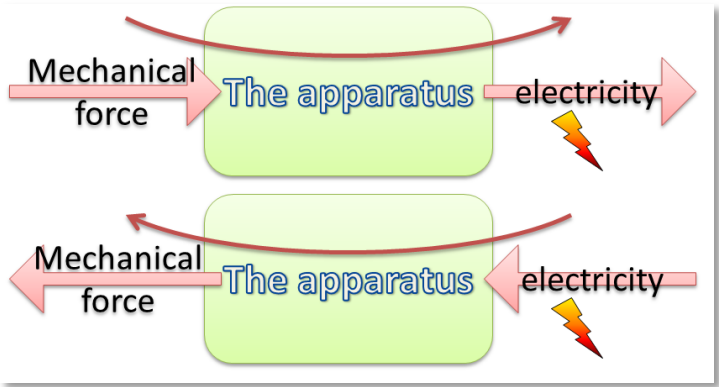
	Name :	Date :	
	How producing electricity <i>The DC motor</i>	Course	<u>Note :</u>
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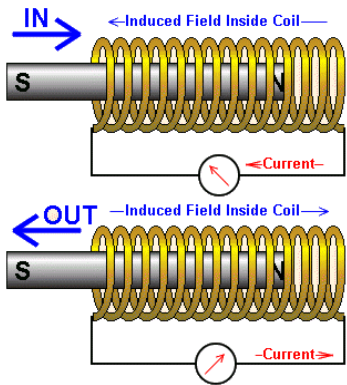
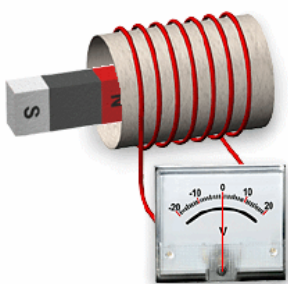
Introduction

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).

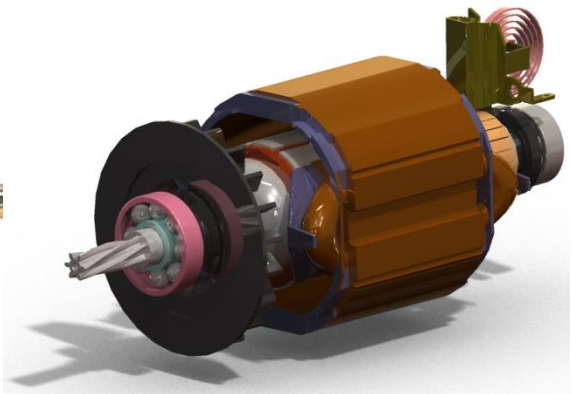
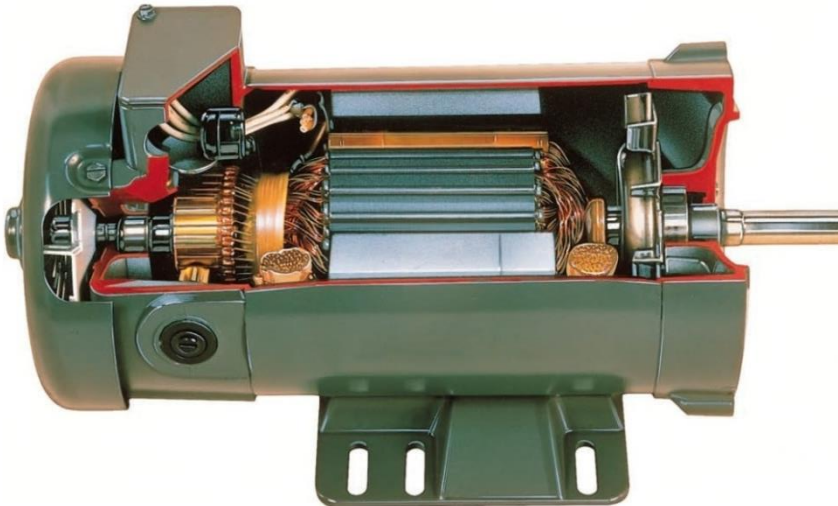


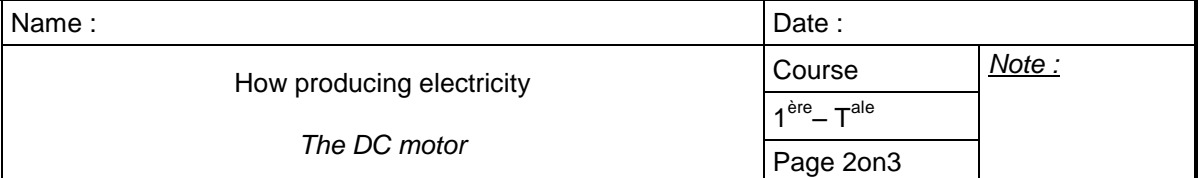
To understand how it works, we need to understand the Faraday's law.

Any change in the magnetic environment of a coil of wire will cause a voltage (electromagnetic field) 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.

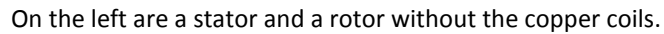


To put this in application, one way is to turn the wires inside a magnet instead of outside.

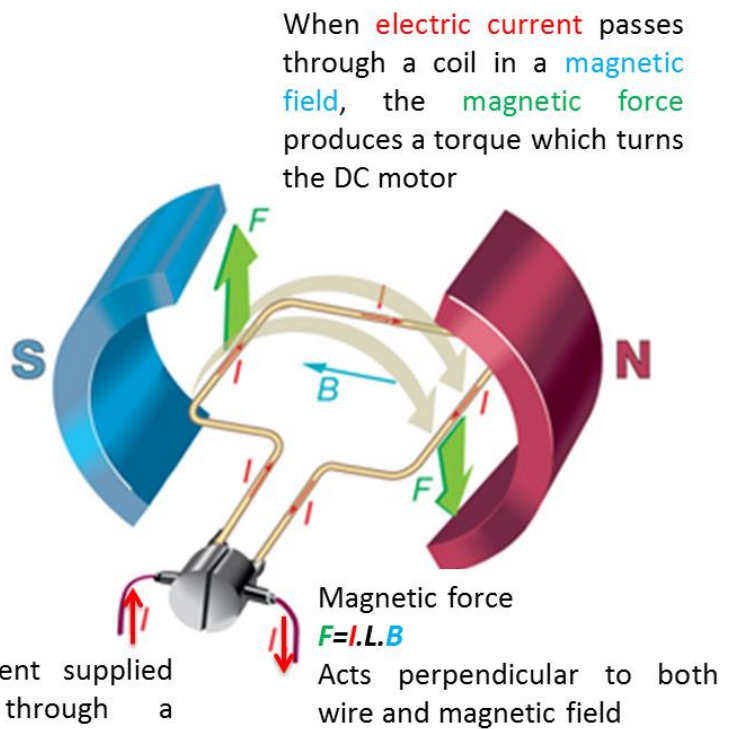




We will see the principle with a single coil. Coils are wound around the steel rotor to increase the torque produced.



A detailed diagram of a DC motor. At the top, two grey semi-circular magnetic poles are labeled 'South pole' (S) and 'North pole' (N). A yellow rectangular armature is positioned between them. A blue arrow labeled 'B' indicates the magnetic field direction from N to S. Red arrows labeled 'F' show the forces on the armature sides. Below the armature is a yellow split-ring commutator. Two grey brushes are in contact with it. Arrows labeled 'I' show current flow from the brushes through the commutator segments. At the bottom, a battery with '+' and '-' terminals is connected to the brushes. Labels with arrows point to 'Brush', 'North pole', and 'Commutator segment'.



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## How producing electricity

### The DC motor

Course

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Note :

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.