

Diode (directed laboratory)

A bit of theory



A diode is a very simple component. We could make an analogy to a turnstile found at the entrance of some stores. As with the turnstile, the diode allows the electrical charges through in a single direction. On its symbol, at left, the arrow indicates the conventional direction of the electrical current (namely from the positive terminal to the negative terminal of the supply).

The most popular diodes are those that emit light. They are called light emitting diodes or simply LED. They are found as a indicator lights on many devices, like our Gaussmeter. They also make up the light segments on the display of a microwave. Some also emit light that is invisible to the naked eye. That is the case of our television remotes, which transmit using an infrared LED (have you ever looked at the end of your working TV remote with your cell phone's camera?)



Diodes do not all emit light, however. There are sturdier ones that allow the passage of much greater current than an LED does. They are used, among other things, to convert alternating current to direct current or simply to direct the current towards a device to supply it.



Using a light emitting diode

Materials 1	Assembly diagram 1
<ul style="list-style-type: none">• 1 (10 V) source• 1 resistor ($\approx 250 \Omega$)• 5 alligator clip wires• 1 red LED• 1 green LED	

Manipulation 1

1. Assemble the above circuit.
2. Adjust the power supply on, to 10V.
3. Interchange the two wires connected to the supply terminals several times.
4. Observe and note your observations.

Observations (manipulation 1)

Analysis of phenomenon 1

Question 1

Why do the LEDs behave as they do?

Question 2

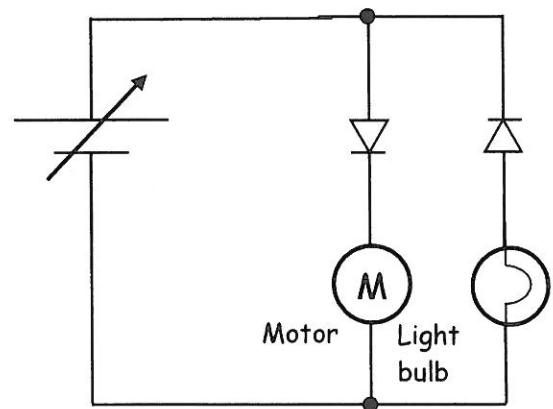
How do we recognise the negative electrode (cathode) of the diode?

Using an ordinary diode

Materials 2

- 1 (10 V) source
- 6 alligator clip wires
- 2 ordinary diodes
- 1 electric motor (about 10 V)
- 1 electric light bulb (about 10V)

Assembly diagram 2



Manipulation 2

1. Assemble the above circuit.
2. Adjust the power supply on, to 10V.
3. Interchange the two wires connected to the supply terminals several times.
4. Observe and note your observations.

Observations (manipulation 2)

Analysis of phenomenon 2

Question 1

What are the similarities and differences with the previous circuit made up of LEDs?

Conclusion (what is important to remember about diodes)
