

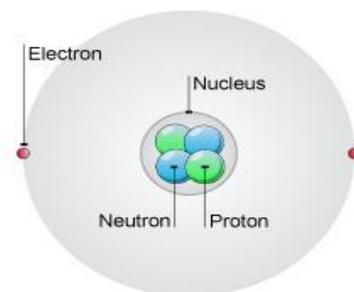
**WEEKLY HOME STUDY PACKAGE - WEEK 1 (05/07/21 – 09/07/21)**

Subject	BASIC SCIENCE	Year/Level	10
Strand	2 - Matter		
Sub-strand	2.1 – Investigating Matter		
Content Learning Outcome	Investigate the structure of an atom and explain the properties of common elements in relation to their position on the periodic table.		

LESSON NOTES/ACTIVITY:**Structure and Constituents of an Atom**

- The word 'atom' comes from the Greek word **atoms** meaning **indivisible** or unable to be broke down any further.
- Atoms are made from 3 kinds of **sub atomic particles** (particles smaller than an atom) – **protons, neutrons** and **electrons**.

1. **Protons** – are **positively (+)** charged particle which are tightly packed together in the nucleus of the atom.
2. **Neutron** – are neutral particle which have **no charge** and are found in the nucleus.
3. **Electron** – are **negatively (-)** charged particle which move around the nucleus in shells or orbits.



Proton and *neutron* are *heavier* than *electron*. The negative charge electron balances the positive charge proton thus the *number of protons is equal to the number of electron*.

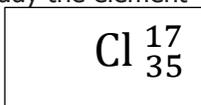
Atomic Number (Z) – is the **number of protons (p)** in any atom. X_A^Z

Mass Number (A) – the **total number of protons (p) and neutrons (n)** in an atom

EXAMPLE

1. What is the centre of an atom called?
Nucleus

2. Study the element



- i) What is the atomic number?
17
- ii) What is the mass number?
35
- iii) How many protons are in chlorine atom?
Number of protons = atomic number = 17
- iv) How many electrons are in chlorine atom?
Number of electrons = atomic number = 17
- v) How many neutrons are in chlorine atom?
Number of neutrons = mass number – number of protons
= 35 – 17
= 18

Study the element **X**,



Where,

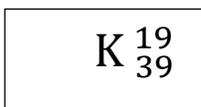
X is the symbol of element
(smaller number)

Z is the atomic number

A is the mass number

ACTIVITY (Answer the following questions)

1. Study the element Potassium and answer the questions.



i) What is the atomic number?

(1 mark)

ii) What is the mass number?

(1 mark)

iii) How many protons are in potassium atom?

(1 mark)

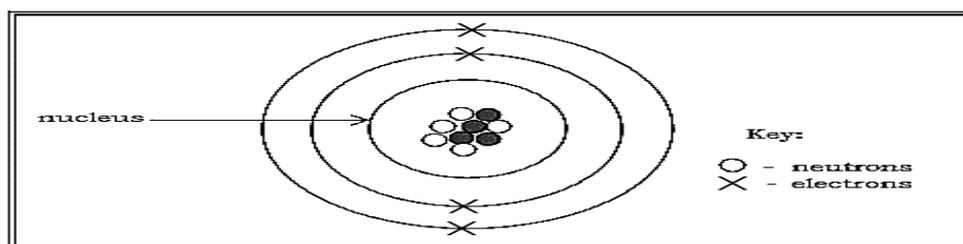
vi) How many electrons are in potassium atom?

(1 mark)

vii) How many neutrons are in potassium atom?

(2 marks)

2. The diagram given below shows the structure of a single Beryllium atom. Study the diagram below and answer the questions that follow.



(i) Write the mass number of the Beryllium atom.

(1 mark)

(ii) Write the number of protons for the above element

(1 mark)

(iii) What conclusion can be made about the number of protons and electrons in an atom?

(1 mark)
