Chemistry

Development of periodic table

Early attempts to classify the elements

- before scientist discovered protons neutrons and electrons they tried to arrange elements in the periodic table by their atomic mass
- This method was not perfect because some elements end up in wrong groups because scientist ignore their chemical properties

Earlier periodic models

- the first version of periodic table had many gaps and elements were placed on the wrong spots
- This made the early models incomplete and confusing

Mendleeves periodic table

- In 1860 there is a depth of Russian scientist called Dimitri Mendeleev who made first modern periodic table
- He arranged elements in order of increasing atomic mass but he also looked at their chemical and physical properties
- He notice that elements with similar properties appeared in same column called groups

- He even changed the order of some elements to make sure that they fit the pattern

Gaps in the periodic table

- mendeleev left gaps in the periodic table for elements that were not yet discovered
- he used patterns to predict to what those elements would be look like
- for example he predicted the element such as Silicon which was latest discovered called Germanium
- when these basic elements were found their properties match with mendleeve prediction through and stated that his table was correct

Swapping elements

- Mendleeves was flexible he did not always follow the atomic mass trick
- For example
- tellurium has higher atomic mass than iodine but he placed iodine after tellurium
- This is because iodine properties matched with chlorine fluorine and bromine while tellurium properties were similar to Oxygen and sulphur

Modern Periodic Table

- It has same structure but new order the Modern Periodic Table is similar to mendeleeves
- the element are arranged by atomic number instead of atomic mass
- Arrangement by atomic number
- the elements are placed in order of increasing atomic number from top left to bottom right
- for example hydrogen has atomic number 1 Helium has atomic number 2
- to the vertical columns are the groups
- and elements in the same group have same chemical properties

representation of elements

each box in the periodic table shows element symbols

Group

- Groups are vertical columns
- elements of same group have similar behaviour chemical
- group 7 elements like

Period

- **horizontal rows are called periods**
- **elements in the same period have same number of electron shells**
- **the position of each element depend upon the electron**

for example

iron has atomic number 26
Cobalt has atomic number 27
Nickel has atomic number 28