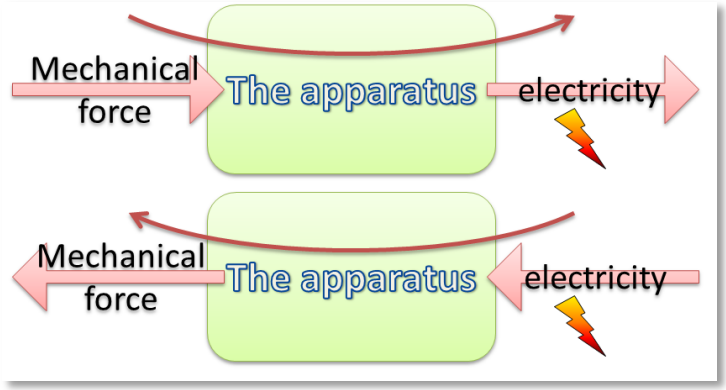
	Name :	Date :	
	How producing electricity *The DC motor*	Course 1ère – Tale Page 1on3	*Note :*

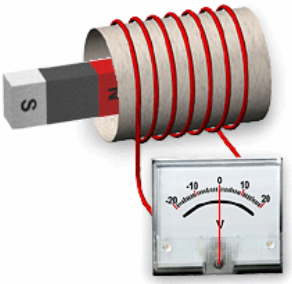
Introduction

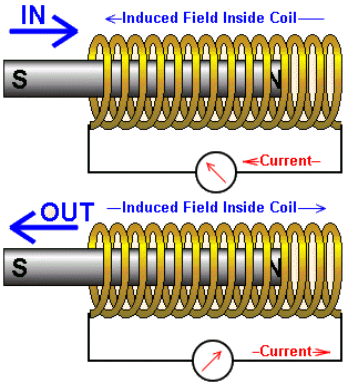
One way to produce electricity thanks to a mechanical energy such as: water flow, wind, steam… is to drive a generator. This apparatus is in fact like a DC motor (DC stands to direct current).



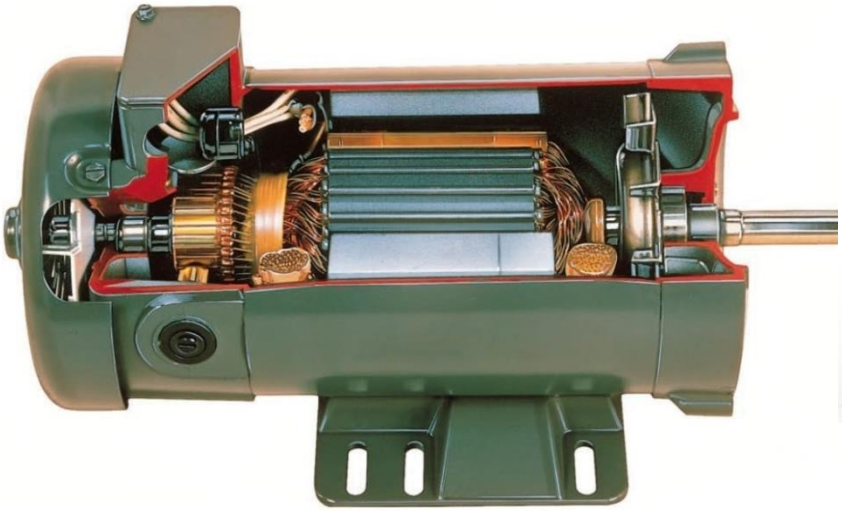
To understand how it works, we need to understand ***the Faraday's law***.

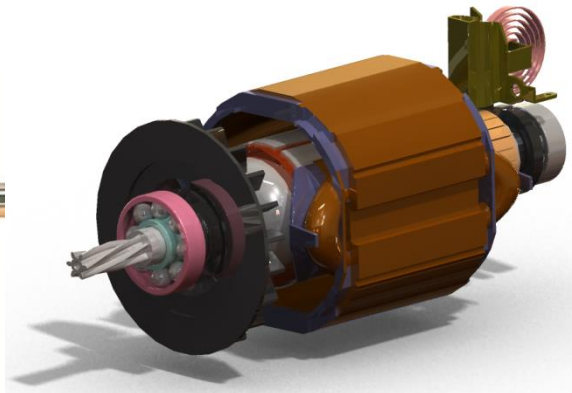
*Any change in the magnetic environment of a coil of wire will cause a voltage (**e**lectro**m**agnetic **f**ield) to be "induced" in the coil. No matter how the change is produced, the voltage will be generated. The change could be produced by changing the magnetic field strength, moving a magnet toward or away from the coil, moving the coil into or out of the magnetic field, rotating the coil relative to the magnet, etc.*





To put this in application, one way is to turn the wires inside a magnet instead of outside.



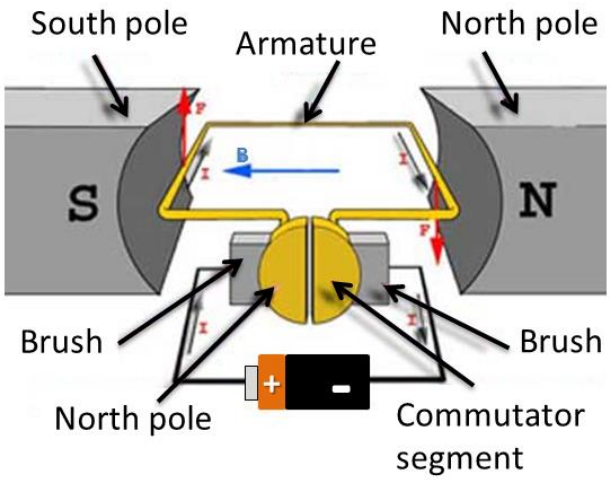


What's inside a DC motor?

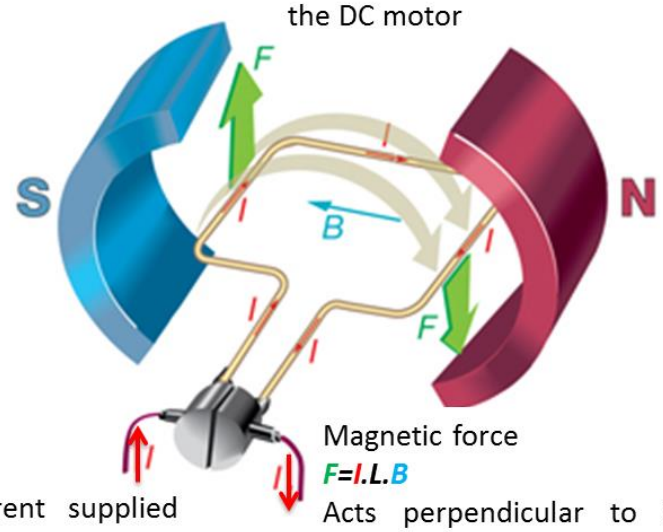
We will see the principle with a single coil. Coils are wound around the steel rotor to increase the torque produced.

On the left are a stator and a rotor without the copper coils.

Components:



When electric current passes through a coil in a magnetic field, the magnetic force produces a torque which turns the DC motor



Magnetic force
F=I.L.B
Acts perpendicular to both wire and magnetic field

Electric current supplied externally through a commutator

Description of the process:

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How producing electricity *The DC motor*	Course	*Note :*
	1ère – Tale	
	Page 3on3	