Tutorial N°03

Activity 1:

Consider the following atoms: K (Z=19), Cr (Z=24), Zn (Z=30), Cu (Z=29) Au (Z=79).

- Give the electronic configurations of the atoms, list the valence electrons for each atom, and deduce the number of valence electrons.
- Locate these atoms in the periodic table and group them, if possible, by family or by period.
- Caesium (Cs) belongs to the same family as potassium (K) and to the same period as gold (Au). Give its electronic configuration and atomic number.

Activity 2:

What is the number of valence electrons in: Nitrogen N (Z=7), Vanadium V (Z=23), Manganese Mn (Z=25), and Gallium Ga (Z=31)? Give the four quantum numbers of these valence electrons.

Activity 3:

X is an element that belongs to 4^{th} period and has two unpaired electrons.

- What are the possible electronic configurations for the outermost shell?
- What is this element if you know that it belongs to period of $_{30}Zn$ and group $_{8}O$?

Activity 4:

Let's have these two elements: $_{z}X$ and $_{z}Y$, where:

$_{z}X^{-2}$ is the stable ion of X, which has the electron configuration $_{54}Xe$.

$_{z}Y^{+3}$ has the following electron configuration: $[_{18}Ar]\ 4s^2\ 3d^{10}\ 4p^6$. Determine the atomic number Z for both X and Y.