

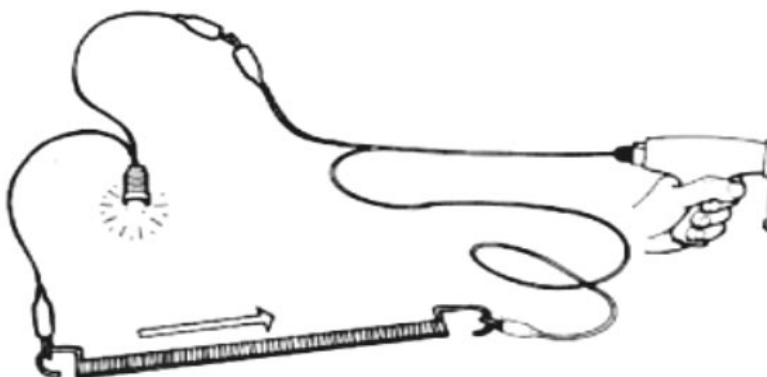
ACTIVITY No 9

Variable Resistor

Materials: Genecon with output cord
1 bulb (3.8V, .3A) in socket with leads
nichrome coil
* pencil

Procedure:

1. Connect one lead from the Genecon to one end of the nichrome coil. The other lead should be attached to one of the leads from the bulb. The remaining lead from the bulb can be connected to the opposite end of the nichrome coil (see sketch below).
2. Rotate the handle of the Genecon at a constant speed and observe the brightness of the bulb.
3. While continuing to operate the Genecon at a constant speed, have another student **slide** the lead from the bulb back and forth along the length of the nichrome coil. Observe the effect on the brightness of the bulb.



Key Concepts:

1. Resistance to the flow of electricity by a conductor increases with the length of the conductor; i.e., resistance is directly proportional to length.
2. Observed changes in the brightness of the bulb reflect corresponding changes in the voltage supplied to the bulb.
3. The nichrome wire in the activity serves as a variable resistor or **rheostat** (a device for adjusting the current supplied to an appliance).

Teaching Tips:

1. For an interesting variation of this activity, you will need a pencil. The teacher should expose the entire length of graphite core by cutting away the top layer of wood.



2. The length of graphite may then be substituted for the nichrome coil in the procedure described above, with similar results.
3. Pencil “lead” is really made of graphite, a form of carbon which is a conductor of electricity.