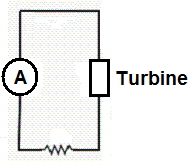
**Theory**

The electrical power is given by the relation P=I2R where P is the power in Watts, I is the current in Amps, and R is the resistance in Ohms.



The electrical power generated by a hand turbine can be   
calculated using following series circuit by measuring the   
current through the ammeter provided that the value of

the resistor is known,

**Materials & Procedure**

Materials:

* Hand Turbine
* Solenoid Coil (Resistor)
* Ammeter
* 2 Connecting wires with alligator clips
* Multi-Meter

Procedure:

1. The resistance of the solenoid coil was measured using the multi-meter.
2. The circuit was assembled according to the circuit diagram provided above.
3. The ammeter was connected using the 500 mA scale. Care was taken to make sure that the black and red terminals were connected to measure a flow of current in a positive direction.
4. The hand turbine was rotated at a frequency of 0.5 cycles per second (5 cranks in 10 seconds) and the current in the circuit was measured and recorded.
5. The hand turbine was rotated at a frequency of 1.0 cycles per second (10 cranks in 10 seconds) and the current in the circuit was measured and recorded.
6. The hand turbine was rotated at a frequency of 1.5 cycles per second (15 cranks in 10 seconds) and the current in the circuit was measured and recorded.
7. Power was calculated for each turbine rotation frequency.
8. Analysis questions were answered.

**Data & Analysis**

1. Create a data table to organize your measurements of current for the three rotation frequencies.
2. Calculate the power generated for each rotation frequency.
3. Determine if there is a relation between rotation frequency and power generated.