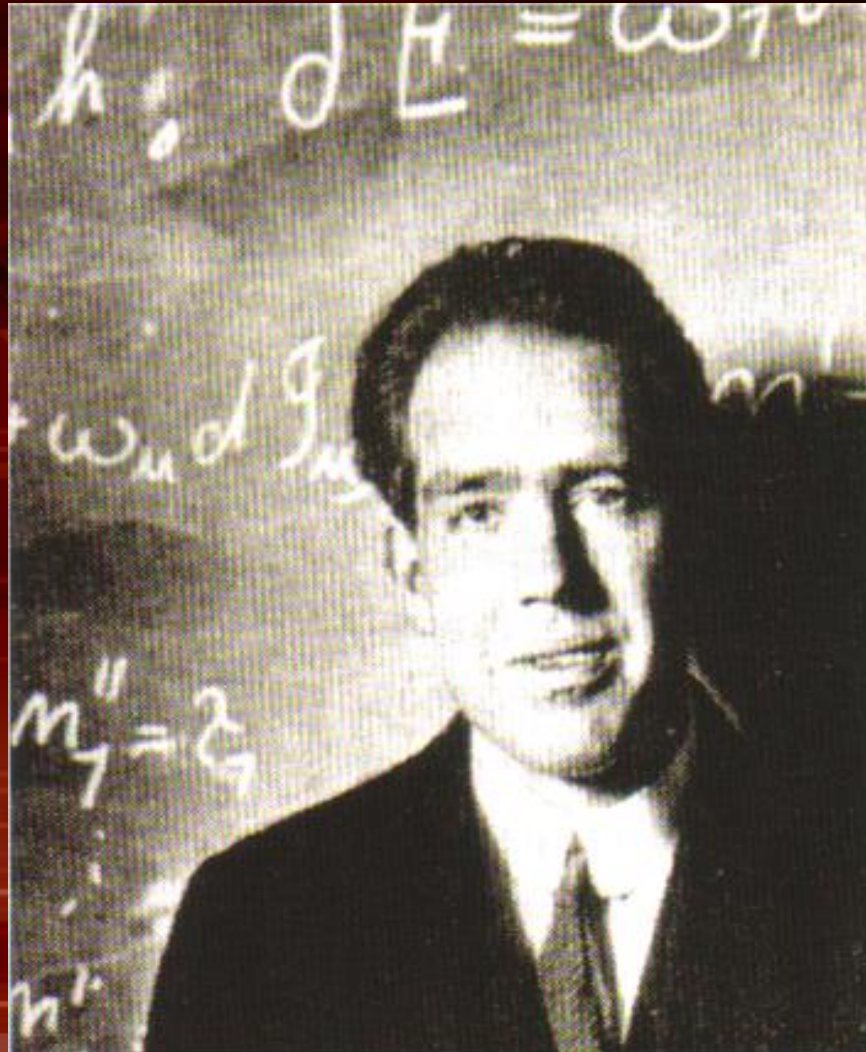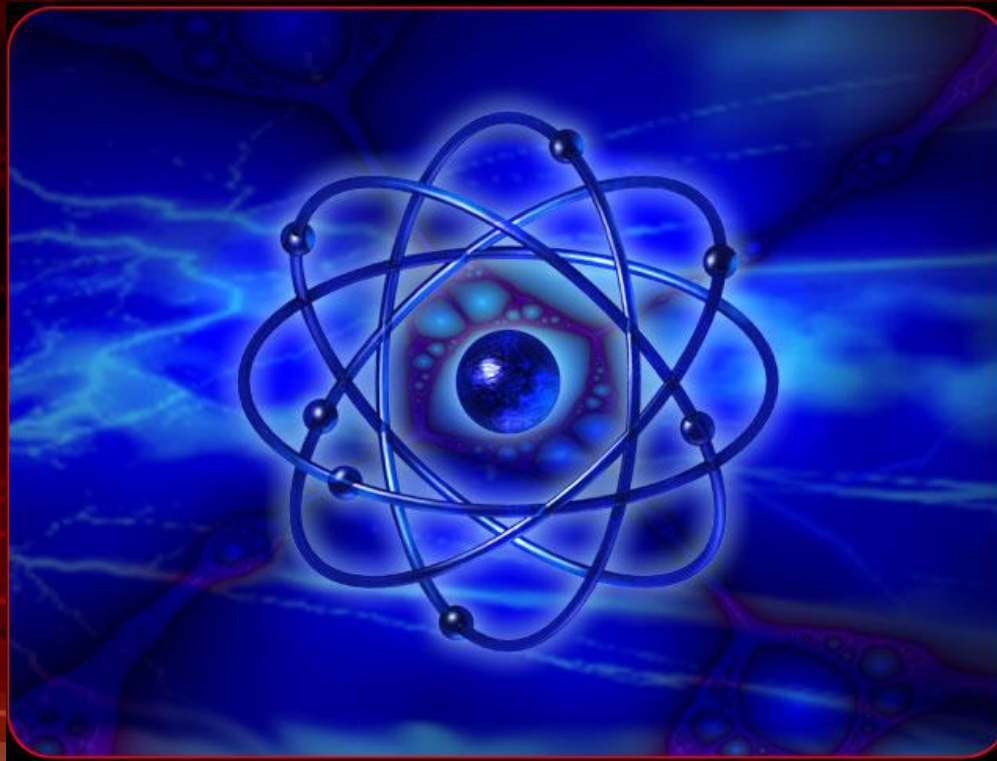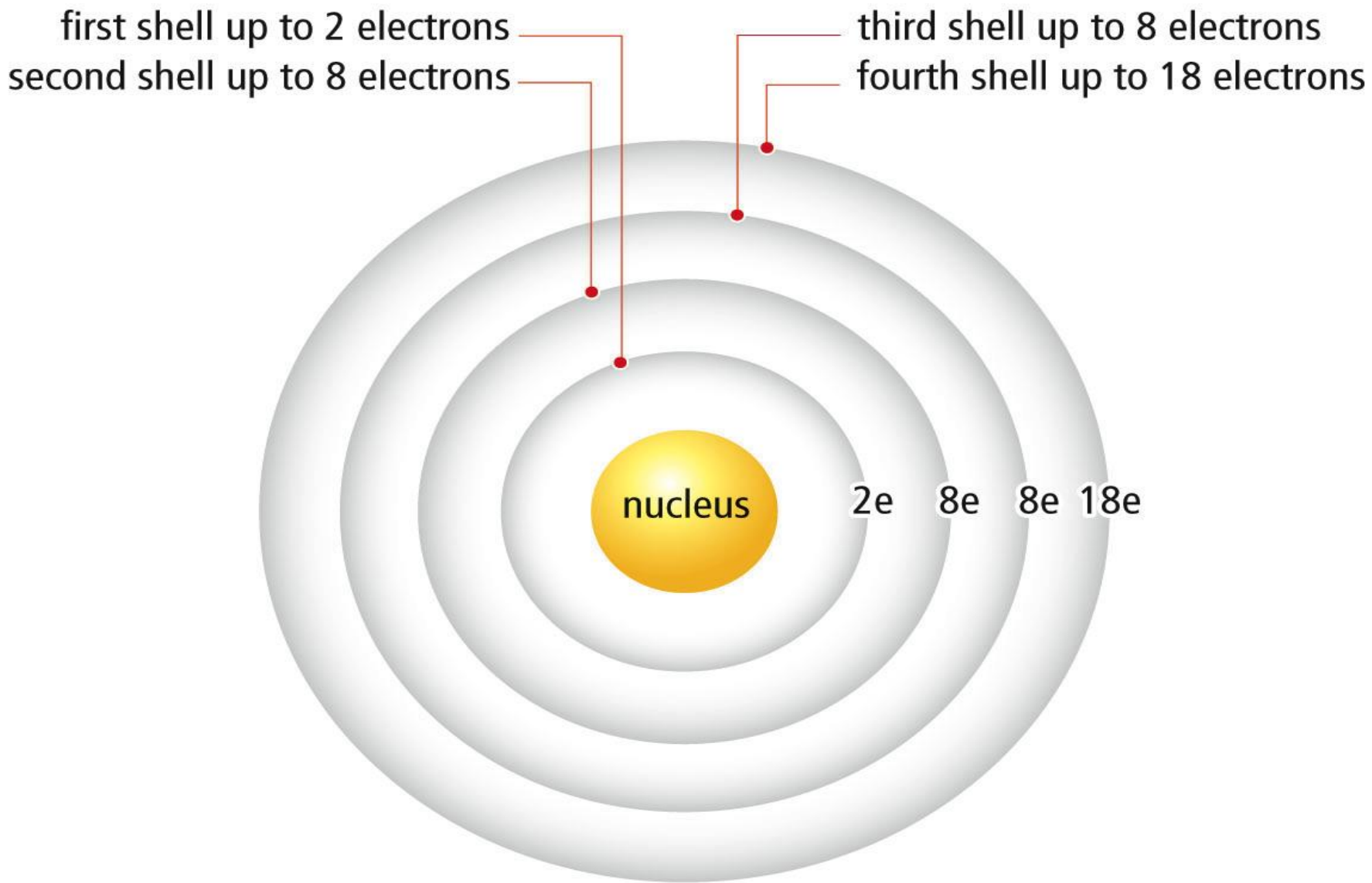# The Periodic Table and Atomic Theory

The Bohr Model

- Is a diagram that shows how many electrons are in each shell surrounding the nucleus

first shell up to 2 electrons
second shell up to 8 electrons
third shell up to 8 electrons
fourth shell up to 18 electrons

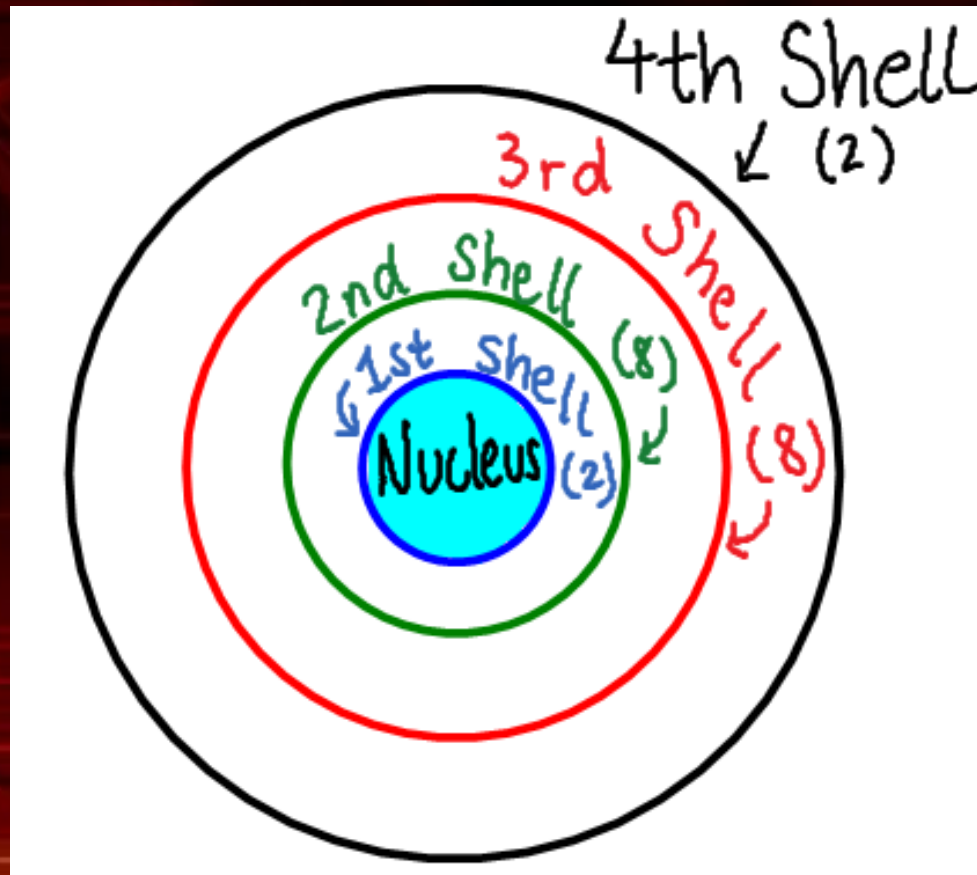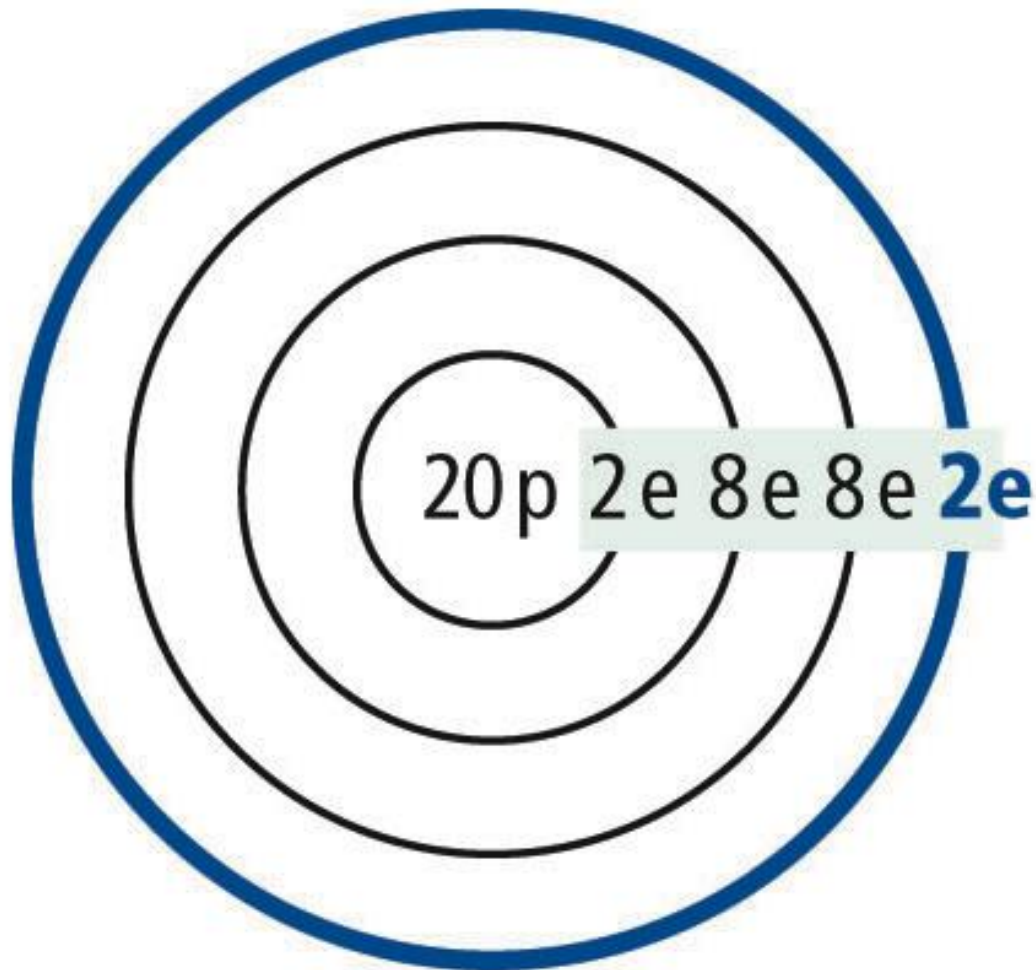nucleus

2e   8e   8e 18e

Figure 2.21 A Bohr model showing electron shells

Electron Shells

- The regions surrounding the nucleus of an atom

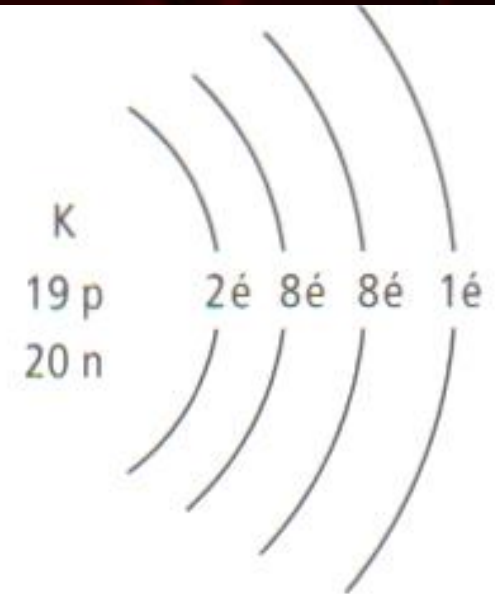# What kind of atom is this?

20p 2e 8e 8e 2e
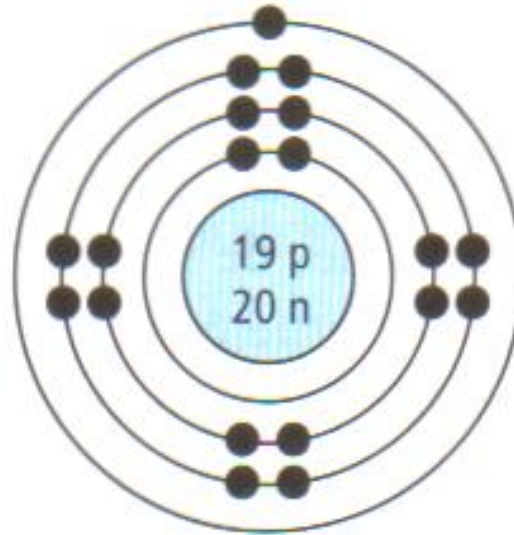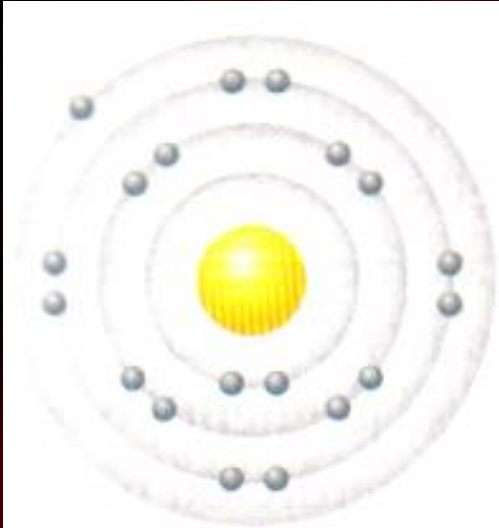
The arrangement of electrons in a ▮▮▮▮▮▮ atom
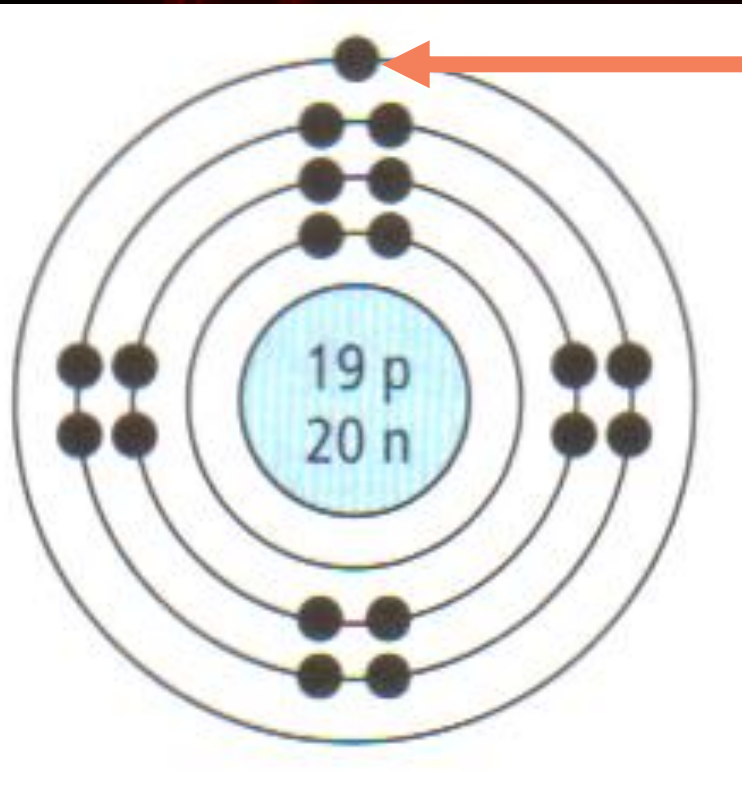
Three represenation of the Bohr Model for Potassium

Valence Electrons

- Electrons located on the outmost shell → **valence shell**

- Valence electrons are activated during chemical reactions (are the key players)

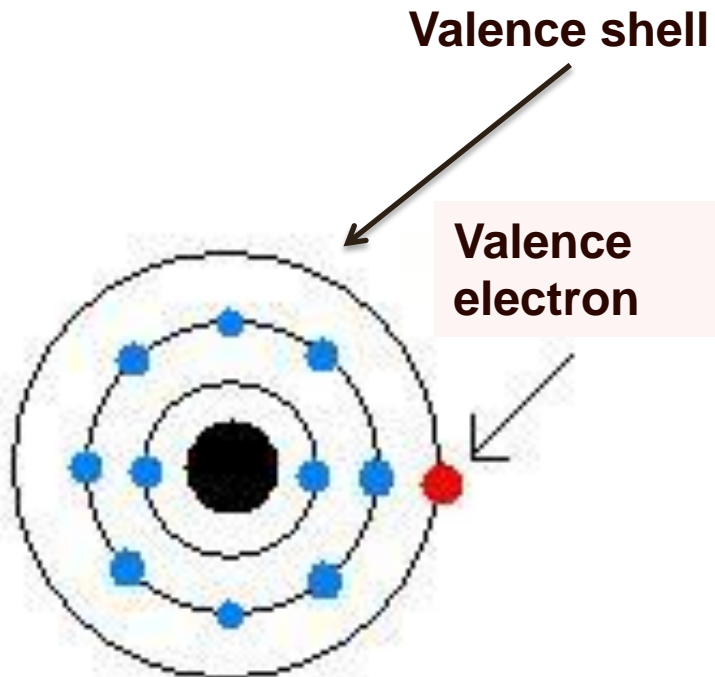Électron de valence

Couche de valence

- Couche électronique la plus externe du noyau

Valence shells

Valence shell

Valence electron

Rest are core electrons.

The Atom vs. the Ion

What is the difference between an atom and an ion?

- Atoms that gain/lose electrons become ions
- Ions do not have the same number of electrons and protons
  - Ex: Sodium ion has 11protons and 10 electrons

COMPOUNDS: IONIC BONDING

What is the difference between an atom and an ion?

	lithium		magnésium		chlore	
Atome	Li	3 p 2, 1	Mg	12 p 2, 8, 2	Cl	17 p 2, 8, 7
Ion	Li⁺	3 p 2	Mg²⁺	12 p 2, 8	Cl⁻	17 p 2, 8, 8

Observe the table above

The first number represents the number of protons.

After, you have the number of electrons on their
  respective shells

Draw a similar table with the following atoms

Boron, Oxygen, Fluorin, Sodium, Aluminium, sulphur,

Your table will have this form

	phosphorus	Oxygen	Fluorine	Sodium	Aluminium	Sulphur
Atom						
Ion						