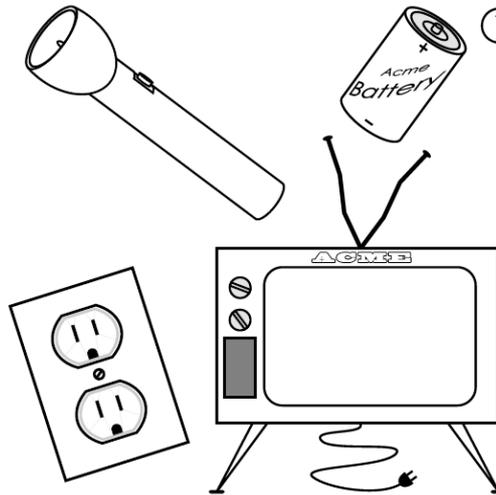


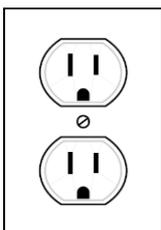
ELECTRICITY



Electricity is a mysterious force. We can't see it like we see the sun. We know when it is working, but it is hard to know exactly what it is.



Electricity does a lot of work for us. We use it many times each day. It lights our homes, warms and cools our rooms, and helps us keep them clean. It runs our TVs, video games, computers... it cooks our food and washes the dishes. It can even run our cars. We use more electricity every year.



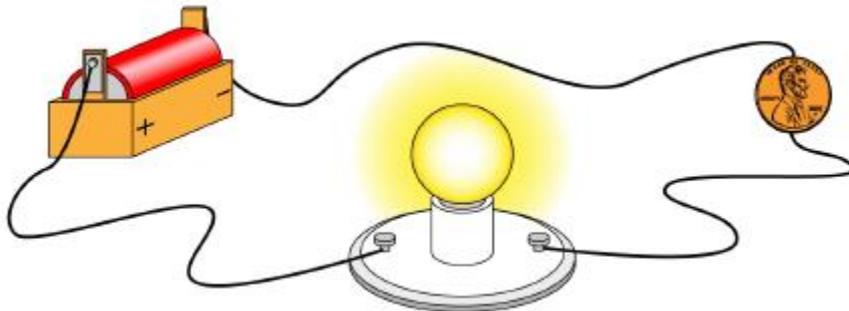
The type of electricity that is used to power things we use is called current electricity. Current electricity is electricity that flows through wires. The path that electricity follows is called a circuit.

Conductors and insulators

A conductor is a material that allows electricity to flow through it.

An insulator is a material that electricity cannot flow through.

To determine whether an object is a conductor or insulator, you can build a simple circuit with a battery, light bulb, and three pieces of wire.



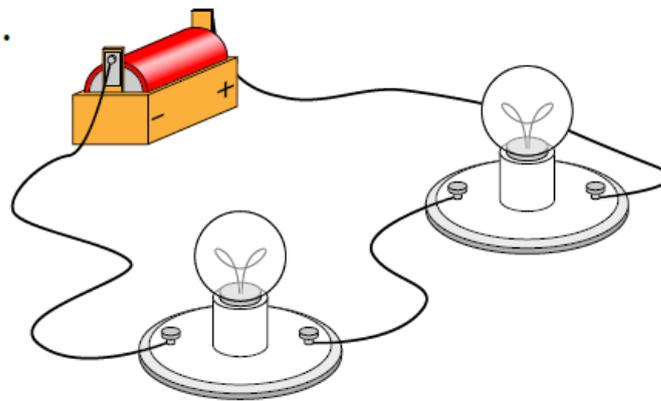
Touch the free ends of the wire to the objects you are testing. If the light bulb lights up, the object is made from a conductor. If it does not, the object is made from an insulator.

Complete the table. Predict whether each item is made from a material that is a conductor or insulator. Then test each item to determine if it is made from a conductor or insulator.

Object	Prediction: Conductor or Insulator?	Result: Conductor or Insulator?
Rubber band		
Coin		

Elastic band		
Key		
Clip		

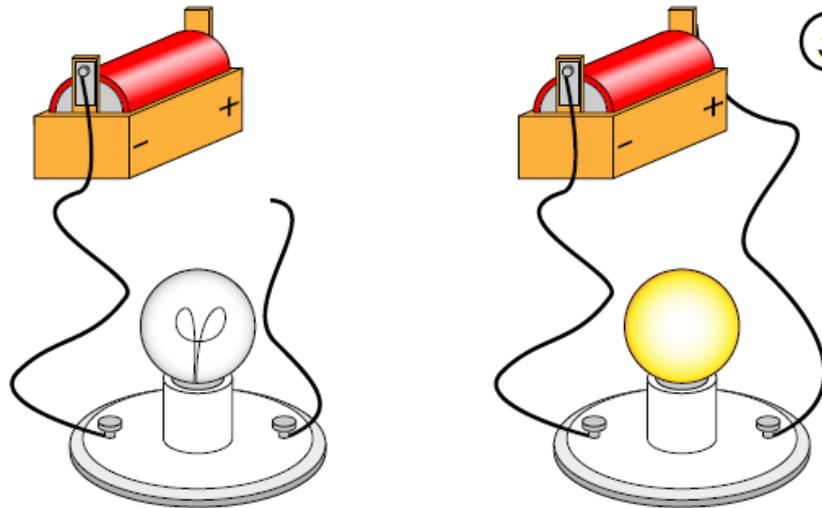
Electrical circuits



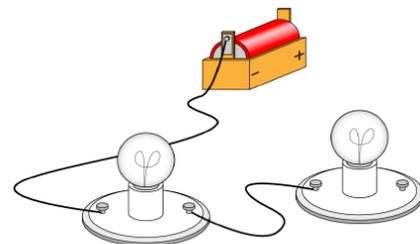
This picture shows a circuit. Electricity flows the negative side of a battery, through the wires, and lights the bulb. The electricity continues to travel around to the positive side of the battery.

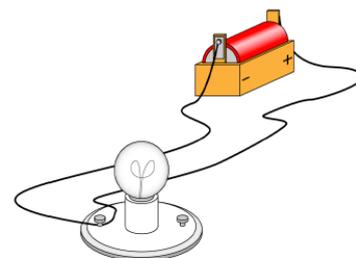
Draw arrows on the picture above to show the path of the electricity.

A circuit can be open or closed. When a circuit is closed, it is complete and there is no break in the path that the charges must follow. When a circuit is open, it is complete and charges can't flow through.

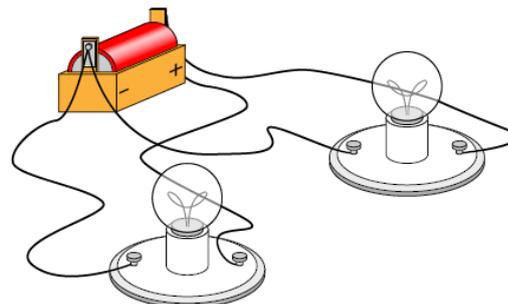
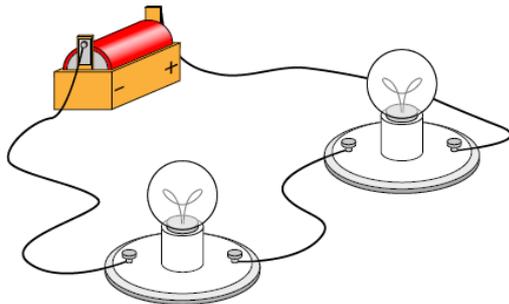
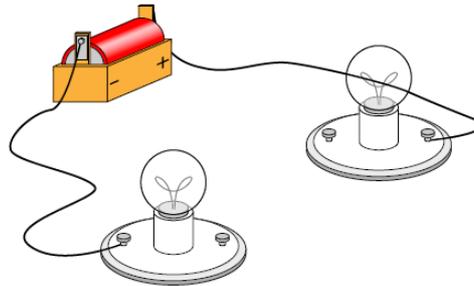
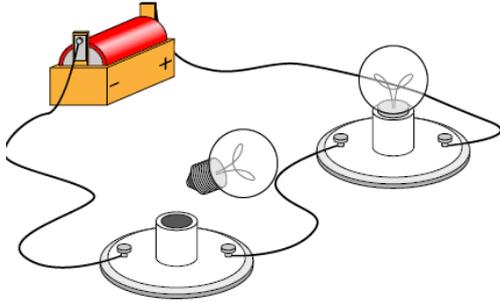


Explain why the light bulbs won't light in the circuits pictured on the right.



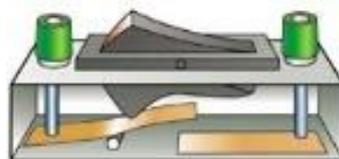


Tell whether the light bulb or bulbs will light or will not light according to the circuit.



What is a switch?

A switch is sometimes added to a circuit. The switch opens and closes a circuit to turn resistors on and off.



Closing it joins the contacts together and lets the current flow through.

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