Generator

LIFELAB

SCIENCE IS AN ATTITUDE

Content:

Generator (level 8th to 10th)

Key learning:

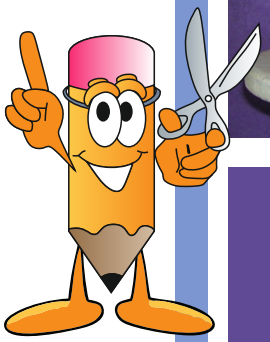
Making a Generator will help us understand that:

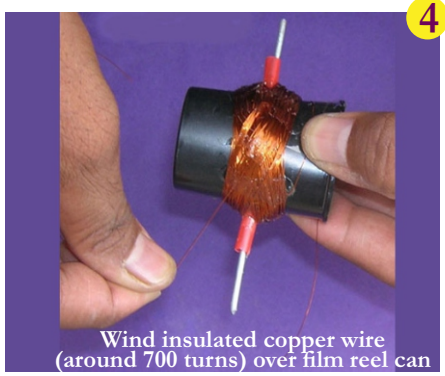
- a generator is a device that converts mechanical energy into electrical energy based on the principle of Faraday's law of induction.

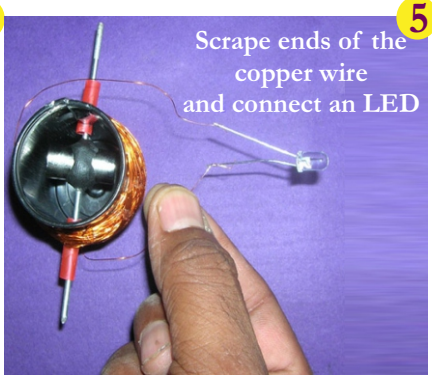
Safety:

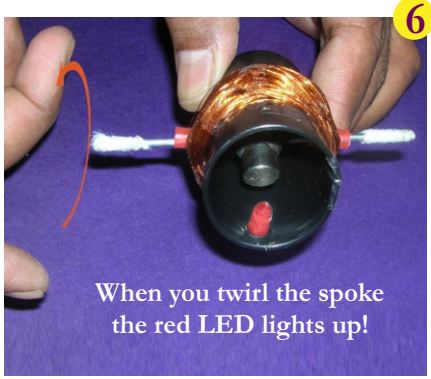
Be careful while handling with scissors & cutters.

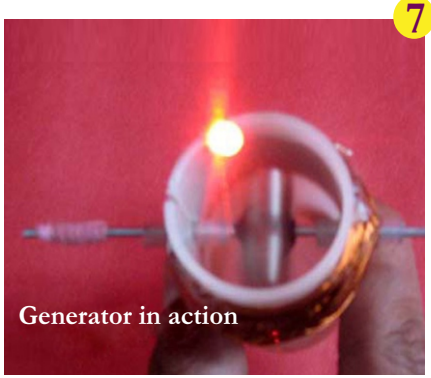
Activity Procedure:











Summary:

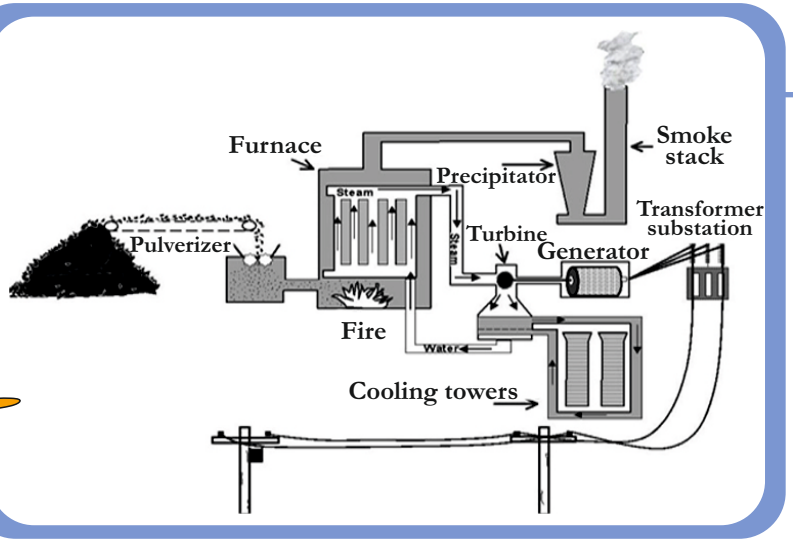
In a generator, the mechanical action (of hand) changes the magnetic field across the coils wound over. This change in magnetic field with time results in an electromotive force **(emf)** induced in the circuit. This induced **emf** causes the electrons to flow in the coil. Hence, electricity is generated and the LED glows!

Think :

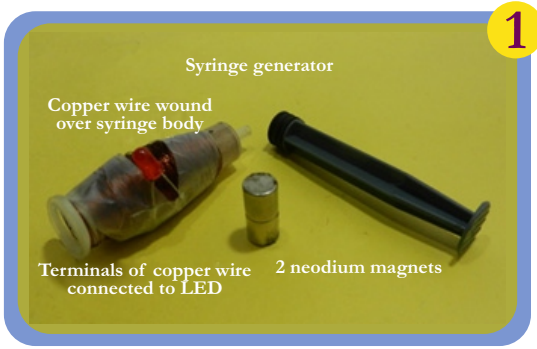
Keeping Faraday's Law of Induction in mind, what are the factors that affect the brightness and frequency of LED?

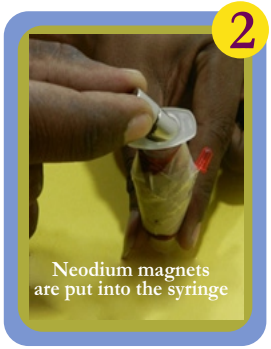
Relate:

Faraday's Law of Induction is the fundamental operating principle based on which electricity is generated on a commercial level by industrial generators. A basic flow chart of Thermal Power plant is given:



Alternative:





References:

Definition of electromotive force: http://en.wikipedia.org/wiki/electromotiveforce
Faraday's Law of Induction: http://en.wikipedia.org/wiki/Faraday%27s_law_of_induction
Image source and detailed explanation: http://www.uky.edu/KGS/coal/uses_of_coal.htm
Design procedure for Syringe generator: http://www.arvindguptatoys.com/toys/gen.html