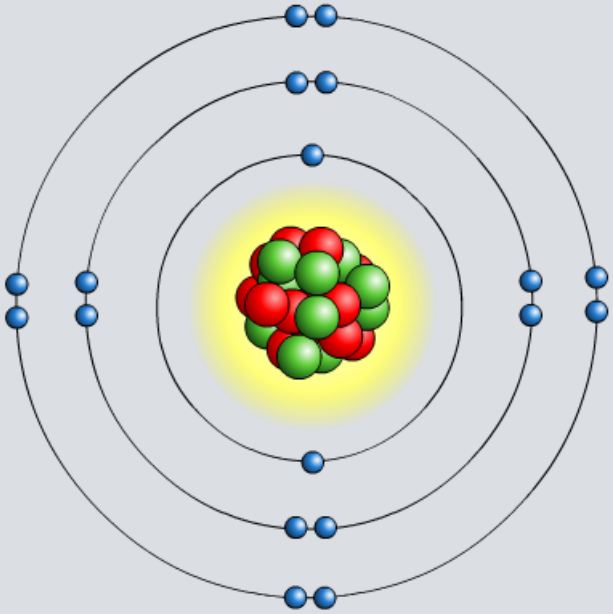
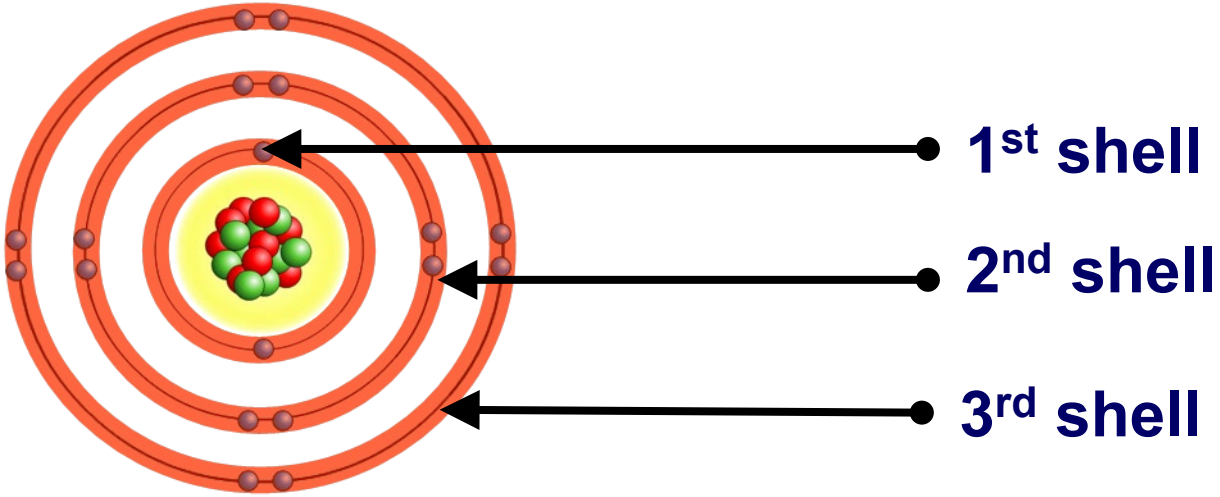
Electron Configuration



How are electrons arranged?

Electrons are not evenly spread, but exist in layers called shells. (The shells can also be called energy levels).

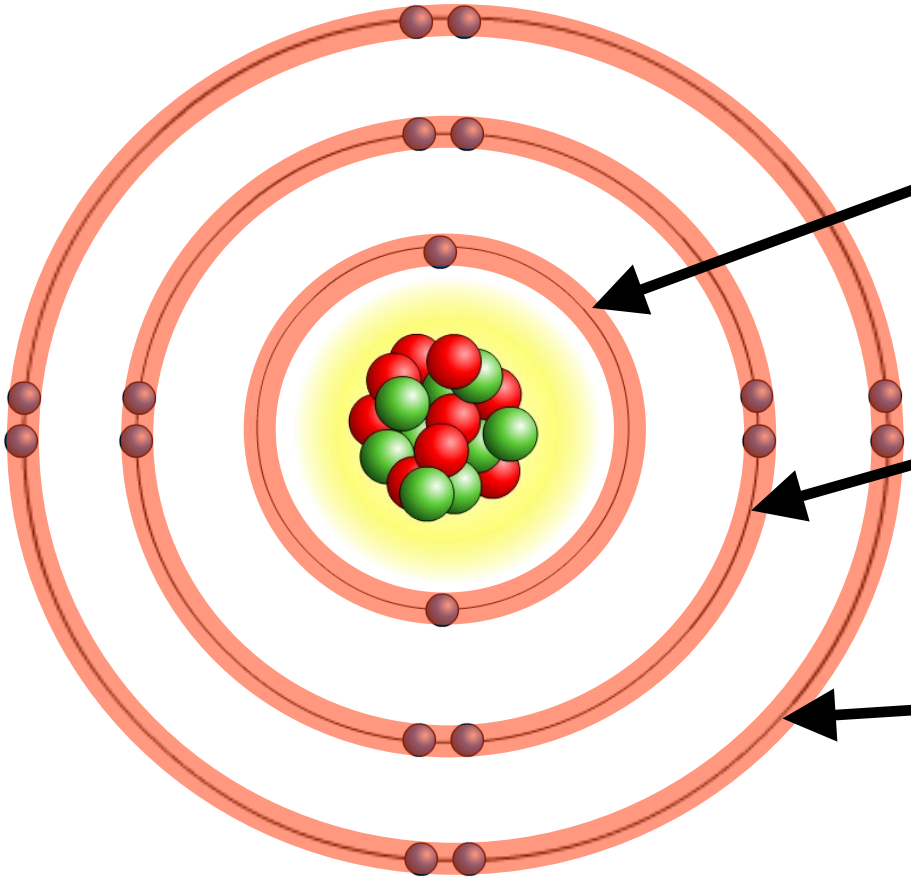
The **arrangement** of electrons in these shells is often called the **electron configuration**.



Note that this diagram is not drawn to scale – the atom is mostly empty space. If the electron shells are the size shown, the nucleus would be too small to see.

How many electrons per shell?

Each shell has a maximum number of electrons that it can hold. Electrons will fill the shells nearest the nucleus first.



1st shell holds a maximum of **2 electrons**

2nd shell holds a maximum of **8 electrons**

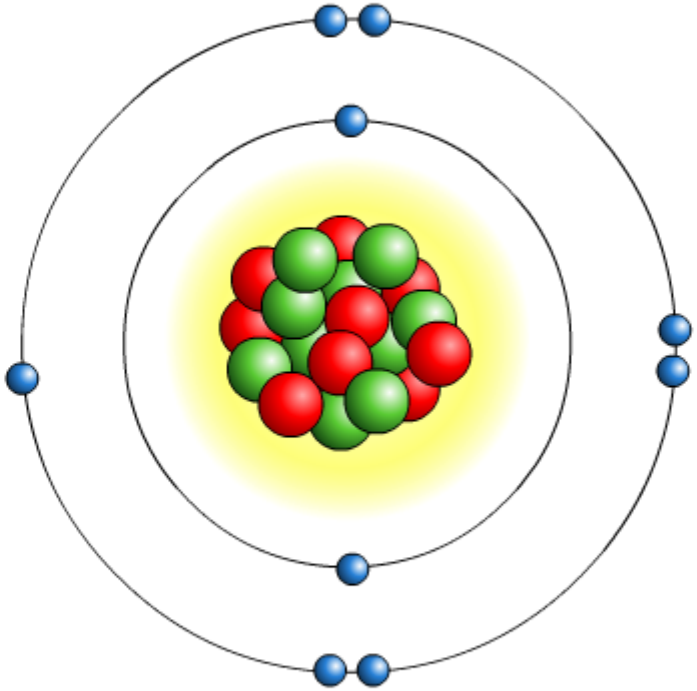
3rd shell holds a maximum of **8 electrons**

This **electron arrangement** is written as **2,8,8.**

Calculate electron configurations

Which element?

Which atom is shown by the electron arrangement?



key:
- neutron
- proton
- electron

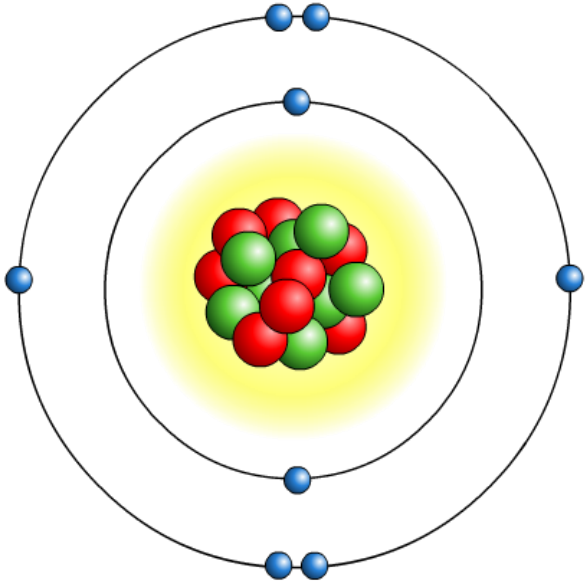
19	9	40
F	Be	Ar
9	4	18

Atom 1 of 4

Protons, neutrons and electrons

The **nucleus** is:

- made up of protons and neutrons
- positively charged because of the protons
- dense – it contains nearly all the mass of the atom in a tiny space.



Electrons are:

- very small and light, and negatively charged
- able to be lost or gained in chemical reactions
- found thinly spread around the outside of the nucleus, orbiting in layers called shells.

Protons, neutrons and electrons

What do we know about the atom so far?

Nucleus	Electrons

orbit the nucleus in layers called shells

?

C

solve