

117.983

Electric Current Tester

TÜV Hessen Kids



Tools			
1	Hammer		
Material			
1	Base Plate	1	Battery Clip
1	LED Diode	4	Thumbtacks
1	Resistance (390 Ohm)	2	Paper Clips
1	Battery	1	Rubber Ring

Current Tester

Every day we use electric energy.



In transmission lines the electricity is conducted to villages and cities and in our homes to cables inside the walls to the power sockets.

This electricity is very dangerous!



Electric energy is very useful. It is easily conducted everywhere.

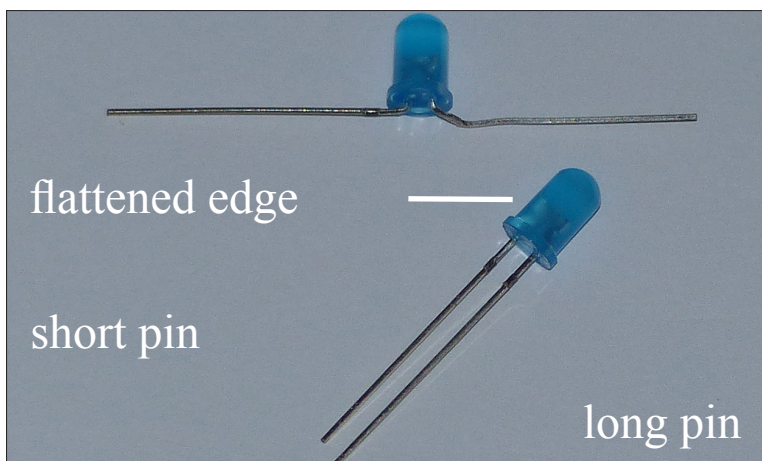
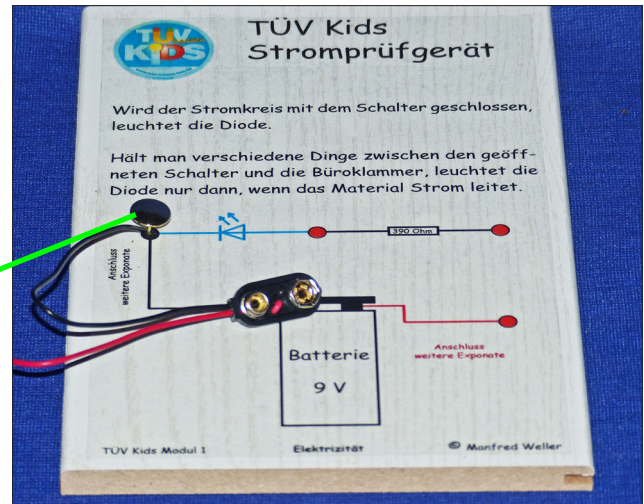
It is not possible to see electricity, we can only feel it and then it will be late most of the time.

Therefore we will only make experiments with batteries, this electricity is not dangerous for us.

Only certain objects conduct electricity. We want to know this exactly and therefore construct a current tester with an LED signal light.

Glue the template to the base plate and mark the four holes with thumbtacks.

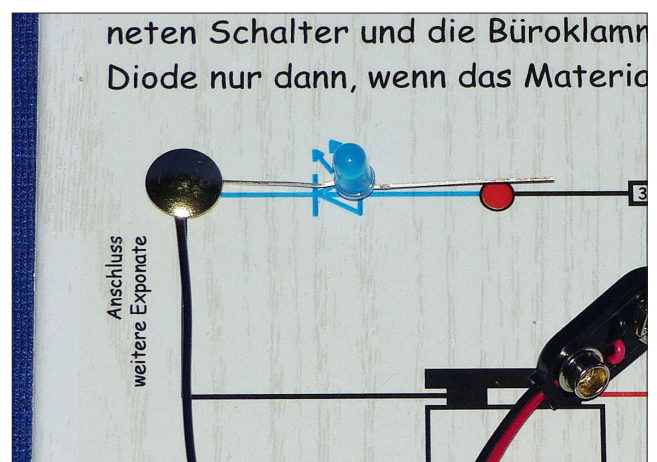
Insert the stripped **end** of the black cable into the first hole and loosely insert a thumbtack with it.



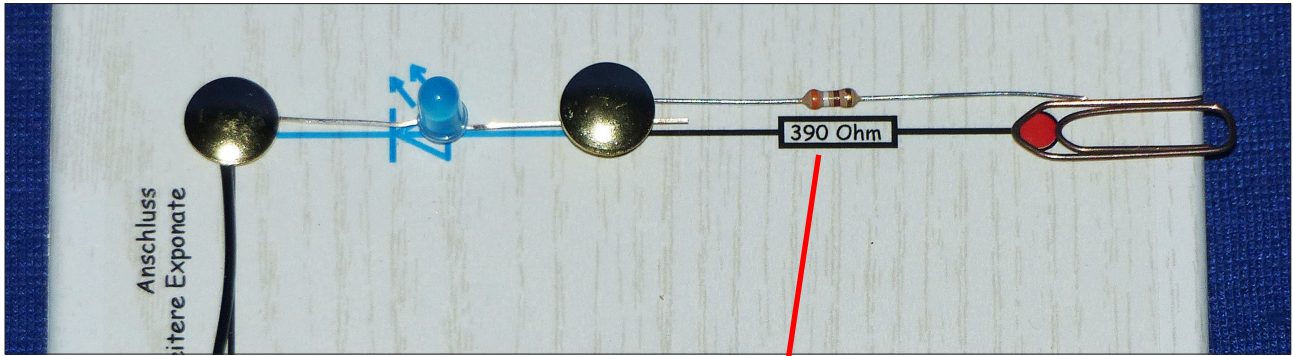
LEDs (as shown in the picture, colour can be different) have a short and a long connection pin. On the short pin side the edge is somewhat flattened.

LEDs conduct electricity only in one direction. You always must connect the short pin to the black cable.

Bend up the pins until they do the splits.

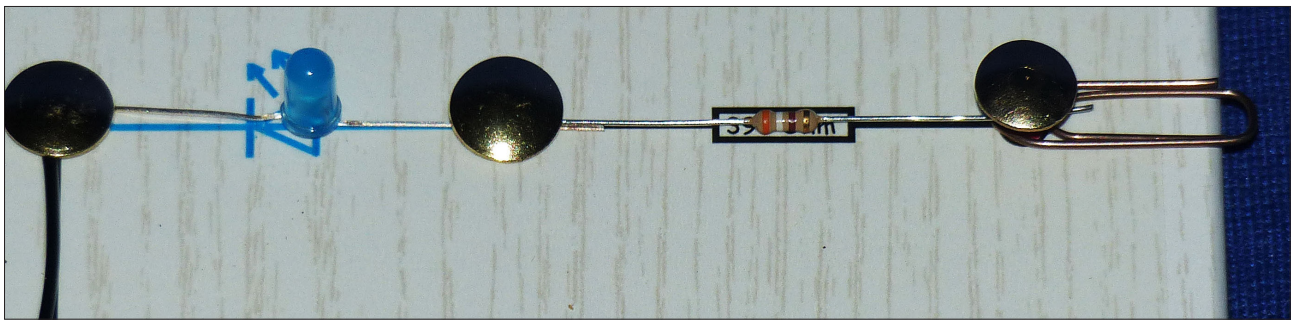


Hold the end of the short pin underneath a thumbtack and hammer it to the board.

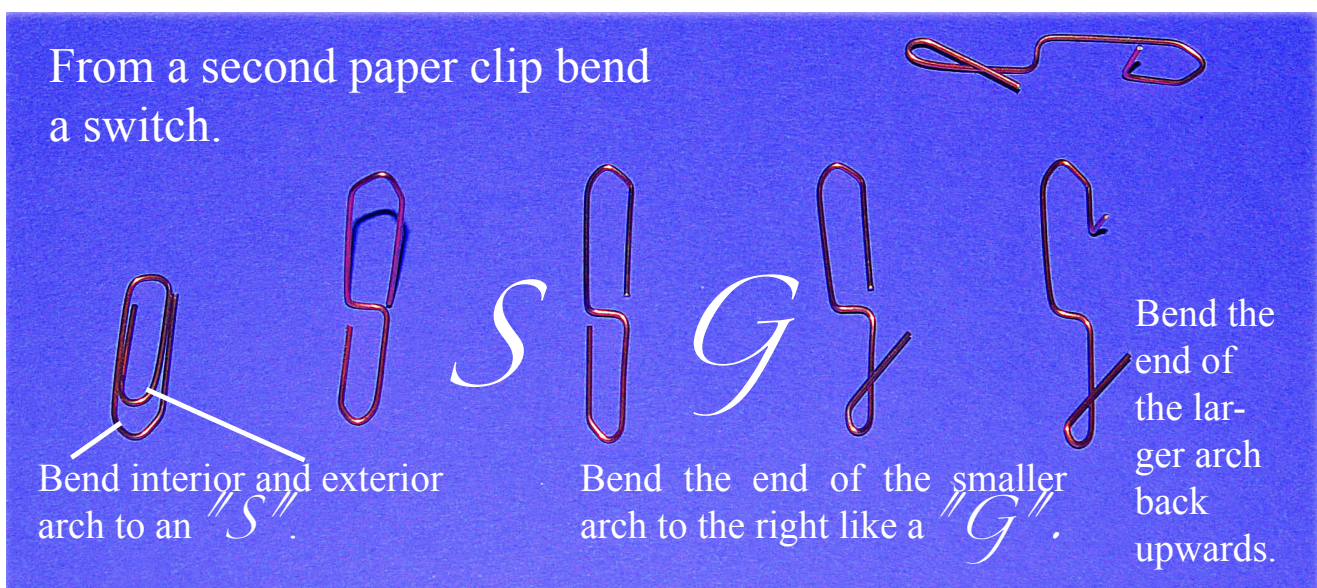


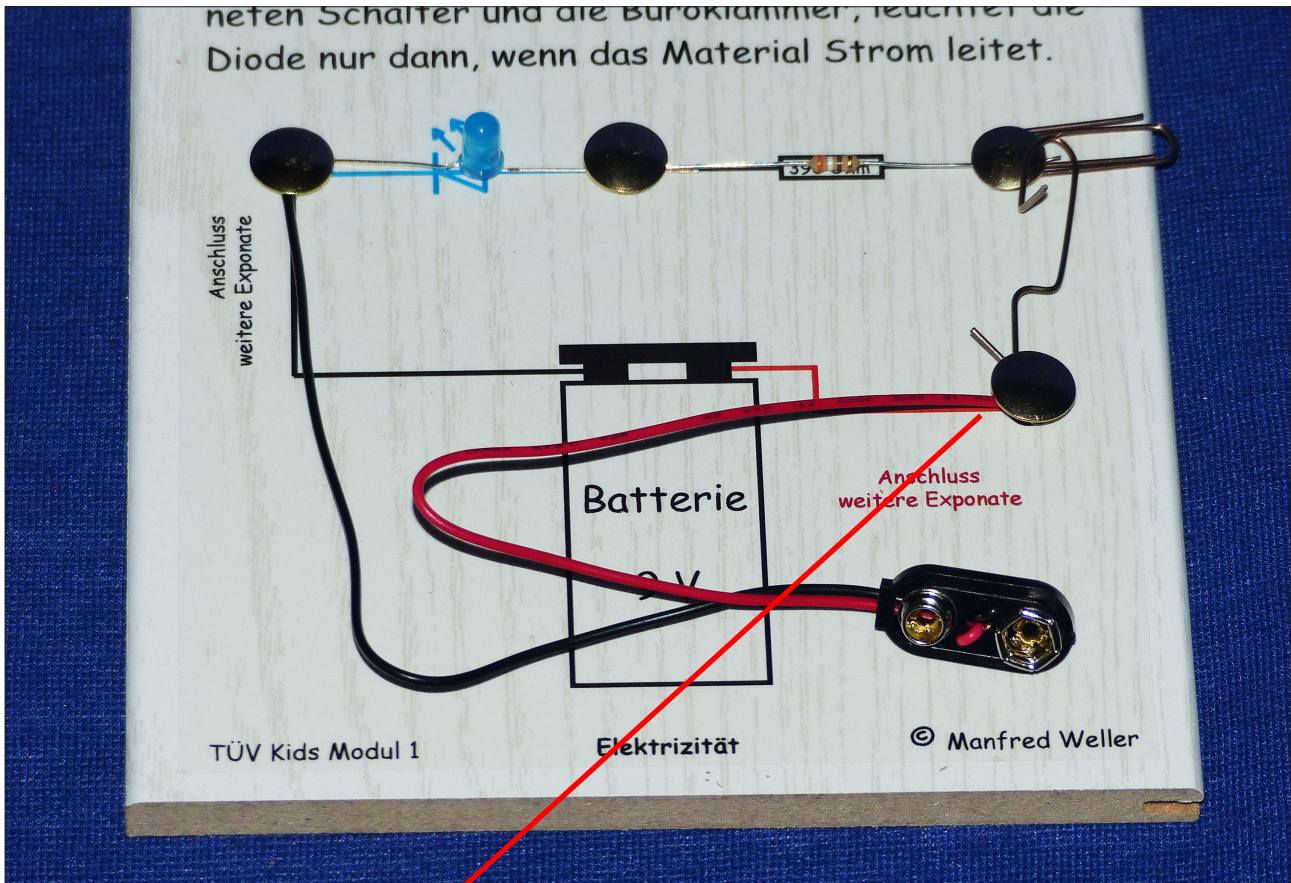
If you connect an LED to a 9 volt battery you must insert an electrical **resistance** in between, otherwise the diode will blow.

This resistance has 390 ohm, the electrician will know this from the coloured red rings.

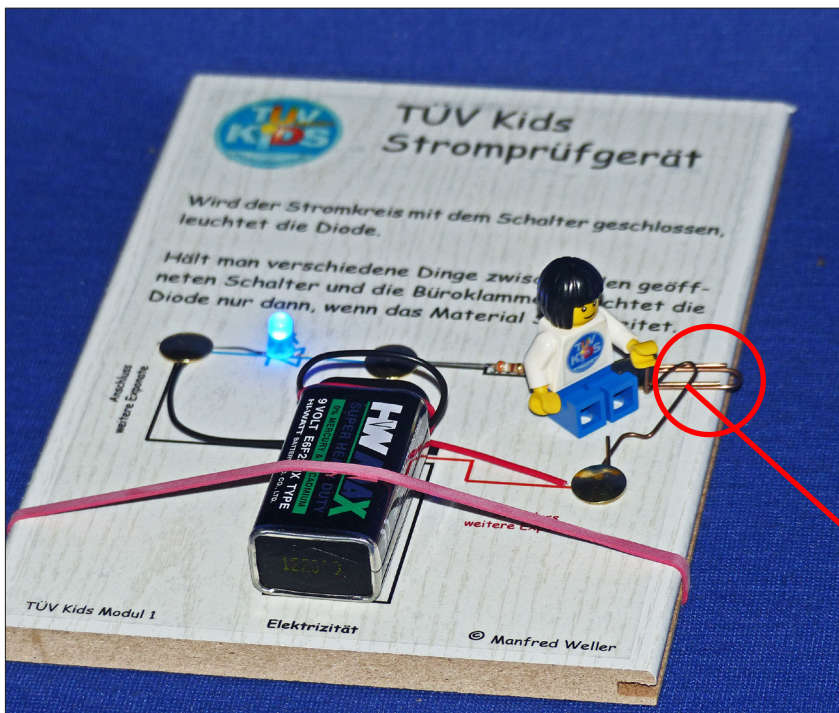


Insert the thumbtack into the **eyelet of a paper clip** and together with it also hammer the resistance.



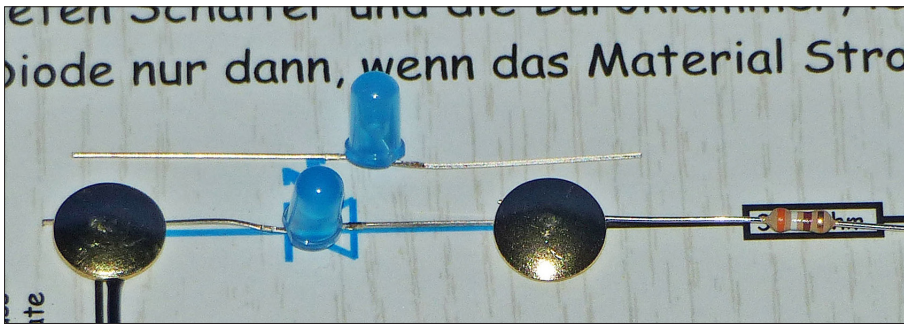


Insert the **stripped end** of the red cable into the prepunched hole. Insert a thumbtack through the eyelet of the switch and hammer it into the hole with thumbtack and contact of the red cable touching each other.



Connect the battery and fix it tight to the board with a rubber ring.

If you have assembled everything correctly, the diode will glow if you turn the switch **in direction of the thumbtack** until they touch.

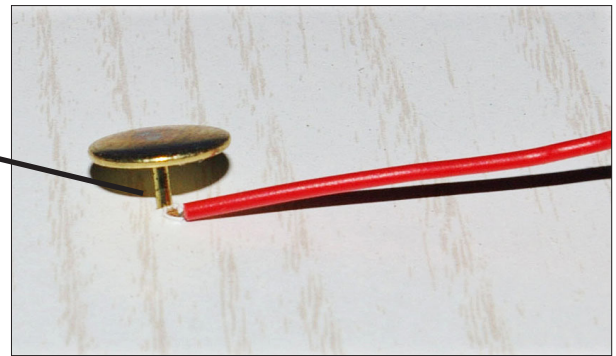


If you have closed the switch, but the LED does not glow:

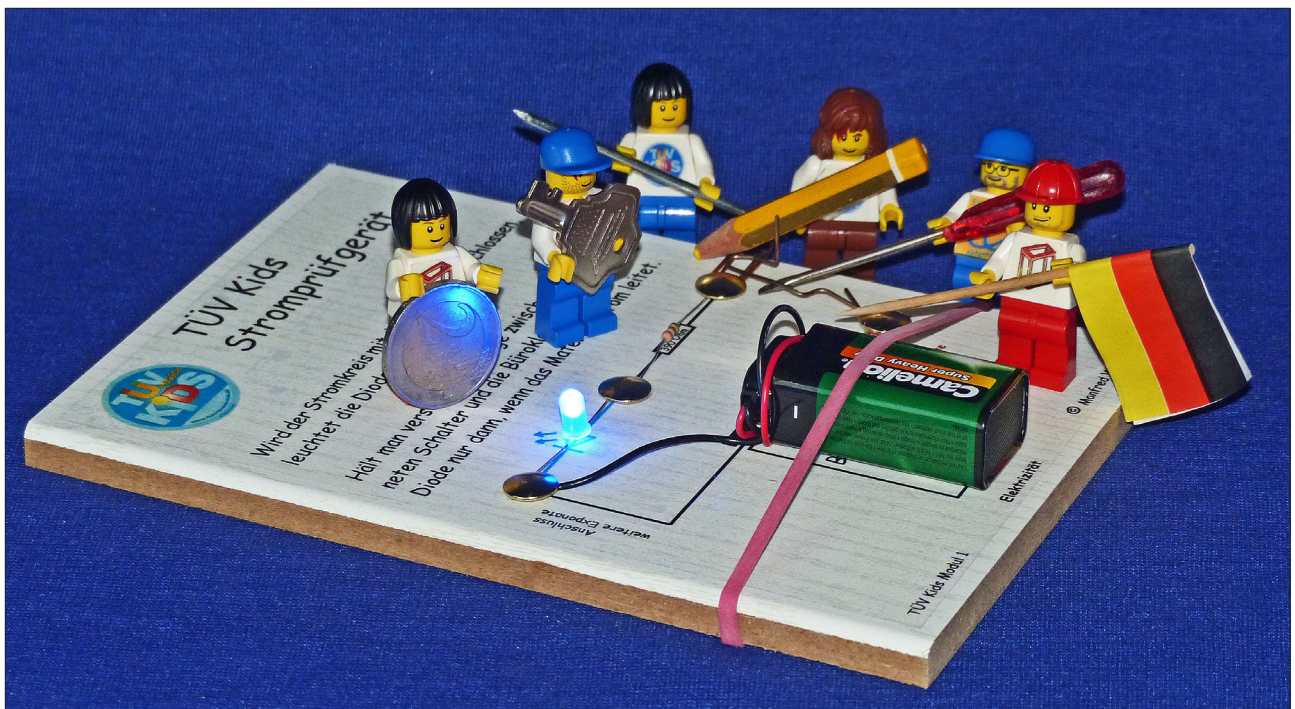
Check if the LED is mounted in the correct direction. Take it out cautiously and turn it around. The short pin connects to the black cable.

The thumbtack has no contact to the cable.

Pull out the thumbtack and take care that both parts touch inside the same hole.



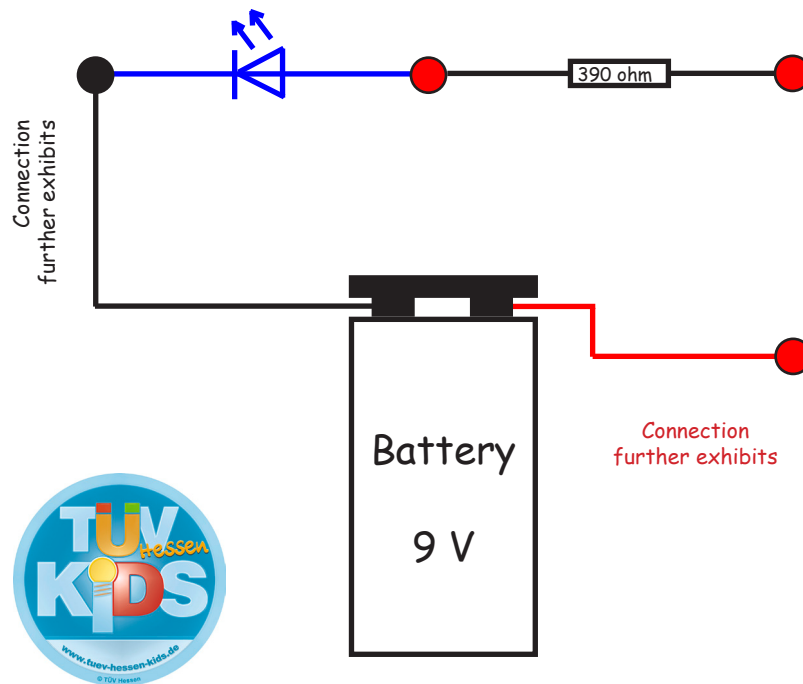
Test all kinds of objects placing them between the two paper clips. The diode always glows if the relating material conducts electricity.



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When the circuit is closed with the switch the diode will glow.

When different objects are placed between open switch and paper clip, the diode will glow only if the material conducts electricity.



TÜV Kids Module 1

Electricity ©Manfred Weller