

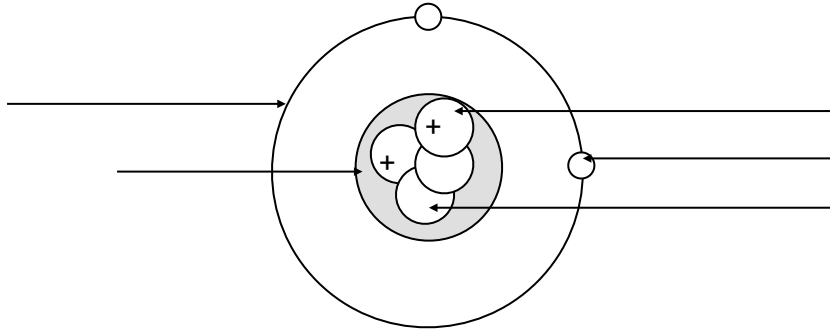


Atoms are made up of _____ different types of particles called _____ particles.

→ **PROTONS:** Large, _____ charged particles located in the _____ of the atom.

→ **NEUTRONS:** Large, _____ particles located in the _____ of the atom.

→ **ELECTRONS:** Small, _____ charged particles located around the nucleus in _____.



** The number of _____ and _____ is always equal and so the atom is _____.

Properties of Atoms

1. Elements differ in the number of _____ in the nucleus of its atoms.

The Atomic Number is the : _____

2. Since the elements all have different numbers of protons, their _____ will differ.

The Atomic Mass of an atom (how heavy it is) can be calculated by: _____

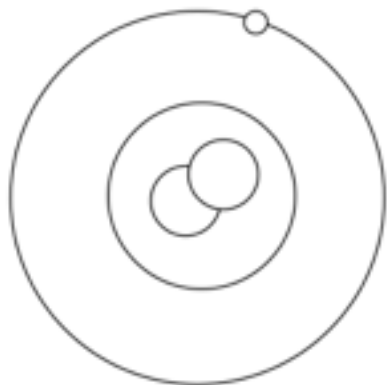
3. **Neutral Atoms** (all atoms of elements on the Periodic Table are neutral) have the same number of _____ and _____. Electrons can be added or removed from atoms during chemical reactions to form _____.

Activity #1: Complete the table below to summarize what you have learned about atoms

Subatomic Particle	Relative Mass	Relative Charge	Location in the atom
Proton			
Electron			
Neutron			

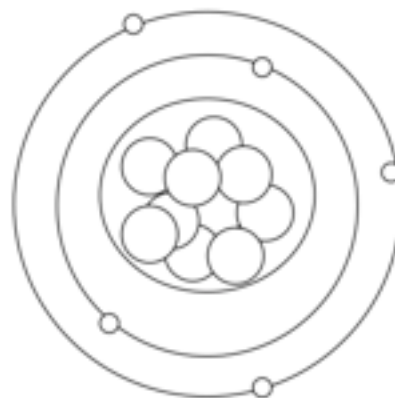
Activity #2: Study the atoms and complete the questions below!

A.



1. How many protons are in:
1. How many electrons are in:
1. How many neutrons are in:
1. What is the atomic weight of:

B.



- | | |
|---------------|---------------|
| Atom A? _____ | Atom B? _____ |
| Atom B? _____ | Atom A? _____ |
| Atom A? _____ | Atom B? _____ |
| Atom B? _____ | Atom A? _____ |

Activity #3: If you know the atomic number (number of protons) and the atomic mass (the sum of the number of protons and neutrons), write a calculation (mathematical formula) that you could use to find the number of neutrons in an atom.

Activity #4: Assuming that each atom is neutral, copy and complete the table by filling in the blanks

Atomic Number	Atomic Mass	Number of Protons	Number of Neutrons	Number of Electrons
8	16			
11			12	
		14	16	
	29			14

Activity #5: An ion is an atom that has gained an electric charge by gaining or losing electrons to become either positive or negative.

a) A magnesium atom has 12 protons. How many electrons does a magnesium ion, with a charge of +2 contain?

b) A fluorine atom has an atomic number of 9. How many electrons does a fluorine ion, with a charge of -1 have?