

Build your own generator

Introduction

Almost all of the methods that we use to produce electricity make use of a generator. These devices involve a conductor, which usually a coil of wire, moving through a magnetic field. The magnetic field creates a potential difference (voltage) across the conductor, which then causes a current to flow.

The next section will show you how to build your own simple generator.

What you need

- Two 11 cm diameter stiff cardboard or 'corriflute' discs
- Four neodymium disc magnets, about 15 mm diameter and 5 mm thick
- A 25 cm length of 10 mm diameter wooden doweling
- A 5 cm length of plastic or metal tubing which will slide easily along the wooden doweling without being too loose or too tight
- 100 m of 24 gauge enamelled copper wire
- A hot glue gun
- Two retort stands and clamps
- A voltmeter and ammeter
- Jumper leads and crocodile clips
- A 6 V light bulb and holder

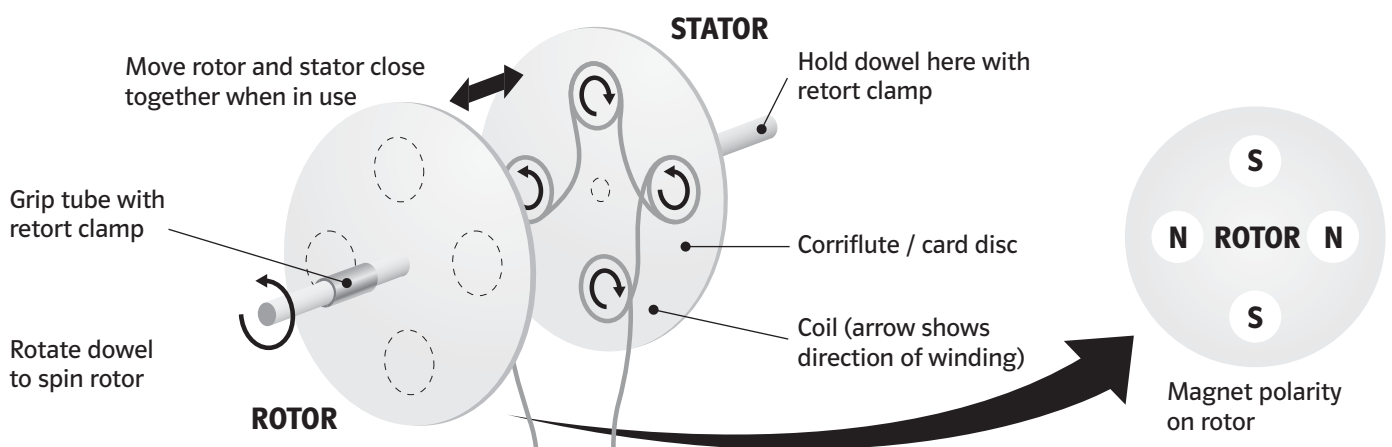
Building the generator

The diagram below shows how to put together the main parts of the generator. The most important things to remember are to get the magnets facing the correct way and to wind the coils tidily.

Using the generator

Spinning the disc with the magnets on (the rotor) should cause a current to flow through the coils on the fixed disc (the stator).

Connect up a circuit to measure the voltage and current produced by your generator.



Extension tasks

- Calculate the power produced by your generator.
- What can you do to increase the voltage produced by your generator?
- How could you make your generator more efficient?
- Design a device which will run on renewable energy and spin your generator.