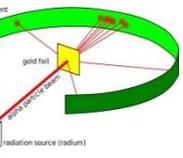


Nucleus development
 This experiment allowed us to replace the plum pudding model with the nuclear model - the atom was mainly empty space with a small positively charged nucleus

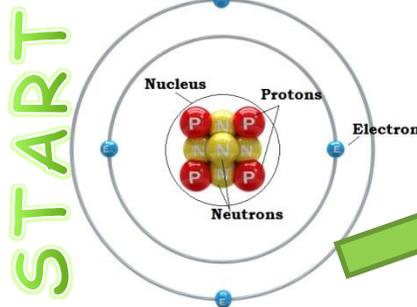


Alpha particle scattering
 Geiger and Marsden

fired positively-charged alpha particles at gold foil. This showed that the mass of an atom was concentrated in the centre, it was positively charged too

Plum pudding
 After the electron was discovered, Thomson created the plum pudding model - the atom was a ball of positive charge with negative electrons scattered in it

Early ideas
 Before the discovery of the electron, Dalton thought that atoms were tiny spheres, that couldn't be divided



Particle	Charge	Mass
Electron	-1	0
Proton	+1	1
Neutron	0	1

Key words:

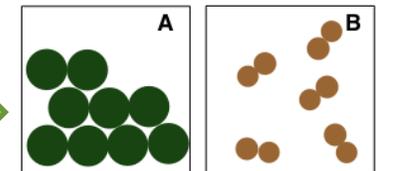
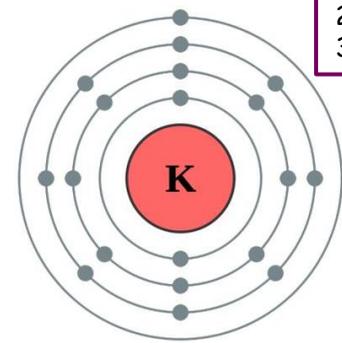
- Proton:** Found inside the nucleus of an atom, have a positive charge
- Electron:** Found in rings orbiting the nucleus, have a negative charge
- Neutrons:** Found in the nucleus of an atom, have no charge
- Nucleus:** The centre of an atom, made up of protons and neutrons
- Mass number:** The mass of the atom, made up of protons and neutrons
- Atomic number:** The number of protons in an atom
- Element:** All the same type of atom chemically bonded together
- Compound:** More than one type of atom chemically bonded together
- Mixture:** More than one type of element or compound not chemically bound together
- Electron Shell:** A ring surrounding the nucleus containing the electrons

Position in the Periodic Table:

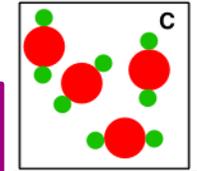
- The number of electrons in the outer shell tells us the group in the periodic table
- Potassium 2,8,8,1 and Lithium 2,1 both have 1 electron in their outer shell and are both found in group 1

Rules for electron shells:

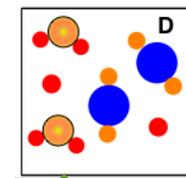
- The first shell will only hold 2 electrons
- Shells after the first one will have up to 8 electrons
- Electrons try to move as far away from each other as possible
- Once the 4 points are filled up then the electron's will pair up
- We write the electron configuration, which tells us how many electrons are in each shell



Element
 All the same type of atom



Compound
 More than one type of atom chemically bonded together



Mixture
 More than one type of element or compound not chemically bound together



- Rules:**
- Mass number = protons + neutrons
 - Atomic number = no. of protons
 - No. of electrons = no. of protons

K

Electron configuration:
 2,8,8,1

Questions

1. Draw and label the structure of an atom
2. What are the three subatomic particles in an atom?
3. What are the charges of the protons, neutrons and electrons?
4. What is the mass of the protons, neutrons and electrons?
5. Describe the differences between an atom, element and a compound
6. How was the periodic table first ordered?
7. Why were early versions of the periodic table changed?
8. Describe 2 changes Mendeleev made to the periodic table
9. Describe one similarity and one difference between Mendeleev's and Newlands' periodic table
10. Why are the groups in the periodic table so useful?
11. How are the elements arranged in the modern periodic table?
14. Draw the electron structure for sodium
15. What are the properties of group 1 metals?
16. What are the properties of group 7 elements?

17. Describe the differences between the plum pudding model and the nuclear model
18. Describe the similarities between the plum pudding model and the nuclear model
19. How Geiger and Marsden's experiment led to the discovery of the nucleus