



Concept:

As the generator's handle is rotated, geared sprockets inside the case cause an axle to rotate. Connected to the axle is a loop of wire that rotates within the magnetic field between the opposite pole faces of two permanent magnets. Unfortunately, these small components are not visible within the generator. As the loop rotates in the magnetic field, the magnetic flux through the area enclosed by the loop changes with time, producing an electromotive force (emf). The emf generates a current that lights the bulb, in accordance with Faraday's Induction Law.

Connecting two generators together, and operating one of them as a generator and the other as an energy collector or motor can be used to explore the concept of efficiency. As the handle of one generator is turned, the handle of the other generator collecting this electrical energy will turn, but at a lower rate.

Procedure:

1. Turn the hand-crank to generate electricity and light the lamp.
2. To explore the concept of electrical transmission efficiency, connect two generators together with two wires. Note that if the driven generator handle is rotated ten times, the collector generator will only rotate approximately seven times, indicating a 70% efficiency.

Equipment:

1. Genecon hand-operated generator
2. Genecon wire connector
3. Miniature lamp socket and leads
4. Miniature lamp
5. Optional: Second connector and generator