

Institución Educativa Monseñor Ramón Arcila

Subject: English. 3rd. Term.

Student's full name: _____

Date: September 21st, 2020.

Taller 1 para el Tercer Período Académico.

Grados 10°

- ❖ FECHA DE ENTREGA: PARA OPTAR POR LA NOTA MÁXIMA, ESTE TALLER DEBERÁ SER ENTREGADO HASTA EL MIÉRCOLES 14 DE OCTUBRE. TODO TRABAJO ENTREGADO DESPUÉS DE ESTA FECHA SERÁ VALORADO SOBRE 4.0.
- ❖ LAS SOLUCIONES A ESTE TALLER SERÁN PRESENTADAS EN EL CUADERNO Y SE ENVIARÁN FOTOGRAFÍAS DE TODAS LAS ACTIVIDADES EN UN ÚNICO DOCUMENTO DE WORD.

ELECTRICITY GLOSSARY AND TERMS (Glosario y términos de la electricidad)

La primera lectura del tercer período la dedicaremos a la electricidad. El siguiente es un conjunto (mínimo) de términos básicos de la electricidad con el que todos estamos familiarizados de una u otra forma, y en mayor o menor medida. En la actividad 1 encontrarán las preguntas de comprensión que deberán responder en español.

Atom

An atom is the smallest particle characterizing an element. All matter in the universe is made up of a combination of different atoms. Atoms are made up of protons, neutrons and electrons.

Electrical charge

An electrical charge is produced when an atom loses or gains an electron. When there are more electrons than protons, the charge is negative. When there are fewer electrons than protons, the charge is positive. The unit of electrical charge is the coulomb (symbol: C).

Electrical current

An electrical current is the movement of negative electrical charges (electrons) through a conductor (electrical wire, metal foil, etc.). In an electrical circuit, the current flows from the point where the electrical potential is highest to the point where it is lowest.

Electrical circuit

An electrical circuit is the complete loop through which an electrical current flows. It is made up of a series of electrical components and conductors (e.g., batteries, electrical wires, light bulbs, etc.). The current only flows in an electrical circuit when the path is completely closed, forming a loop.

Types of electrical circuit

There are two types of electrical circuit, parallel circuits and series circuits. Parallel circuits provide several different paths for the electrical current. Series circuits force the current through a single path; in other words, the electricity flows through all the electrical components of a series circuit one after the other.

Conductors of electricity

Conductors are bodies or materials that allow an electrical current to pass through them. Copper, aluminum, brass, zinc, iron and pewter are examples of metal that conduct electricity well. Salt water is also a good conductor.

Resistance

Resistance is the part of an electrical circuit that resists the flow of electricity (for example, by transforming it into heat or light, as in a light bulb or a buzzer).

In an electrical circuit, the presence of a resistor limits the current and prevents damage related to short circuits. The unit used to measure resistance is the ohm (symbol: Ω).

Ampere

The ampere (symbol: A) is the unit used to measure current intensity.

Voltage

Voltage (symbol: V) is the unit used to measure electrical tension, also called "difference of electrical potential."

Short circuit

A short circuit occurs when two live (i.e., carrying current) conductors accidentally come into contact, either directly or through a conducting object (e.g., when the blade of an electric lawn mower cuts the electrical wire). When this happens, the current can flow with very little restriction because the resistance of the loop formed by the two conductors is very weak. The high amount of current heats up the wires and can cause a fire. Fuses and circuit breakers detect unusually high currents and break the circuit, which helps to prevent fires.

Battery

Batteries are reserves of chemical energy that can be transformed into electrical energy. Small electric cells (commonly called batteries, as in AA batteries) are examples of simple batteries for everyday use.

Insulator

Insulators, such as wood and plastic, are materials that do not easily transmit heat, cold or electricity. Electrical wires are covered with an insulator to prevent electrical shocks and short circuits that could cause fires.

Activity 1: Questions about this glossary (Respuestas en español)

- How are atoms made up?
- What is the electrical charge of a proton?
- What particles move to produce an electrical current?
- When does a current flow in a circuit?
- What are the types of electrical circuit?
- According to paragraph 6, are copper, aluminum, brass, zinc, iron and pewter the only materials that can conduct electricity?
- What do resistors do in a circuit?
- Explain the meaning of "live" in the context of paragraph 10.
- What energy transformation occurs when using a battery?
- What is the function of an insulator?

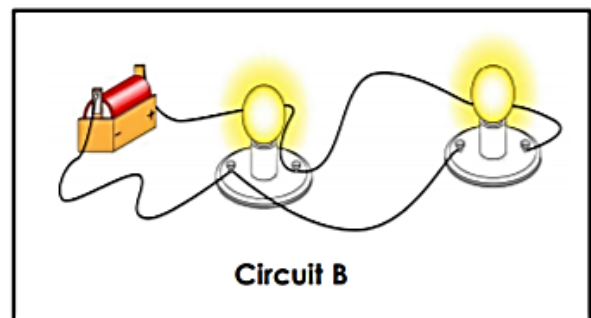
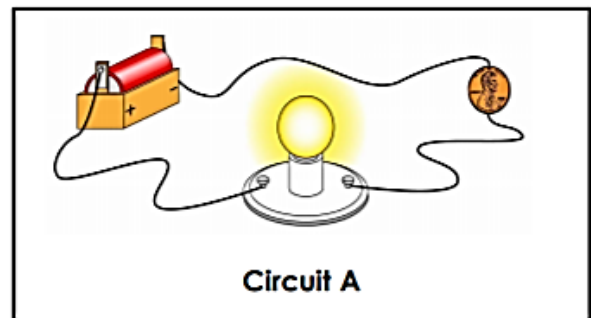
Activity 2: Considering the definitions above, choose the correct answers:

- What supplies energy in an electric circuit?
 - a conductor
 - light bulb
 - a wire
 - a battery

- Which material is a conductor?
 - plastic
 - silver
 - glass
 - wood

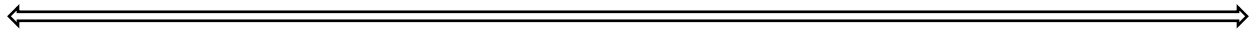
- Which type of circuit is Circuit A?
 - series
 - parallel
 - perpendicular
 - current

- Which item is a resistor in Circuit B?
 - light bulb
 - wire
 - battery
 - screws



- Why did the person who made Circuit A probably connect the wires to a penny?
 - They needed to use a penny to make the bulb light.
 - They were testing to see if the penny conducts electricity.
 - They used the penny to supply extra power.
 - The penny will prevent sparks.

6. Which of these could be used as a resistor in a circuit?
- a pencil
 - a gas engine
 - a rubber eraser
 - an electric motor



ELECTRICAL CHARGE

En el siguiente cuadro, fíjate en el uso de los elementos lingüísticos "more" y "than"

If an object has more positive charges (⊕) than negative charges (⊖), its electrical charge is positive (⊕).

If an object has more negative charges (⊖) than positive charges (⊕), its electrical charge is negative (⊖).

If an object has the same number of positive (⊕) and negative (⊖) charges, it has no electrical charge or is neutral.

Example:

Electrical charge: positive charge

Activity 3:

GRAMMAR: Comparative Sentences

Short words (1 syllable) → -er

old → older slow → slower
 warm → warmer tall → taller

big → bigger, hot → hotter
 heavy → heavier, happy → happier

Long words (2, 3, 4 syllables) → more...

dangerous → more dangerous
 expensive → more expensive

Irregular comparative forms:
 good → better, far → further
 bad → worse, little → less

En el cuadro "Electrical Charge" se compararon las cargas. La palabra "charge" (carga) es un sustantivo, pero también podemos usar los elementos de la misma estructura (*more* ___-adj-___ *than*) para comparar adjetivos. Veamos cómo se hace:

Adjetivos comparativos en inglés¹

¹ Taken and adapted from the website: <https://idiomas.gcfglobal.org/es/curso/ingles/gramatica/adjetivos-comparativos-en-ingles/>

Estos adjetivos se usan con el fin de comparar cosas o personas en relación con una cualidad. Para formar un adjetivo comparativo, agregamos "-er" como terminación del adjetivo. Por ejemplo:

Tall / alto - *Taller* / más alto

Carlos is taller **than** Fernando / Carlos es **más alto** que Fernando.

Si el adjetivo termina en "-y", cambiamos esta última letra por "-i", y después agregamos el sufijo o terminación "-er":

Crazy / loco - *Crazier* / más loco

The Joker is crazier than any other comic character/El Guasón es más loco que cualquier otro personaje de cómics.

Easy / fácil - *Easier* / más fácil

My homework is easier than yours / Mi tarea es más fácil que la tuya.

Si el adjetivo termina en consonante - vocal - consonante, y el acento de la palabra va en la última sílaba, duplicamos la última consonante y añadimos el sufijo "-er". Por ejemplo:

Big / grande - *Bigger* / más grande

Mari's house is bigger than my house / La casa de Mari es más grande que mi casa.

Fat / gordo - *Fatter* / más gordo

Francisco is fatter than Cristina / Francisco es más gordo que Cristina.

Después del adjetivo con su respectiva terminación, debe ir la palabra **than** / **que**, para establecer la comparación, por ejemplo:

first subject	verb	comparative adjective	than	second subject
she	is	bigger	than	my brother
ella	es	más grande	que	mi hermano

Practica con los siguientes adjetivos:

Activity 3: Write the comparative form: Write the opposite (observa los ejemplos)

Adjective	Comparative form	Comparative adjective	Opposite comparative adjective
New	Newer	Younger	Older
Long		Cleaner	
Nice		Darker	
Big		More boring	
Good		Hotter	
Fat		Happier	
Modern		Easier	
Friendly		Smaller	
Famous		Cheaper	

Aunque la regla general es agregar la terminación "-er", existen casos en que el adjetivo es muy largo y, en lugar de agregar dicha terminación, se debe anteponer al adjetivo el término **more**. Ese es el caso de palabras como *intelligent* / inteligente.

Camila is more intelligent than Manuela / Camila es más inteligente que Manuela.

Less than... / Menos que...

Para indicar que algo o alguien es **menos que** otra cosa o persona, antes del adjetivo debes agregar la palabra *less* / menos. Por ejemplo:

My car has a less powerful engine than yours / Mi carro tiene un motor menos potente que el

CIRCUITS

A circuit always needs a power source, such as a battery, with wires connected to both the positive (+) and negative (-) ends. A battery is also known as a cell. A circuit can also contain other electrical components, such as bulbs, buzzers or motors, which allow electricity to pass through. Electricity will only travel around a circuit that is complete; that means it has no gaps.

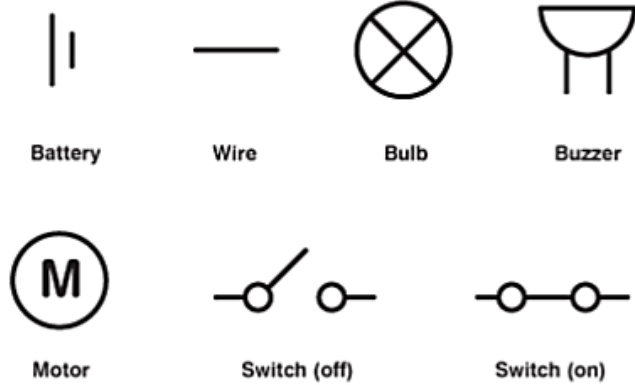
Incomplete circuit



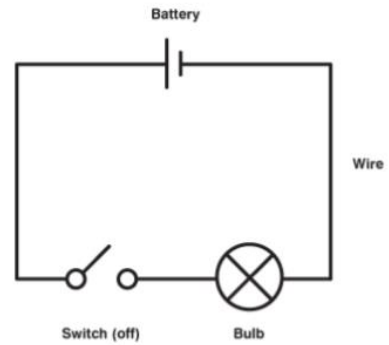
Complete circuit



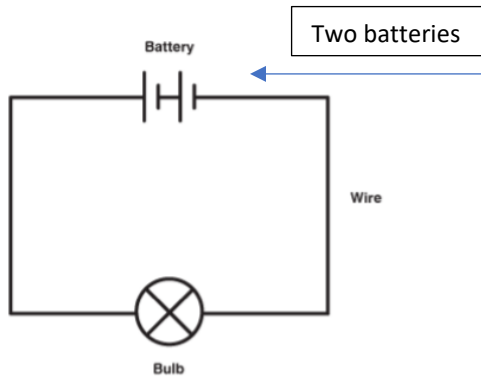
SYMBOLS (USED IN CIRCUITS)



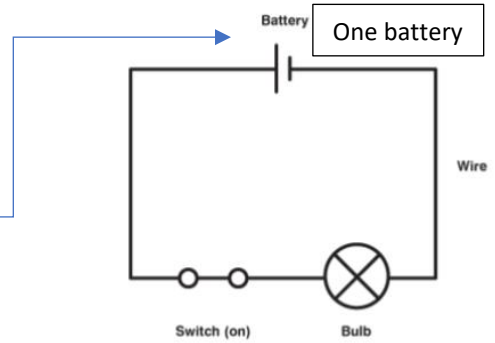
Switch open (off). Bulb doesn't light.



Adding more batteries to a simple circuit will increase the electrical energy, which will make a bulb brighter.



Switch closed (on). Bulb lights.



Adding **more** bulbs to a simple circuit will make the bulbs dimmer:



Lengthening the wires in a simple circuit will make the bulb dimmer:



Questions about electrical circuits

Activity 4: Responde estas preguntas sobre lo que aprendiste de los circuitos eléctricos:

1. In a simple series circuit, why does the bulb light when you close the switch?
 - a. Because the switch produces electricity
 - b. Because closing the switch completes the circuit
 - c. Because closing the switch breaks the circuit
2. In a simple series circuit, why does the bulb go out when you open the switch?
 - a. Because the battery goes flat
 - b. Because opening the switch breaks the circuit
 - c. Because too much electricity flows through the bulb
3. Imagine a simple series circuit with one 1.5V battery and one bulb. When the 1.5V battery is replaced with a 3V battery ...
 - a. the bulb gets brighter
 - b. the bulb gets dimmer
 - c. the bulb stays at the same level of brightness
4. Imagine a circuit with a 1.5V battery and one bulb. Imagine a similar circuit with a 3V battery and two bulbs. Which has the brightest bulbs?
 - a. The circuit with a 1.5V battery and one bulb
 - b. The circuit with a 3V battery and two bulbs
 - c. The bulbs in both circuits are of similar brightness levels
5. Why might a bulb flash and go out when a 1.5V battery and a 3V battery are both connected across it in a simple series circuit?
 - a. There is not enough electricity flowing around the circuit
 - b. Too much electricity flows through the bulb's filament and the bulb blows
 - c. The batteries are flat
6. What is the effect of changing the wire in a circuit from a straight thick wire to a straight thin wire?
 - a. The bulbs become dimmer
 - b. The bulbs become brighter

- c. The bulbs stay at the same level of brightness
7. What is the effect of changing the wire in a circuit from a straight thick wire to a longer (coiled) thick wire?
- a. The bulbs become dimmer
 - b. The bulbs become brighter
 - c. The bulbs stay at the same level of brightness
8. In a circuit diagram, what does a circle with a cross inside it represent?
- a. A light bulb
 - b. A motor
 - c. A battery
9. What do the long straight lines represent in a circuit diagram?
- a. Motors
 - b. Light bulbs
 - c. Wires
10. How is a battery represented in a circuit diagram?
- a. A circle with a cross inside it
 - b. A circle with an M inside it
 - c. A long line and a short line

Algunos elementos y su funcionamiento en los siguientes enlaces:

Atom: <https://www.youtube.com/watch?v=SAXqxYHODtI> (por el divulgador científico fallecido Carl Sagan, de la serie Cosmos).

Buzzer: <https://www.youtube.com/watch?v=A0UgttksOzA>

Conductors and Insulators: <https://www.youtube.com/watch?v=a6ugPfzc70Q>

Series and Parallel Circuits: <https://www.youtube.com/watch?v=3qTq4ZgLI0g>

Voltaje, corriente y resistencia: <https://www.youtube.com/watch?v=4VemysILDAc>

Aquí encontrarán 2 videos muy interesantes sobre un tipo especial de energía, la energía estática o electrostática.

Para comprender mejor la energía estática (o electrostática):

<https://www.youtube.com/watch?v=OZXjclP5xj0>

Aquí encontrarán 3 experimentos sencillos para comprender más este tipo de energía:

<https://www.youtube.com/watch?v=CkGamwZQLII>

En este enlace encontrarán un **simulador de circuitos eléctricos**:

<https://www.physicstutoronline.co.uk/electric-circuits-simulation/>

Y aquí están las video-explicaciones de este taller:

1. Introducción: https://ieramonarcilacaliedu-my.sharepoint.com/:v:/g/personal/gustavobernal_ieramonarcilacali_edu_co/EdDRqIGomYIPkOudOinkGWOBKheJCHqhHEVP9t-eMseIBw?e=w4Pqmh
2. Actividades 1, 2 y 3: https://ieramonarcilacaliedu-my.sharepoint.com/:v:/g/personal/gustavobernal_ieramonarcilacali_edu_co/EXIcBAwvw9BJo8ZpD_giQ-wBTkF2ho1RZvdpJCpNSdZujA?e=03LVg4
3. Actividad 4: https://ieramonarcilacaliedu-my.sharepoint.com/:v:/g/personal/gustavobernal_ieramonarcilacali_edu_co/EeC3AycwP1pNmDXSsJS78N0BXylirO2un5TvNMqspNzhtQ?e=VRTrue
4. Simulador de circuitos eléctricos: https://ieramonarcilacaliedu-my.sharepoint.com/:v:/g/personal/gustavobernal_ieramonarcilacali_edu_co/EV3hURt6satFh-Iu-tRHT8MBnYo6IUyr3QnwmLIeD-wfAQ?e=QY6nbA

¡ÉXITOS!