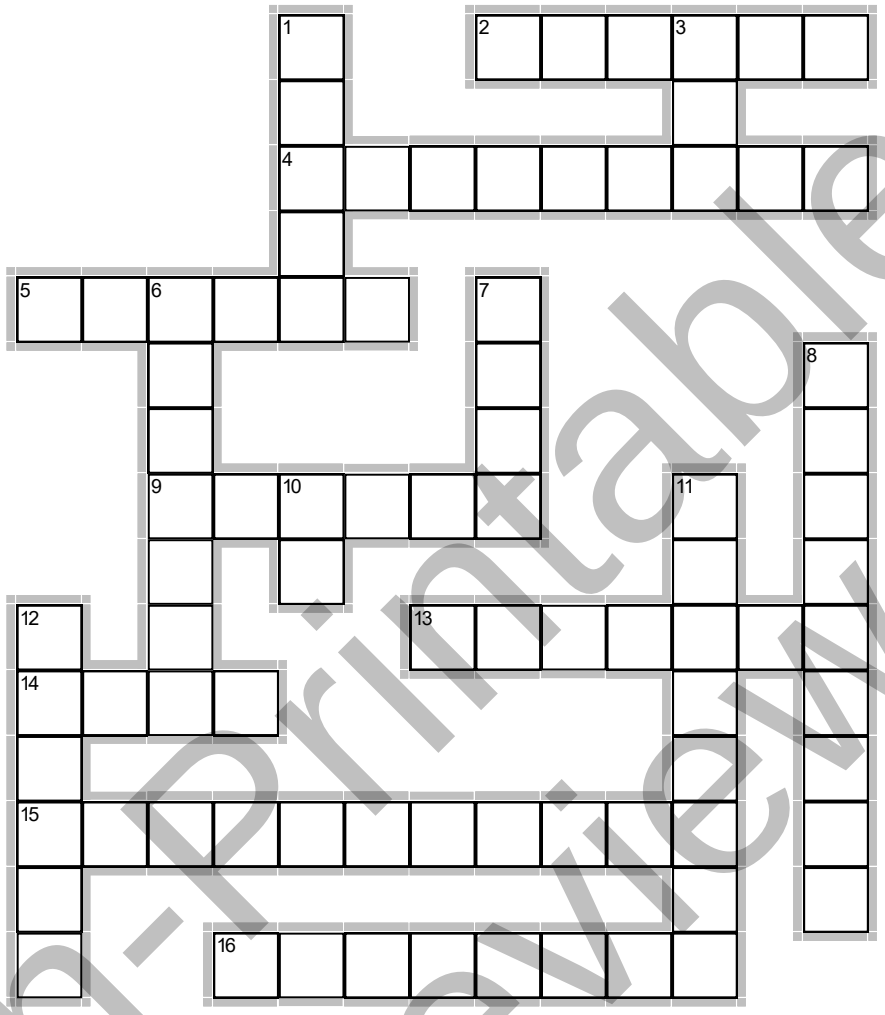
		T	F	Correct Statement
1	Current electricity needs a closed circuit.	✓		
2	Low voltage power lines carry electricity over long distances.		✓	**Electricity is carried over longer distances through high-voltage power lines.**
3	1,000 watts are the same as one horsepower.			
4	Some countries use water to push turbine blades.			
5	Normally, an atom has as many protons as it has electrons.			
6	Normal, everyday batteries have 220 volts.			
7	One of the safest places during a thunderstorm is your car.			
8	A battery has two positive charges.			
9	Generators are used to transform light into heat.			
10	Electrons are negatively charged particles of an atom.			
11	Copper is a good conductor.			
12	An electric current can be slowed down by resistance.			

5 **Match the beginnings of the sentences with the endings. There are TWO endings you will not need.**

A	Power lines transport electricity
B	Many machines in our homes
C	Chemicals in a battery become weaker
D	When you put a wire between both ends of a battery
E	During a thunderstorm, you should
F	A switch in a circuit
G	Copper and other metals
H	Many electrical devices in our homes
I	When you rub two objects against each other
J	Turbines in power stations are used
K	A battery has liquid or paste in it
L	Special switches, called fuses,

	a current flows.
	protect the wiring in homes and buildings.
	use current electricity to function.
	are good insulators
	and stop it from producing energy.
	you produce current electricity.
	to make a generator rotate.
	over very long distances.
	stay away from open fields and high places.
	you produce static electricity.
	to bring electricity to your house.
	that helps produce electric charges
	stops electrons from moving
	have special wiring for protection.

6 Crossword



Across

2. metal that is a good conductor of electricity
4. an electrical machine that you use in the house
5. place in the wall where you can plug in an object when you need electricity
9. the electricity that is put into an object, like a battery , to give it power
13. flow of electricity through a piece of metal
14. unit in which electricity is measured
15. machine that changes electricity from one voltage to another
16. when you rub two things against each other and they get warm

Down

1. flat part of an object that pushes against water
3. round metal container that you use for cooking
6. the complete circle that an electric current travels
7. very thin piece of metal in which electricity can pass through
8. form of static electricity
10. alternating current (short word)
11. one of the elements of an atom
12. object that starts or stops the flow of electricity when you press it

7 **Fill in the missing words from the box. There are TWO words you will not need.**

When electrons move through a **(1)** _____ , an electric current is created. A current that always flows in one direction is called a direct current (DC). A battery for example, produces a **(2)** _____ current. A current that flows back and forth is called an **(3)** _____ current (AC).

Electrons cannot jump freely through the air to a positively **(4)** _____ atom. They need a **(5)** _____ to move. When a source of energy, like a **(6)** _____, is connected to a light bulb, the electrons can move from the battery to the light bulb and back again. We call this an electric circuit.

Sometimes there are many circuits in an electrical **(7)** _____ that make it work. A TV set or a computer may have millions of parts that are **(8)** _____ to each other in different ways.

You can stop the current from flowing by putting a **(9)** _____ into the circuit. You can open the circuit and stop electrons from moving.

A piece of metal or **(10)** _____ can also be used to produce heat. When an electrical current passes through, such metal it can be slowed down by **(11)** _____. This causes **(12)** _____ and makes the wires hot. That's why you can toast your bread in a toaster or dry your hair with warm air from a hairdryer.

In some cases, wires can become too hot if too many electrons flow through them. Special switches, called **(13)** _____, protect the wiring in many buildings.

alternating
battery
charged
circuit
conductor
connected
current
device
direct
electrons
friction
fuses
resistance
switch
wire

A fusebox that can shut down electricity in a house

Image: Dmitry G, CC BY-SA 3.0, via Wikimedia Commons

8 **Fill in the missing words from the box. There are THREE words you will not need.**

bolts - charges - clouds - common - current - damage - devices - electricity - flash - particles - released - rod - strikes - surface - thunderstorm - upwards - wires

Lightning

Image: FreeSVG, Public Domain

Lightning is a form of electricity that is set free during a storm. Energy is suddenly **(1)** _____ in a cloud when charges are built up. Although lightning is most **(2)** _____ in tropical and subtropical regions, it can happen wherever hot air mixes with cold air. Thunderstorms produce about 8 million lightning **(3)** _____ a day.

Water droplets and ice crystals in a cloud have electric **(4)** _____ , positive and negative ones. Lightning occurs when too many negative charges build up in a cloud and positive charges develop on the ground.

The particles want to meet and race towards each other. A **(5)** _____ of lightning is a sign of this meeting. Such a charge of light can be very hot, up to 20,000 degrees Celsius. It can be up to 5 km long. Large **(6)** _____ produce more electric charges and eventually a very strong electrical **(7)** _____ .

Lightning can also occur between two clouds or within a single cloud. In rare cases, negative charges can form on the ground and lighting moves **(8)** _____ , as is the case when a rocket starts.

Lightning **(9)** _____ very quickly - several times within a second, but single bolts of lightning are impossible to see with a naked eye. A series of such bolts appear as a single flash.

Lightning can do **(10)** _____ to buildings, cars or other objects when it hits. It can also kill or injure human beings. During a **(11)** _____ people should stay away from doors, windows and electrical devices. You should also stay away from phones and **(12)** _____ because lightning can travel through them. When you're in the open do not try to protect yourself by hiding under a tree.

You can protect your house or other buildings surrounding your home by installing a lightning **(13)** _____ on the roof. It attracts the lighting that would otherwise hit the building and leads it to the **(14)** _____ .