

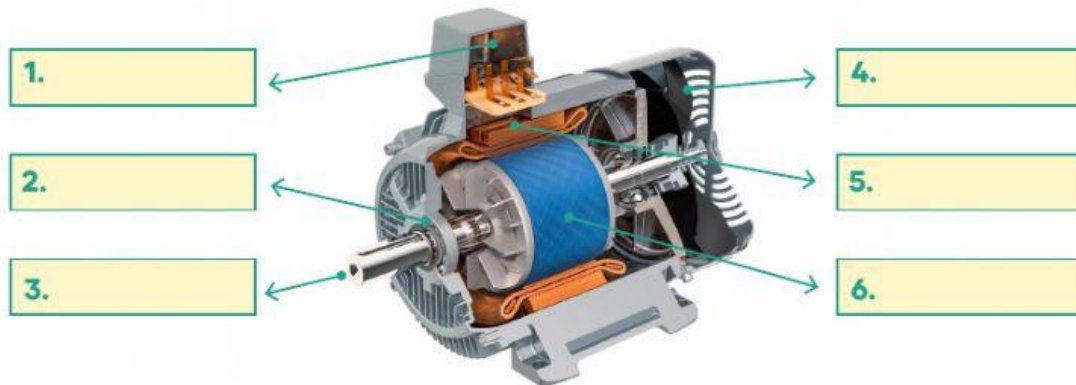


Lesson II: Reading Comprehension

BEFORE YOU READ

A. Look at the picture and label the electrical motor. Use the words from the box.

cooling fan / rotor / bearings / main shaft / stator / terminal box



B. Look at the picture above and discuss the questions with a classmate. Use the "sentence starters" to share your ideas.



1. What do you know about electric motors?



Electric motors are...
Electric motors have...
Electric motors are used...

2. What will the text be about?



The text will be about...
The text will describe...
I think the text will explain...

C. Read the text below and write the underlined words in your notebook as a vocabulary list. Look them up in your dictionary to find out their meanings. Then, compare with a classmate.

D. Read your vocabulary and discuss the following questions with a classmate. Brainstorm your ideas in your notebooks.



1. What do the underlined words have in common? Are they objects, actions, or characteristics?
2. What is the relationship between the underlined words and their meanings in Spanish?
3. What challenges could you face when learning cognate words? What do you understand by "false cognates"?

E. Read the text quickly and highlight the concepts and words that relate to electric motors. Then, read and answer the following questions in your English notebooks.

1. How many words did you highlight?
2. Are there difficult words? Which ones? What makes them difficult?
3. How can you expand your vocabulary?

WHAT IS AN ELECTRIC MOTOR?



An electric motor is a device that serves to convert electrical energy into motion energy. Power tools, for example, contain electric motors. Electric motors utilize magnetic pull force in order to drive a shaft. When two magnets with the same poles are brought together, the two magnets move away. Conversely, if the magnetic poles are different then they will attract each other. This is the basic principle of electric motors.



Simple motor parts and their function

1. **Stator:** The stator is the stationary part of the motor's electromagnetic circuit and usually consists of either windings or permanent magnets. The function of the stator is to generate a magnetic field around the rotor.
2. **Rotor:** It's the moving part in an electric motor, which turns the shaft to deliver the mechanical power. The rotor usually has conductors inside that carry currents, which interact with the magnetic field of the stator to generate the forces that turn the shaft.
3. **Main shaft:** The main shaft (a.k.a drive shaft) is a metal component that extends as a place to attach other components, such as the rotor and the drive pulley. Generally, the main shaft is made of anti-rust aluminum. Besides, this component must also be stable at high rotation and temperature.
4. **Brush:** The brush is an electrical contact that conducts current between stationary wires and moving parts. As the shaft goes around, the brush has contact with the rotor and transmits an electrical current to it.
5. **Bearing:** The rotor is supported by bearings, which allow the rotor to turn on its axis. The bearings are in turn supported by the motor housing. The motor shaft extends through the bearings to the outside of the motor, where the load is applied.
6. **Pulley Drive:** This component is located at the outer end of the main shaft. Its function is to transfer motor rotation to other components.
7. **Commutator:** A commutator is a mechanism used to switch the input of most DC machines and certain AC machines. It consists of slip-ring segments insulated from each other and the shaft. The motor's armature current is supplied through stationary brushes in contact with the revolving commutator, which causes required current reversal, and applies power to the machine in an optimal manner as the rotor rotates from pole to pole. In absence of such a current reversal, the motor would brake to a stop. In light of improved technologies in the electronic-controller, sensorless-control, induction-motor, and permanent-magnet-motor fields, externally-commutated induction and permanent-magnet motors are displacing electromechanically-commutated motors.
8. **Motor Housing:** This is used to protect all parts of the electric motor, as well as to protect the users of the motor.

Adapted from:

Muchta, A. (2017). *7 Parts Of Simple Electric Motor And Function* - AutoExpose. Autoexpose.org
<https://www.autoexpose.org/2017/05/parts-of-simple-electric-motor.html>

F. Read the text again. Match the parts of an electric motor to their functions. Use numbers.



A		B	
1	Stator		It is the moving part of the motor, which turns the shaft.
2	Brush		It transfers motor rotation to other components.
3	Pulley drive		It protects all parts of the electric motor.
4	Rotor	1	It generates a magnetic field around the rotor.
5	Motor housing		It transmits electrical current to the rotor.

G. Read the text again and answer the following questions. Then compare your answers with a classmate. Check and compare examples.

1. What happens if the stator is not working?

Example 1: If the stator is not working, there will not be a magnetic field around the rotor.
Example 2: There will not be a magnetic field around the rotor if the stator is not working.

2. What happens if the rotor is not working?

3. What happens if the pulley drive is not working?

4. What happens if the motor housing is broken?

AFTER YOU READ

H. Read the text again and complete the following chart. Write 5 hashtags for each item.



What is a hashtag? A hashtag is a label for content. It helps others who are interested in a certain topic to quickly find content on that same topic. In a few words, hashtags are keywords that help find content online.

ITEMS		HASHTAGS
1	Electric motor	#tool #convert #energy #MagneticForce #MagneticPoles
2	Stator	
3	Rotor	
4	Main shaft	
5	Brush	
6	Bearing	
7	Pulley drive	
8	Commutator	