

PHYSICS AND CHEMISTRY 3º ESO

1. To explain the line spectra, Bohr assumed that electrons in atoms move in circular orbits around the nucleus as Rutherford did but he introduced some postulates:

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- .
- .

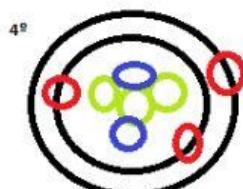
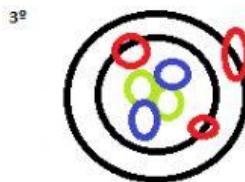
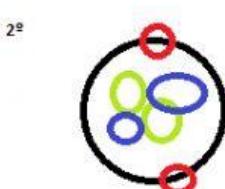
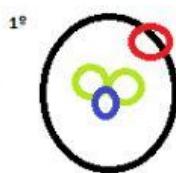
2. Complete the table:

LEVEL	SHELL	Nº ELECTRONS
1		
2		
3		

3. Write out the electron distribution by shells of these neutral atoms and their ions.

	K	L	M
F			
F ⁻			
Al			
Al 3+			
N			
N 3-			
Si			
Si 4+			

4. Say the number of protons, electrons, neutrons, ($p+n$), Q, Z and A.



	p	e	n	N	Q	Z	A
1º							
2º							
3º							
4º							

5. What is an isotope? What is an elementary substance? What is a chemical element?

- .
- .
- .

6. Properties of metals and non metals.

METALS	NON-METALS
Often	Dont'
Good conductors of heat and electricity.	Poor conductors of heat and electricity.
In normal conditions, except mercury. Boiling points.	Many are gases but solids and liquids also exist. Boiling points.
Create	Create
Flexible, ductile and malleable.	Solid non-metals are brittle.

7. Compound, simple substance or element??

	COMPOUND	SIMPLE SUBSTANCE	ELEMENT
OO OO OO OO OO OO			
HNH HNH HNH HNH			
O O O O O			
NN NN NN NN			
HOH HOH HOH HOH			

8. Complete the table.

SCIENTIST	CONTRIBUTION
Lavoisier (end of the 18th century)	Metals and
J. Dovereiner	Groups of 3 elements. The properties of the 3 elements were an average of the properties of the other 3 elements.
	Known elements with similar properties are grouped into groups of 8.
D. Mendeleev and L. Meyer	Place elements in increasing order of

9. What are molecules? what is a crystal lattice?.

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-

10. Which are the fundamental units that form a substance?

-
-
-
-

11. Complete the table.

	COMPONENT	TYPE	EXAMPLE	ELEMENT
FLUIDS		ISOLATED ATOMS		
FLUIDS		MOLECULES		
SOLIDS		METALLIC CRYSTAL		
SOLIDS		COVALENT NETWORK		
SOLIDS		MOLECULAR CRYSTAL		
SOLIDS		IONIC CRYSTALS		

12. What is to name? And to formulate?

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-

13. Write the name and translate to Spanish.

- a) **CaCl₂**
- b) **MgO**
- c) **NaCl**
- d) **FeCl₃**
- e) **V₂S₅**
- f) **CH₄**
- g) **NH₃**
- h) **SiH₄**

14. Write the formula and the Spanish name.

- a) **Magnesium dibromine**
- b) **Iron Trichloride**
- c) **Tricalcium Dinitride**

- d) Borane
- e) Phosphane
- f) Water

15. Which is the charge of the following elements?

- a) FeO
- b) OsO₄
- c) FeS₂
- d) TiCl₄
- e) Fe₂O₃
- f) CrS₃