SCIENCE · ELECTRICITY AND CIRCUITS · GRADES 3–5

Parts of a Circuit

Label the battery, wire, bulb and switch on a simple circuit.

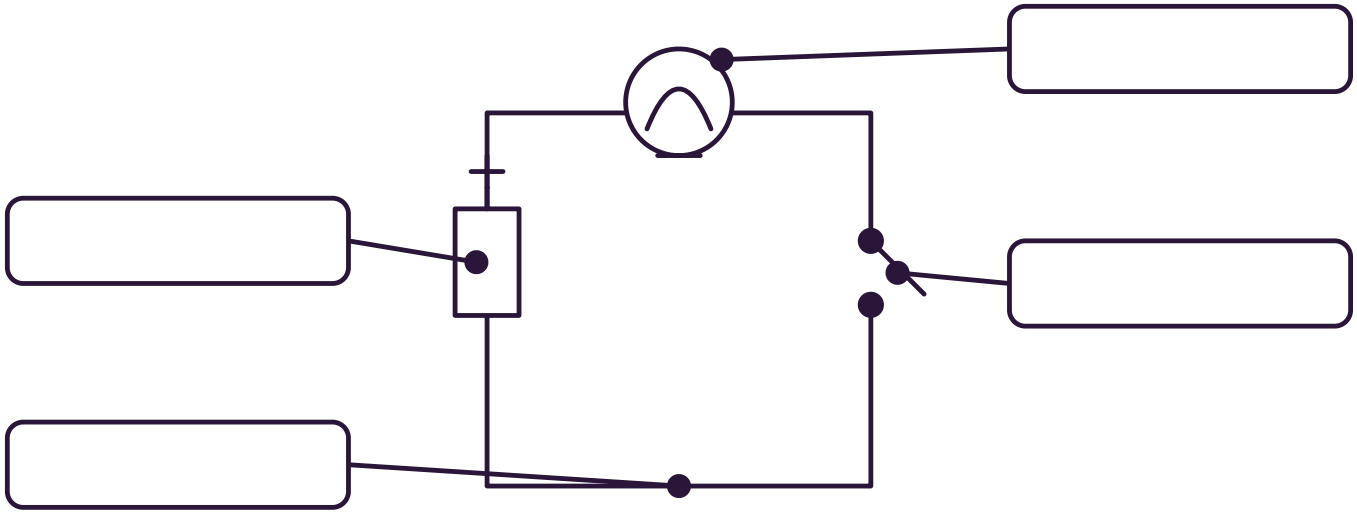
Name: _____ **Date:** _____



Word bank

battery | wire | bulb | switch

1. Label the parts of the circuit.



Electricity flows from the **battery** through the **wire**, lights the **bulb** and comes back to the battery. The loop is called a **circuit**. The **switch** opens or closes the loop.

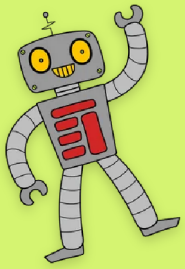
2. What gives the circuit its power? _____

3. What happens to the bulb when the switch opens the loop? _____

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Will the Bulb Light?



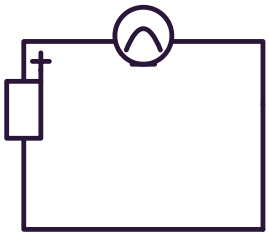
Look at four circuits, circle yes or no, then explain why an open circuit does not work.

Name: _____ **Date:** _____

A bulb lights only when the circuit is **closed**: a complete loop from the battery, through the bulb and back. A gap anywhere means an **open** circuit.

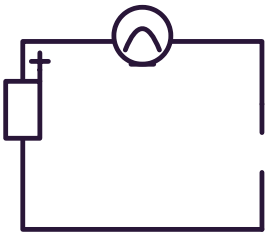
1. Will the bulb light? Circle Yes or No.

1



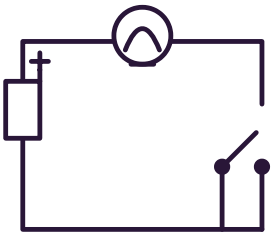
Yes No

2



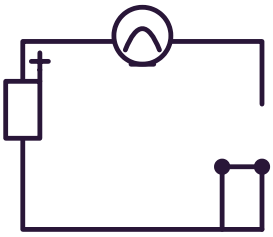
Yes No

3



Yes No

4



Yes No

2. Why does a bulb go out when the circuit is open? Why does a light switch in your house work the same way?

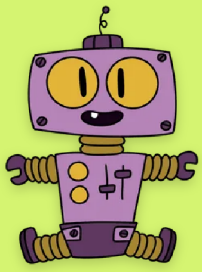
Art © Kevin Coulston

SCIENCE · ELECTRICITY AND CIRCUITS · GRADES 3–5

Conductors and Insulators

Sort ten materials into conductors and insulators, then explain why wires are covered in plastic.

Name: _____ **Date:** _____



A **conductor** lets electricity flow through it. Metals are good conductors. An **insulator** stops electricity. Plastic, rubber, glass and wood are insulators.

1. Write each material in the right column.

a penny · wooden spoon · a metal key · rubber glove · aluminum foil · plastic ruler · steel paper clip · glass · a dry cotton sock · copper wire

Conductors	Insulators

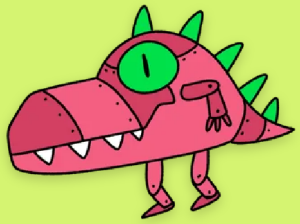
2. Why are electrical wires covered in plastic?

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SCIENCE · ELECTRICITY AND CIRCUITS · GRADES 3–5

Static Electricity Balloon

An experiment: rub a balloon on your hair and test what it pulls on.



Name: _____ **Date:** _____

You need: a blown-up balloon, tiny bits of torn paper, a wall and a sink. Rub the balloon on your hair or a wool sweater 20 times. Now it has a **static charge**. Hold it close to each thing below.

My hypothesis: the charged balloon will _____

What I held the balloon near	My guess	What happened
Tiny bits of paper		
Your hair		
A wall (let go!)		
A thin stream of water from the tap		
An empty soda can on its side		

Conclusion: what did rubbing the balloon do? Did the balloon push or pull on things?

_____

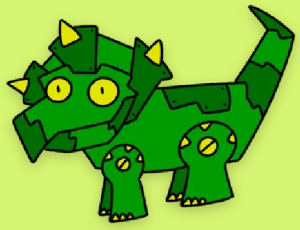
_____

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SCIENCE · ELECTRICITY AND CIRCUITS · GRADES 3–5

Electrical Safety

Color the safe choices and put an X on the dangerous ones, then write a safety rule for your home.



Name: _____ **Date:** _____

Color the safe choices. Put an X on the dangerous ones.

dry your hands before touching a plug	fly a kite near power lines	pull the plug, not the cord
poke a fork into a toaster	keep radios away from the bathtub	stick things into an outlet
tell a grown-up about a frayed cord	climb a power pole	stay away from fallen wires

Write one electrical safety rule for your home.

_____

_____

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ANSWER KEY · ELECTRICITY AND CIRCUITS · GRADES 3–5

Answer Key: Parts of a Circuit

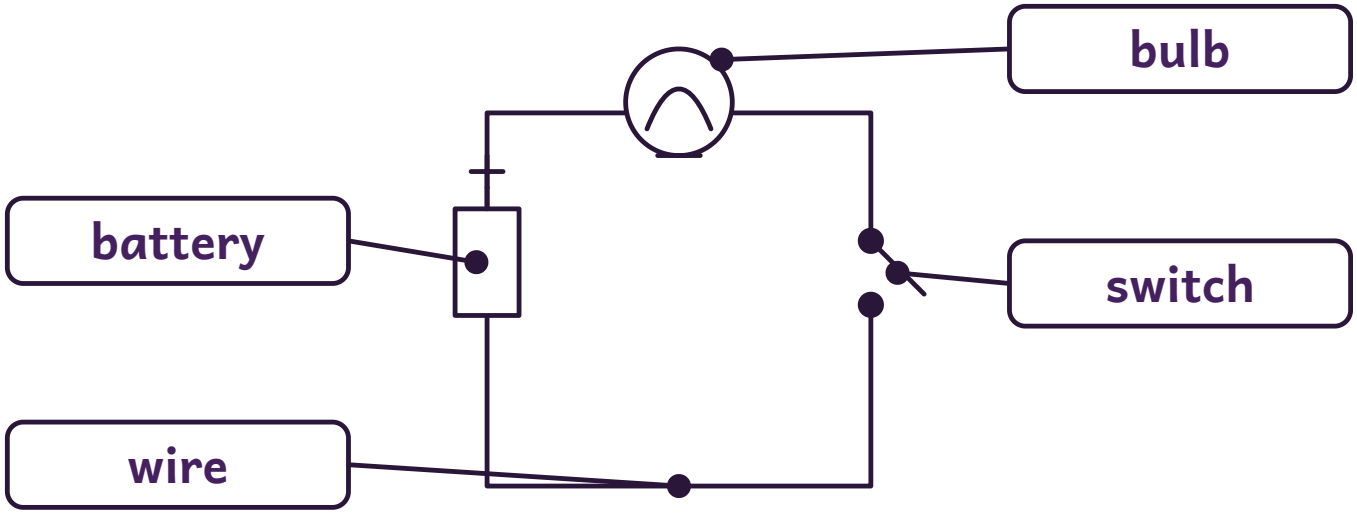
Answers for grown-ups. Some questions have more than one good answer.



Word bank

battery · wire · bulb · switch

1. Label the parts of the circuit.



Electricity flows from the **battery** through the **wire**, lights the **bulb** and comes back to the battery. The loop is called a **circuit**. The **switch** opens or closes the loop.

2. What gives the circuit its power? the battery

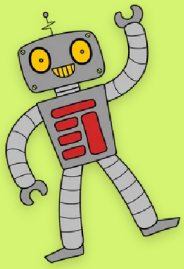
3. What happens to the bulb when the switch opens the loop? it goes out

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ANSWER KEY · ELECTRICITY AND CIRCUITS · GRADES 3–5

Answer Key: Will the Bulb Light?

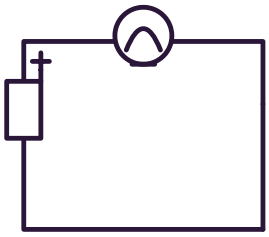
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A bulb lights only when the circuit is **closed**: a complete loop from the battery, through the bulb and back. A gap anywhere means an **open** circuit.

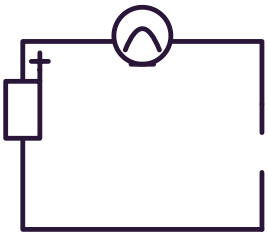
1. Will the bulb light? Circle Yes or No.

1



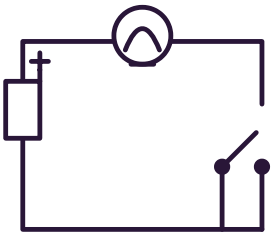
Yes No

2



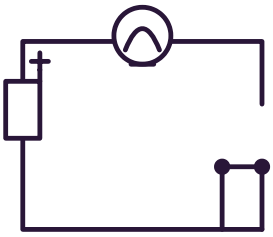
Yes **No**

3



Yes **No**

4



Yes No

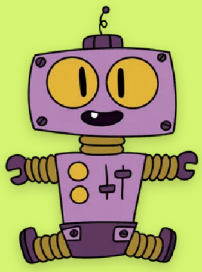
2. Why does a bulb go out when the circuit is open? Why does a light switch in your house work the same way?

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ANSWER KEY · ELECTRICITY AND CIRCUITS · GRADES 3–5

Answer Key: Conductors and Insulators

Answers for grown-ups. Some questions have more than one good answer.



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1. Write each material in the right column.

a penny · wooden spoon · a metal key · rubber glove · aluminum foil · plastic ruler · steel paper clip · glass · a dry cotton sock · copper wire

Conductors	Insulators
copper wire	rubber glove
aluminum foil	plastic ruler
steel paper clip	wooden spoon
a penny	glass
a metal key	a dry cotton sock

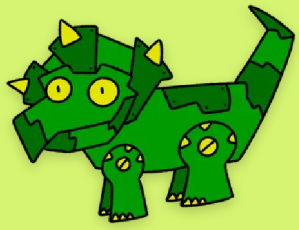
2. Why are electrical wires covered in plastic?

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ANSWER KEY · ELECTRICITY AND CIRCUITS · GRADES 3–5

Answer Key: Electrical Safety

Answers for grown-ups. Some questions have more than one good answer.



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