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Name _____

Electricity

You Be the Electrician

Directions: Read the question below and formulate a hypothesis. Use the provided objects to explore electrical circuits. Make observations and draw a conclusion. Create a record of your experiment on a separate sheet of paper.



Question

Electricians are people who work with and study electricity. How does a complete circuit transfer electricity to make light?



Hypothesis

Formulate your hypothesis. (What is the answer to the question?) Write your hypothesis.



Experimental Design

Experiment with the three materials provided by your teacher to create a complete circuit. You will know when you complete the circuit because the bulb will light up. Record the steps of your experiment.



Observation

What happened in your experiment? Create an illustration of your circuit. Record your observations.



Conclusion

What is the answer to your question? Write your conclusion. Do your findings support your hypothesis? Why did you need a closed circuit to light the bulb? What did you learn from this experiment?

Electricity

Electricity Is All Around Us

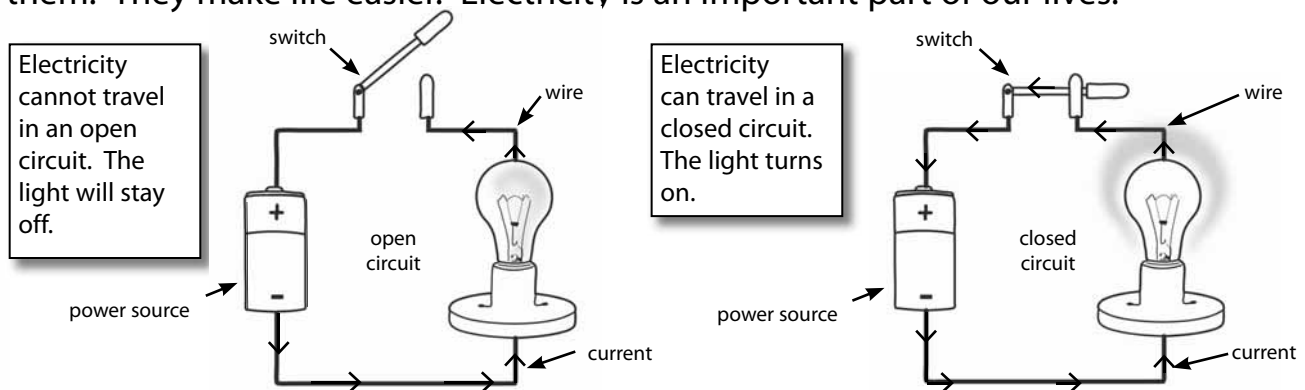
Electricity is something people use in their lives each day. You may have used lights, a doorbell, or a watch today. Electricity gives us light, sound, and heat. But where does it come from? Electricity uses a flow of electrons to work. A flow of electrons is an electric current. It can be made with nuclear power or a battery.

Three things must be in place to have an electrical current. First, something must conduct the current. Electrons can flow easily through some matter, such as metal wires. Metal wires are usually wrapped in plastic. This is because electrons cannot flow through plastic. It will not conduct electricity. The plastic keeps us safe when we touch a metal cord, even when it is plugged in.

The second thing needed for a current is a power source. This could be a large generator. It could be a small battery. Larger power sources have higher voltage. They can run things that use a lot of electricity. Televisions and stoves use a lot of electricity. Smaller power sources have less voltage. They can run small objects like a flashlight or a hand-held game.

Finally, a current needs a closed circuit. This means that electrons must first flow from the power source. Then they go to whatever is using electricity. Finally, they go back to the power source. The circuit makes a loop. The electrons may flow easily through the circuit without getting stopped. A closed circuit is like a racetrack. When nothing is in the middle of the track, the race cars (electrons) can race around and around. But if a trailer blocks the cars, the race is over. The cars cannot keep going. There is no more power!

People all around the world use electricity. Electricity may power big cities or it may power small objects. It is even in places around the world with few roads and few people. It powers many things that we use each day. It may even power your toothbrush. Electrical devices let people work hard. They let people stay warm on cold days or cool on hot days. They let people stay in touch with the world around them. They make life easier. Electricity is an important part of our lives.

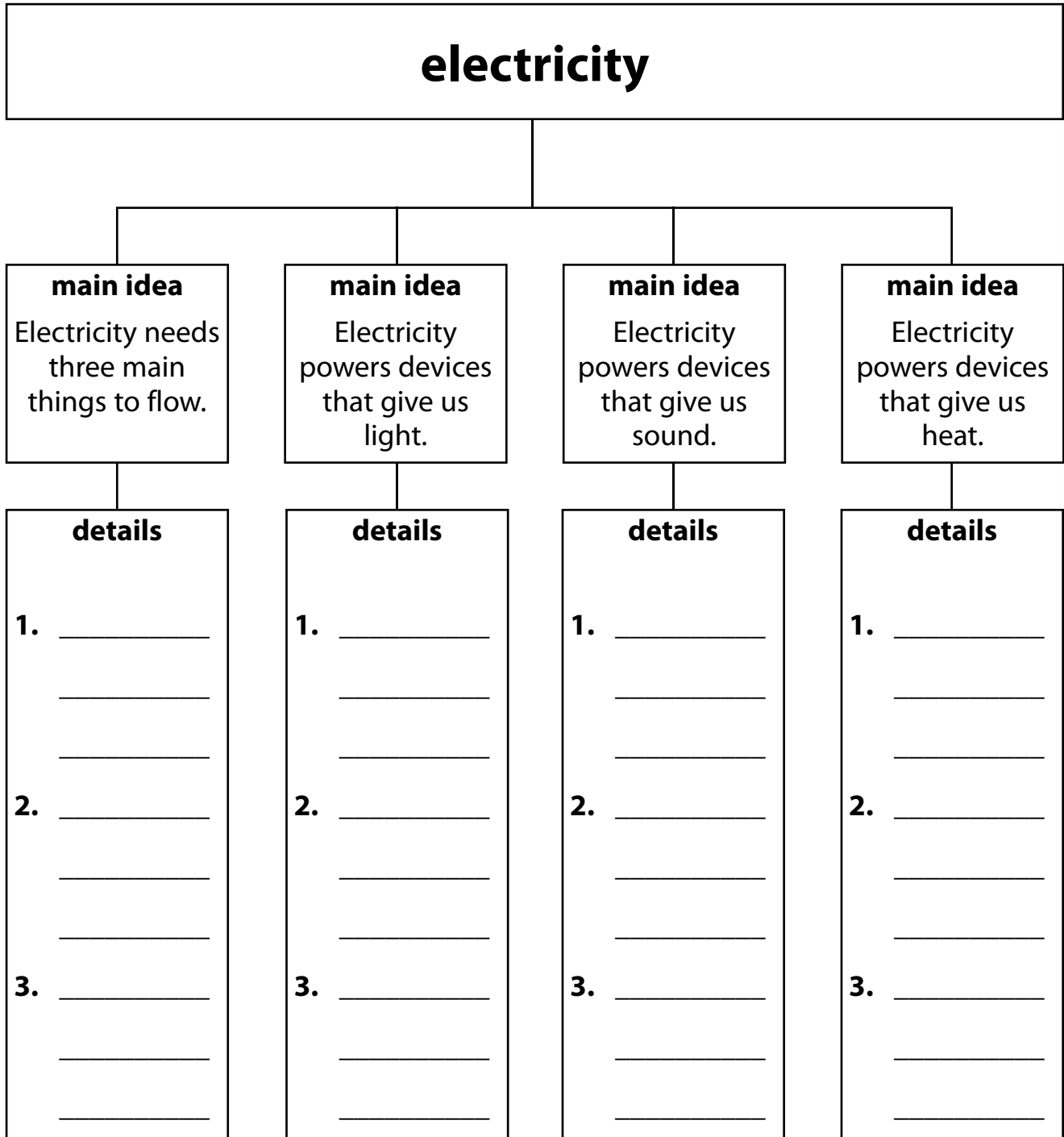


Name _____

Electricity

Light, Heat, and Sound

Directions: Think about the information you read on the previous page and what you know about electrical devices. Write three details for each main idea below.



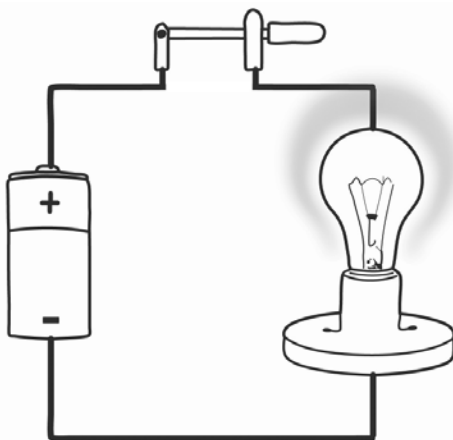
Electricity

Electricity Vocabulary

Directions: Each vocabulary word below is part of a closed electric circuit. Draw electrons along the path of the circuit. Then, label each part of the closed electric circuit below. Also label the power source and light. Then, answer the questions.

Definition Box

battery	a collection of metal and chemicals that produces an electric current
circuit	the complete path of an electrical current
current	the flow of electricity through a conductor
electrons	the negatively charged particles that are inside an atom



How do all these parts work together to create electricity?

Which two terms do you think are most alike? Explain why on the lines below.

term 1: _____ term 2: _____

Electricity

Lightning Storm

