

7.1. Induced EMF and current in a moving wire

Aim: to investigate the induced EFM and current in a moving wire.

Apparatus: from the Low-Tech kit you will need:

- digital multimeter,
- wire,
- strong magnet.

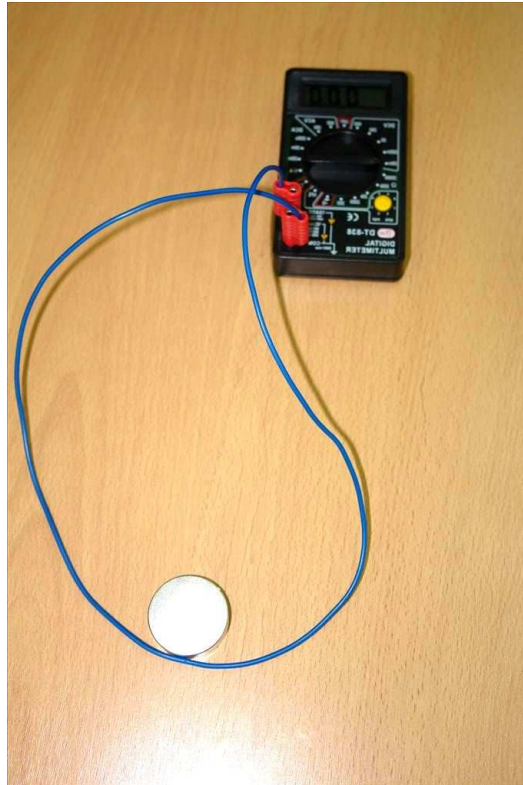


Photo 1. The experimental set-up for presentation the induced EFM and current in a moving wire.

Procedure:

Put on the table strong magnet and digital multimeter. Connect the wire to the multimeter to measure the voltage. Switch on the multimeter. Move the wire fast across a magnetic field. What can you observe?

Explanation:

When a wire is moved across a magnetic field, a small EMF (voltage) is generated in the wire. The effect is called Faraday's electromagnetic induction. If the wire forms part of a complete circuit, the EMF makes a current flow. The small voltage can be measured by digital multimeter. The induced EMF (and current) can be increased by:

- moving the wire faster,
- using the stronger magnet,
- increasing the length of wire in the magnetic field – for example by looping the wire through the field several times.