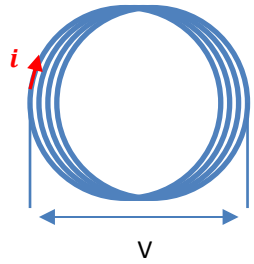
CONCEPT: ELECTROMAGNETIC INDUCTION



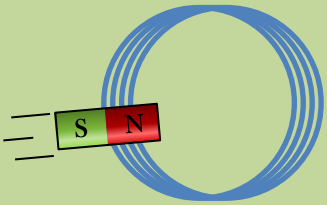
● A coil/loop of wire with a VOLTAGE across each end will have a current in it

- Voltage source isn't always a battery, voltage can be <u>created</u> → _____

● 3 common ways to INDUCE a voltage / current on a coil of wire:

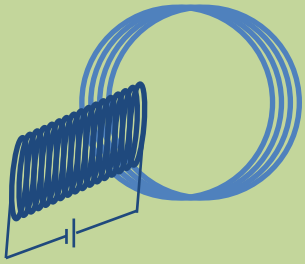
INDUCTION

1) Moving a bar magnet



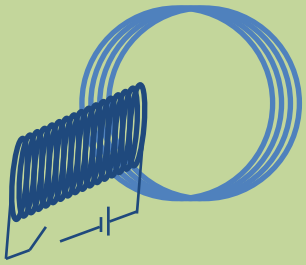
Bar Moving: [i_{ind} | **NO** i_{ind}]
Not Moving: [i_{ind} | **NO** i_{ind}]

2) Varying current i in electromagnet (solenoid)



i varying : [i_{ind} | **NO** i_{ind}]
i constant: [i_{ind} | **NO** i_{ind}]

3) Turning electromagnet on & off



Turn on/off: [i_{ind} | **NO** i_{ind}]
Kept on/off: [i_{ind} | **NO** i_{ind}]

● In all 3 cases, the _____ (**B**) is changing!

- Interaction between magnetism & electricity known as ELECTROMAGNETIC INDUCTION

● The magnitude of the induced current depends on how _____ these changes happen.

- Bar magnet moving into coil → Faster it goes, larger the induced current
- Current changing in electromagnet near a coil → Faster the current changes, larger the induced current