

The Generator Effect

If a wire 'cuts' through magnetic field lines, a voltage is *induced* in the wire.

If the wire is part of a complete circuit, then a current will flow in the wire.

The direction of the induced current can be found using the right hand rule (fingers same as left hand rule).

The Generator Effect

A voltage is only induced if the wire 'cuts' across the field.

There is no induced voltage if:

- **the wire does not move**
- **the wire moves in the direction of the field**

The Generator Effect

How might you increase the induced voltage (and hence current)?

increase magnetic field strength

move wire faster

i.e. the rate at which you cut through field lines.

Experiment

A voltage can be induced in a coil as well as in a straight piece of wire.

Try to induce a voltage in a coil using a magnet and see what factors affect the size and direction of the voltage.

Inducing a voltage in a coil

A voltage is induced in a coil when the magnetic field inside the coil changes.

The faster the field changes, the greater the induced voltage.

