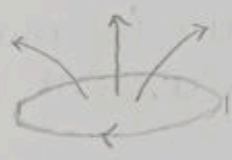
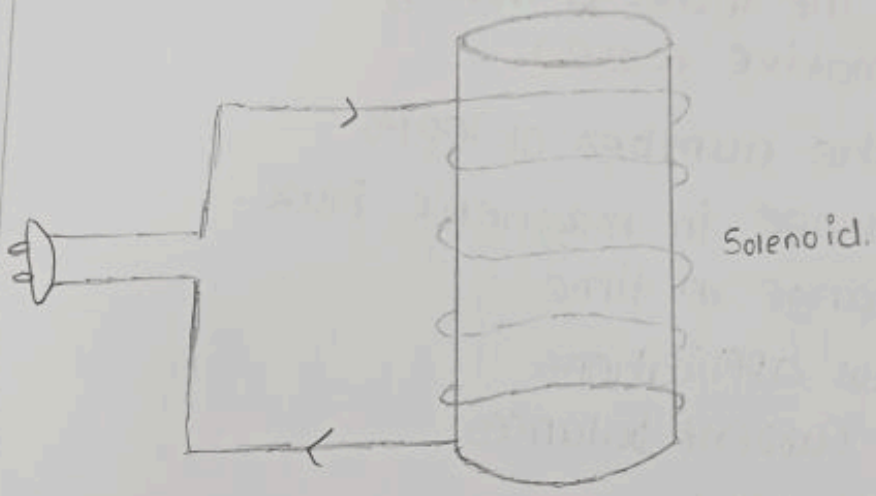
Physics presentation.

name - Solunke aniket bhausaheb
Roll NO - 2022255

* The "jumping ring" demostration. If you wind a solenoidal coil around an iron core (the iron is there to beef up the magnetic field), place a metal ring on top, and plug it in, the ring will jump several feet in the air Why?





Before you turned on the current. the flux through the ring was zero. Afterward a flux appeared (upward, in the diagram), and the emf generated in the ring led to a current (in the ring) which, according to Len's law. was in such a direction that its field tended to cancel this new flux. This means that the current in the loop is opposite to the current in current in the solenoid. And opposite currents repel, so the ring flies off.

What is Lenz's law?

→ The induced electromotive force with different polarities induces a current whose magnetic field opposes the change in magnetic flux through the loop in order to ensure that the original flux is maintained through the loop when current flows in it.

$$Emf = -N\left(\frac{\Delta\phi}{\Delta t}\right)$$

Emf is the induced voltage (also known as electromotive force).

N is the number of loops.

$\Delta\phi$ change in magnetic flux.

Δt change in time.

lenz's law applications

1) Eddy current balances
2) AC generator.

Importance:

Lenz's law is used to determine the direction of the induced current.