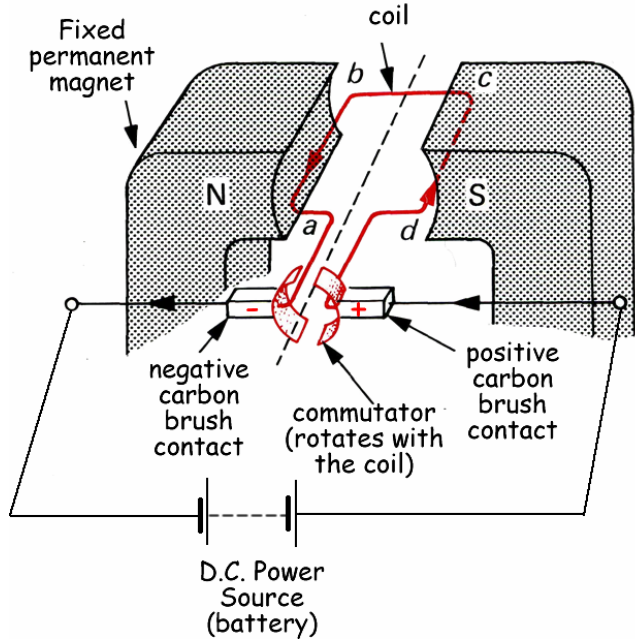
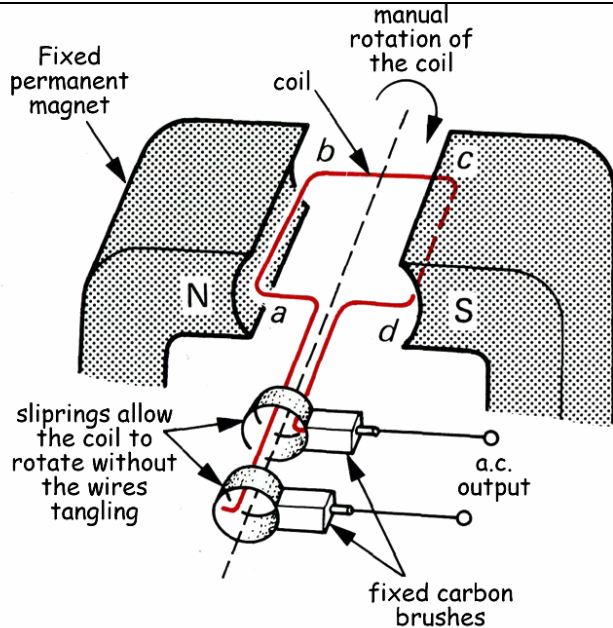
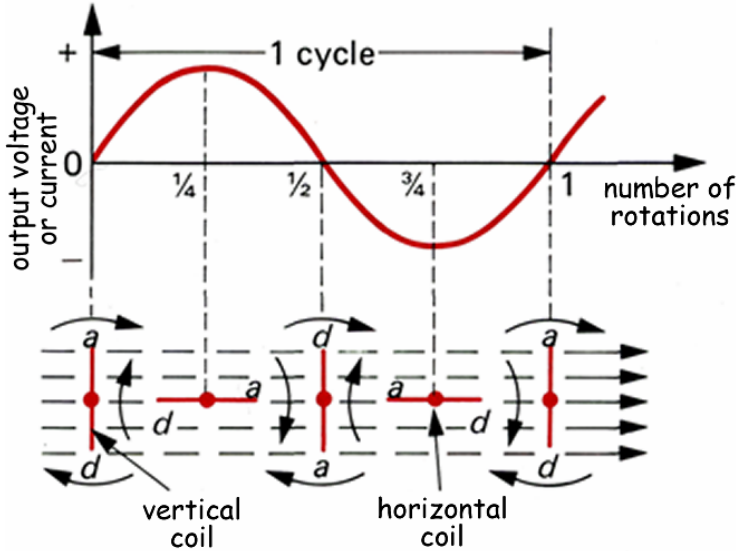


	SIMPLE D.C. MOTOR	SIMPLE A.C. GENERATOR (ALTERNATOR)
 Compare the motor and generator... Simples!!!		
How it works	The coil has a current passing through it. One face therefore becomes a north pole and the other face a south pole. This magnetic field from the coil interacts with the field of the fixed coil. The north face moves away from the north pole of the fixed magnet and towards the south pole. The commutator makes the current through the coil reverse direction each half turn to make the rotation continual.	Rotating the coil makes the strands of wire cut the flux lines of the fixed magnet. When it is horizontal it is cutting the most per second and induces the biggest voltage. When it is vertical it is travelling parallel to the flux lines and so no current is induced. (See the output graph on the next page).
Physical principle involved	Motor effect - force on a current carrying wire depends on the size of the current and the number of strands of wire.	Electromagnetic induction - voltage induced is proportional to the rate of cutting of flux lines. This depends on the area of the coil and the number of strands of wire.
Fleming Rule to use	Fleming's Left Hand Motor Rule (we drive motor cars on the left hand side of the road) is used to predict the direction of the force making the movement.	Fleming's Right Hand Dynamo Rule is used to predict which direction the induced current will flow.

	SIMPLE D.C. MOTOR	SIMPLE A.C. GENERATOR (ALTERNATOR)
Input	Current through the coil.	Rotation of the coil.
Output	Movement energy - rotation of the coil	Electrical energy - voltage across the coil that makes a current flow through the coil in response 
Fixed magnet	Both have a fixed magnet that produces a field in which the coil turns.	
Purpose	A motor has electricity (an electricity supply or battery) - it wants to produce movement to turn the motor.	A generator has movement (a turbine linked to wind or pedals) - it wants to use that movement to make electricity .
Changing the number of turns on the coil	With both if you have more turns on the coil the output increases.	
Changing the strength of fixed magnet	With both if you use a stronger fixed magnet the output increases.	
What allows the free turning of the coil	Brush contacts with the commutator allow the coil to turn freely.	Brush contacts with the slip-rings allow manual tangle free turning of the coil
Current relationship to the rotation of the coil	If you increase the input current the motor turns faster.	If you turn the coil faster the output current increases.
Principal wasted energy form	Heat - in the coil (from electrical heating - bigger current more heat) and from friction at the contacts where it turns	