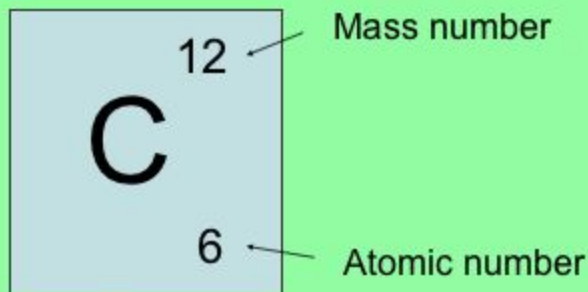


Atomic Number

- Elements are arranged in the periodic table in order of **atomic number**.
 - **Atomic number is the number of protons (+) an atom has.**
 - In an atom, the number of protons = the number of electrons.
- Student ID
- Each type of atom has a different atomic number.
 - eg
 - Hydrogen (H) has 1 proton and 1 electron
 - Carbon (C) has 6 protons and 6 electrons.
 - Lead (Pb) has 82 protons and 82 electrons

Mass number

- The **mass number** of an element is the number of **protons and neutrons** combined.
- The mass number is usually bigger than the atomic number.



To work out the number of neutrons:

- mass number – atomic number = number of neutrons
- eg 12 - 6 = 6 neutrons

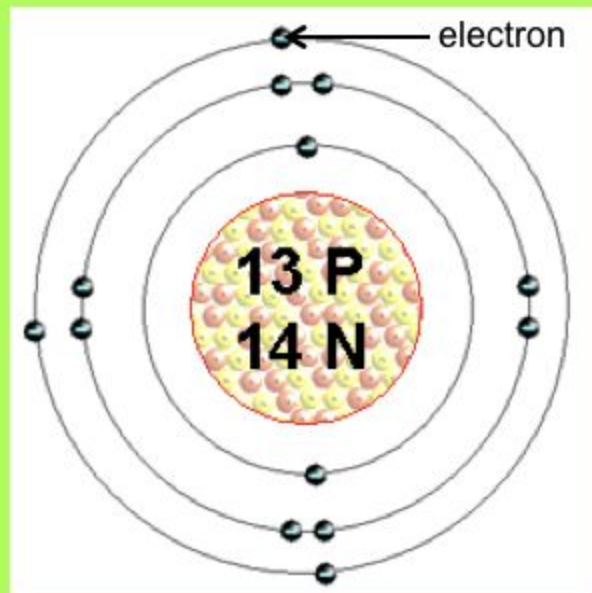
Summary

- Atomic $N^{\circ} = N^{\circ}$ of protons
- N° of protons = N° of electrons
- Mass $N^{\circ} = N^{\circ}$ of protons + N° of neutrons
- Mass $N^{\circ} - \text{Atomic } N^{\circ} = N^{\circ}$ neutrons

Complete Page 12 from Scipad. These are questions on Atomic Number, Mass number etc.

Orbital Diagrams

- Electrons orbit around an atom much like planets orbit around the sun.
- The protons in the nucleus of an atom attract the same number of electrons.
- eg Al has 13 protons so it will attract 13 electrons.



An aluminium atom

Electrons orbit the nucleus in an orderly manner!!

- The first orbit holds up to 2 electrons.
- The second orbit holds up to 8 electrons.
- The third orbit holds up to 8 electrons.
- The fourth orbit holds any remaining electrons.

To draw electron orbital diagrams:

1. Find atomic number of the element
2. Draw nucleus showing the number of protons and neutrons
3. Draw electrons around nucleus in correct orbits

(We only need to know how to draw orbital diagrams for the first 20 elements)

Orbital diagram of Argon

Atomic number = 18

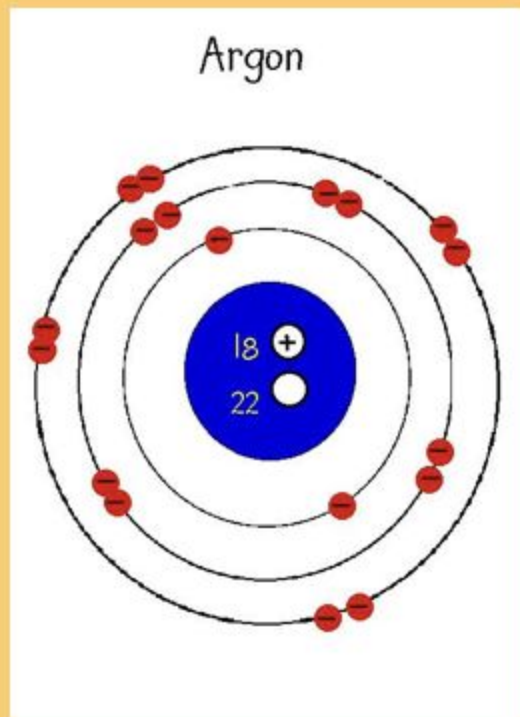
Mass number = 40

so Argon has 18 protons

18 electrons

$40 - 18 = 22$ neutrons

Note: the electrons in the second shell pair up. This only happens after 4 electrons have been added, then they pair.



Complete the questions on page 14 of Scipad 2.