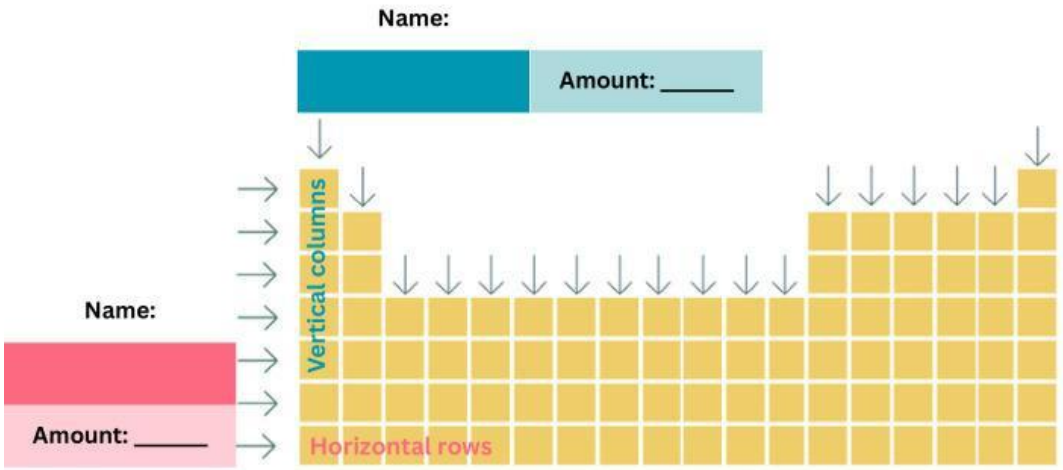
NAME: _____ GROUP: 3°___ RN: ___ DATE: _____

PRACTICE FOR SCIENCE REMEDIAL EXAM

9TH GRADE (II TRIMESTER)

Answer the worksheet and send it to the teacher's e-mail: itzel@institutoluispasteur.edu.mx

Instruction: complete the general name of the vertical columns and horizontal rows in the periodic table. Also add the amount of each one in the periodic table.

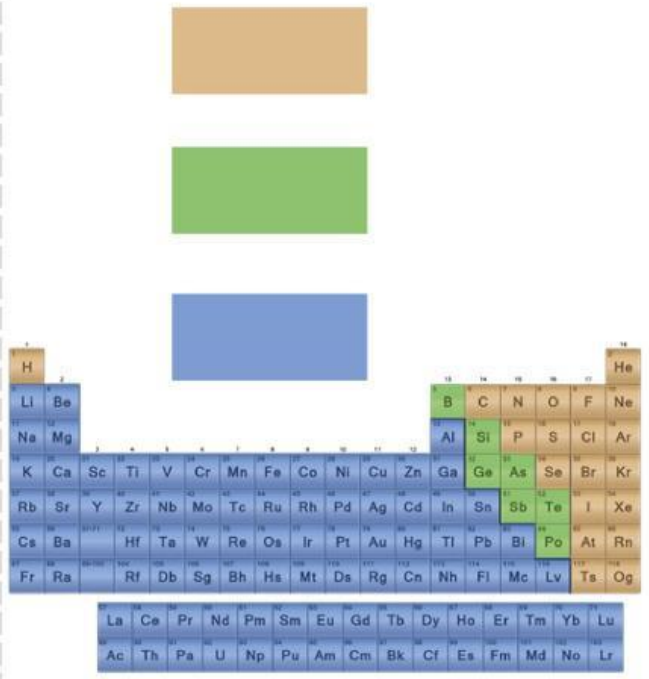


The periodic table organizes elements by atomic number, with **groups** organizing elements by similar chemical properties and valence electron counts, and **periods** indicating the number of electron energy shells. Elements in a group act similarly; those in a period change properties gradually.

Instruction: In the next comparison chart select if the property is related to elements that are non-metals, metalloids, or metals.

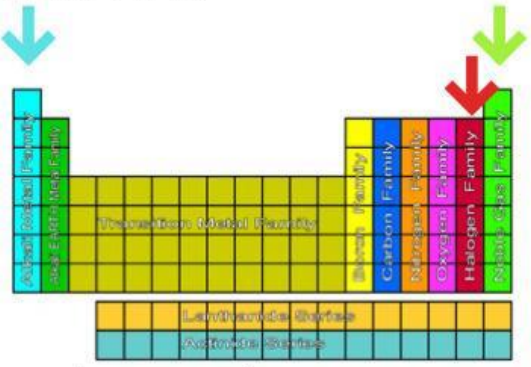
Type of element	Description of general characteristics.
	Good conductor of electricity and heat.
	Poor conductor of electricity and heat.
	Dull.
	Shiny.
	Sonorous.
	Non sonorous.
	Malleable and ductile.
	Brittle.
	High density.
	Low density.
	Properties between metal and non-metals.

Instruction: According to the color in the periodic table, select if the elements with that color are non-metals, metalloids, or metals.



PRACTICE FOR SCIENCE REMEDIAL EXAM
9TH GRADE (II TRIMESTER)

Instruction: organizate the elements on "Alkali metals" group, "Halogens" group, and "Noble gases" group. On the line, select the correct chemical symbol.



Alkali metals (Group 1), halogens (Group 17), and noble gases (Group 18) are key periodic table families with distinct chemical properties. Alkali metals are highly reactive soft metals, halogens are the most reactive non-metals forming salts, and noble gases are unreactive, stable gases.

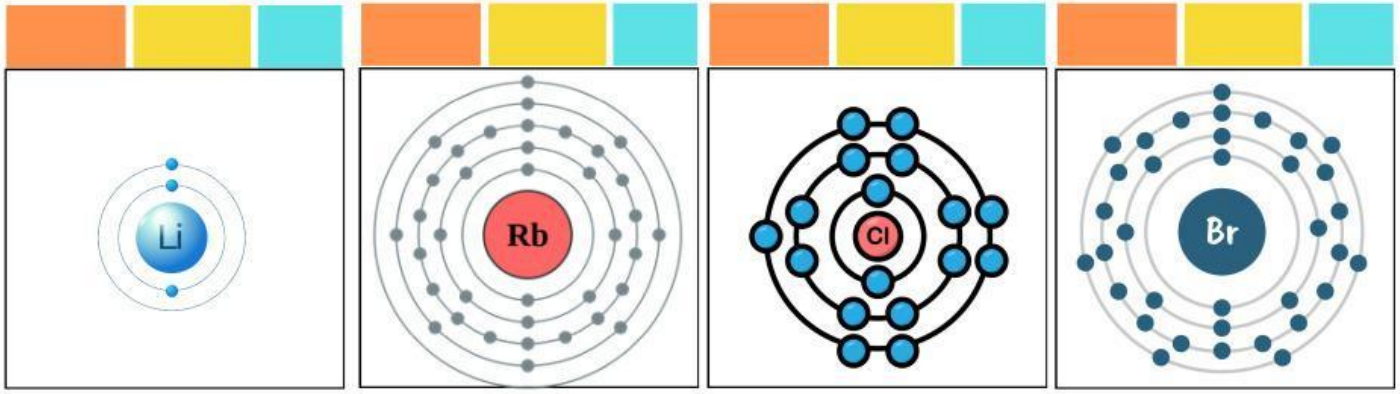
____ Francium _____	____ Fluorine _____	____ Krypton _____
____ Sodium _____	____ Radon _____	____ Neon _____
____ Bromine _____	____ Argon _____	____ Potassium _____
____ Helium _____	____ Iodine _____	____ Rubidium _____
____ Caesium _____	____ Lithium _____	____ Xenon _____
____ Astatine _____	____ Chlorine _____	

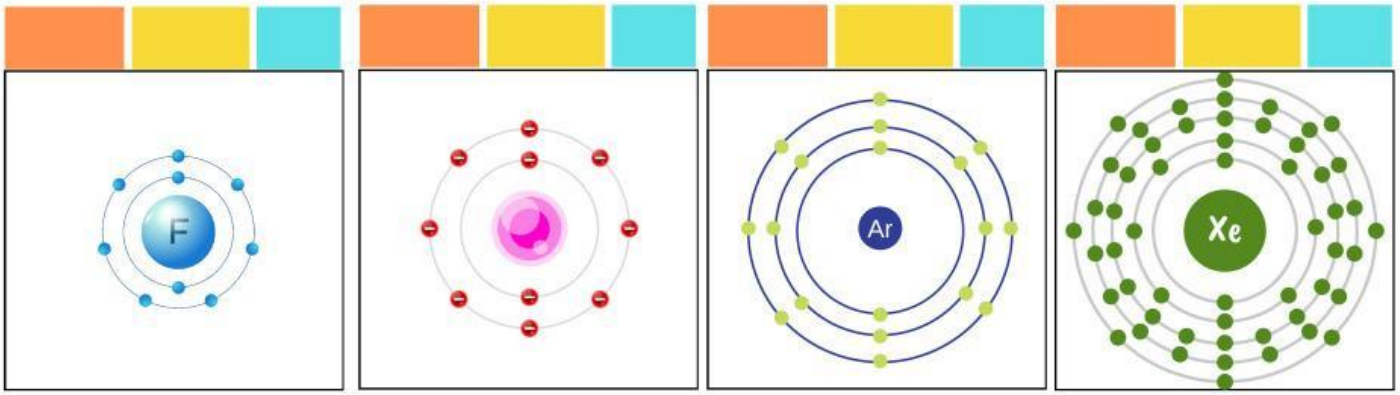
Instruction: the next images are representations of Bohr's atomic model. Select the right amount of total electrons (orange color) and the amount of electrons in the outer shell/orbit (yellow color), known as "valence electron". Answer if the element shows if the octet rule is complete or not: 8 electrons in the outer shell (blue color).

Amount of **total electrons.**

Amount of **electrons in the outer shell.**

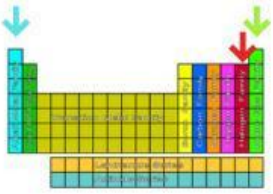
Does it complete the octet rule?

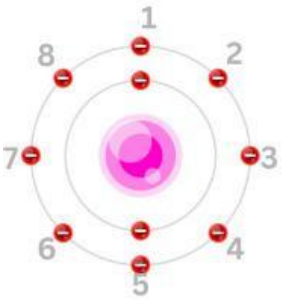


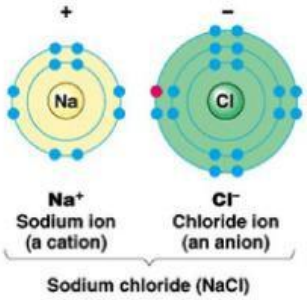


PRACTICE FOR SCIENCE REMEDIAL EXAM
9TH GRADE (II TRIMESTER)

Instruction: select if each sentence describes elements on "Alkali metals" group, "Halogens" group, or "Noble gases" group.







_____

They are **stable, unreactive gases** because the **octet rule is complete** by themselves.

_____

Their **reactivity increase from top to bottom** on this group because the **electron in the outer shell** of atoms as Francium **are further from the nucleus,** so it is **easier** for them **to lose it** (to complete the octet rule with another element).

_____

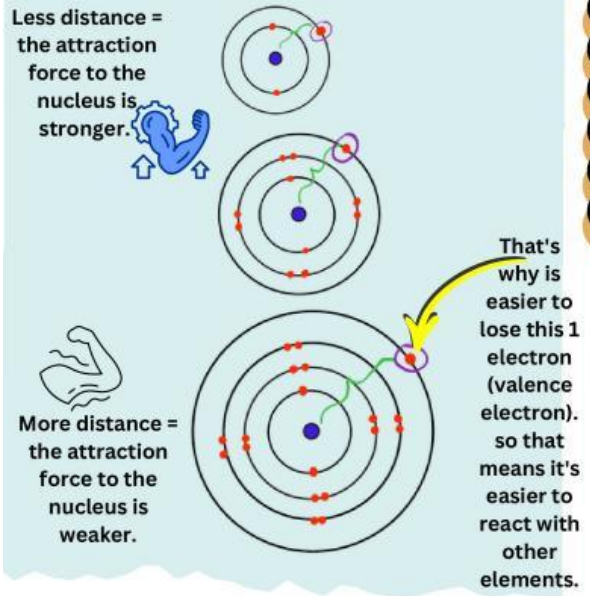
Their **reactivity decrease from top to bottom** on this group because the **electrons in the outer shell** of atoms as Iodine are **further from the nucleus,** so it is **harder to gain an electron** (to complete the octet rule) than the ones that are at the top.

_____

They **bond with alkali metals** to complete the **octet rule** and **together form salts.**

NOTES

Distance between the nucleus and the valence electron (electrons in the outer orbit/shell).



Group 1 always loss 1 electron.

+

Group 7A (17) always gain 1 electron

Together they complete 8 electrons in the outer orbit (octet rule)

The octet rule: Atoms are most stable when they achieve the number of electrons necessary to reach 8 electrons configuration in the outer shell / orbit. So the octet rule is the tendency for atoms to lose or gain electrons in order to reach this configuration.

PRACTICE FOR SCIENCE REMEDIAL EXAM
9TH GRADE (II TRIMESTER)

Instruction: select if images represent or not the Law of conservation of mass: "The mass of the products will be exactly the same as the mass of the reactants".

Image 1: _____

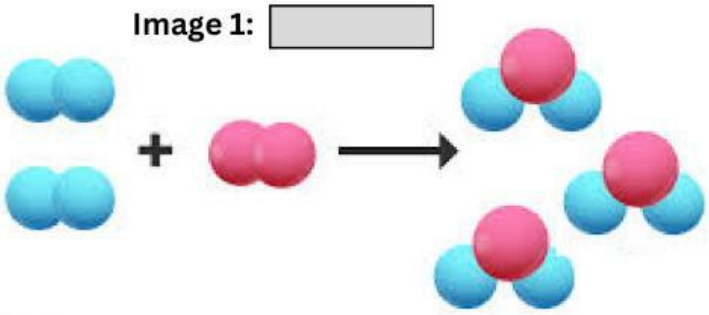


Image 2: _____

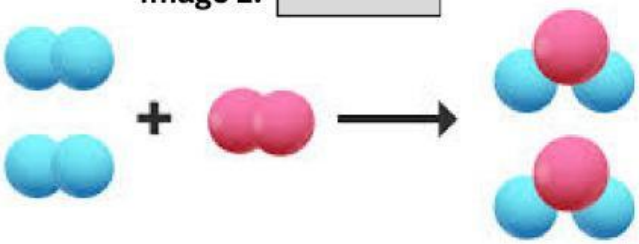


Image 3: _____

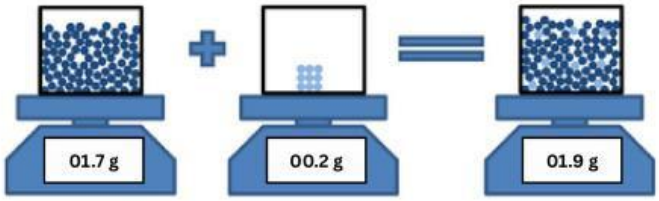


Image 4: _____

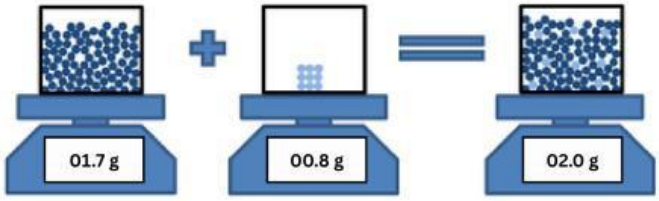


Image 5: _____

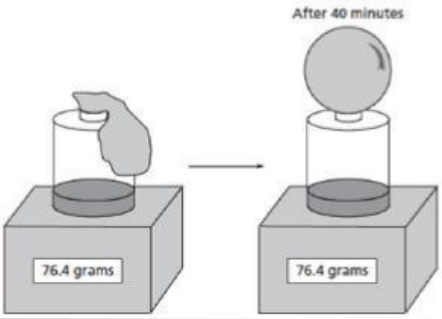


Image 6: _____

Instruction: match with a line the images to their names. Then, select if it is a physical change (separation or molecule joining) or chemical change (new products are formed).

_____ 

_____ 

_____ 

_____ 

_____ 

Rusting

Melting

Digestion

Food oxidation

Evaporation

PRACTICE FOR SCIENCE REMEDIAL EXAM
9TH GRADE (II TRIMESTER)

Instruction: identify the reactants and products in the following equations (grey color) and select the correct representation of the word equations (blue color).

$CO + O_2 \rightarrow CO_2$

Reactant or product?

CO ____

O_2 ____

CO_2 ____

Word equation: ____

$Zn + HCl \rightarrow ZnCl_2 + H_2$

Reactant or product?

Zn ____

HCl ____

$ZnCl_2$ ____

H_2 ____

Word equation: ____

$Ca + O_2 \rightarrow CaO$

Reactant or product?

Ca ____

O_2 ____

CaO ____

Word equation: ____

Instruction: select the kind of reaction the images and text represent: synthesis reaction, combustion reaction, or decomposition reaction.

____ reaction

____ reaction

____ reaction

____ reaction

The **breaking apart** of a compound or substance **into smaller and less complex** components.

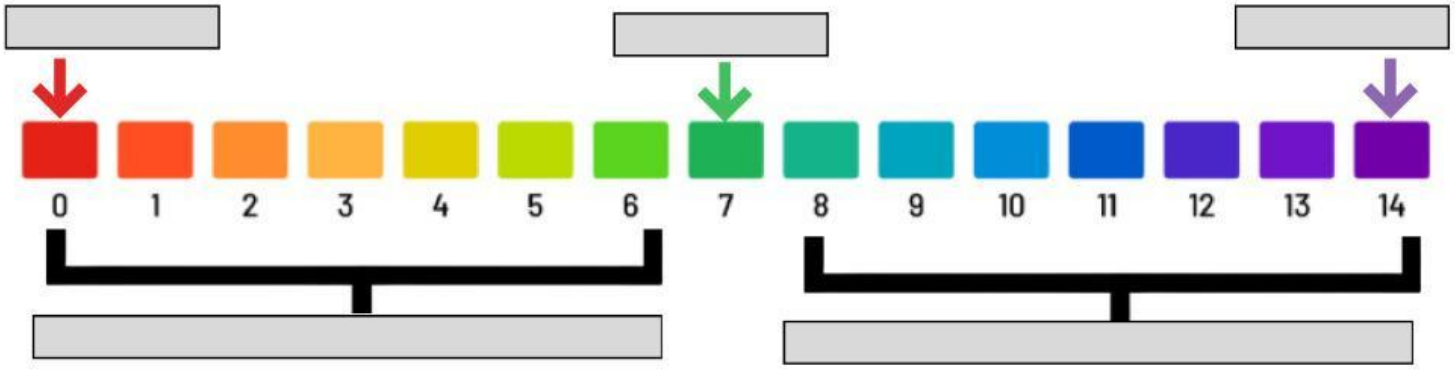
____ reaction

A reaction in which a substance **reacts with oxygen gas, releasing energy** in the form of **light and heat.**

____ reaction

A chemical process where **two or more simple substances** (elements or compounds) **combine** to **form a single, more complex** product.

Instruction: in the next pH scale, select if the arrows that are marked are representing alkaline, acids or neutral substances.



PRACTICE FOR SCIENCE REMEDIAL EXAM
9TH GRADE (II TRIMESTER)

Instruction: select if the product is an acid, alkali or neutral. Then, answer the questions.





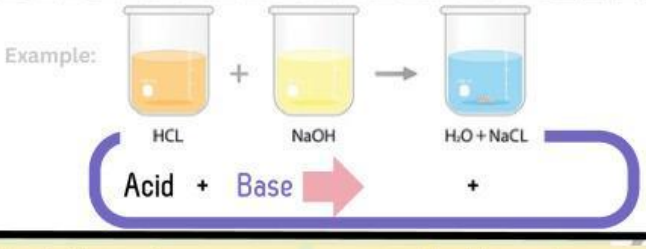




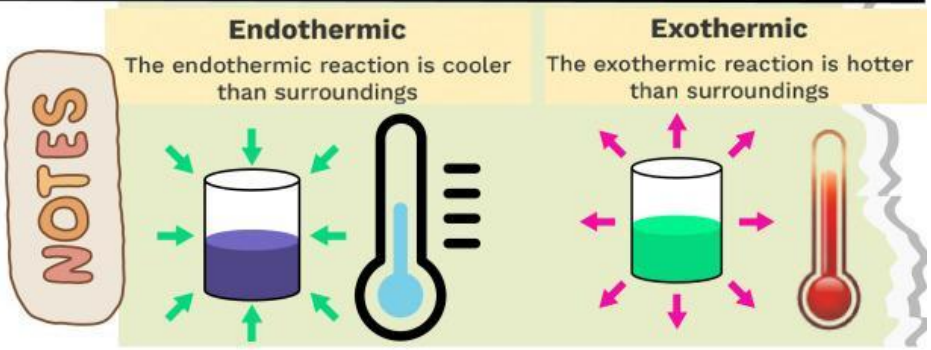
Imagine that you have an acid of pH 3, how many numbers in the pH scale we must add of another substance so it gets neutralized (pH 7)? _____

What are the products of the reaction of an acid with and alkaline solution?

_____



Instruction: answer on each image if it is representing an endothermic or exothermic reaction.



_____

Combustion

_____

Cold pack

_____

Water and alkali metal

_____

Freezing water into ice