Chemistry

Basic concepts

<table>
<thead>
<tr>
<th>Type</th>
<th>Charge</th>
<th>Mass</th>
<th>Placement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proton</td>
<td>+1</td>
<td>1</td>
<td>Nucleus</td>
</tr>
<tr>
<td>Neutron</td>
<td>0</td>
<td>1</td>
<td>Nucleus</td>
</tr>
<tr>
<td>Electron</td>
<td>-1</td>
<td>1</td>
<td>Shells</td>
</tr>
</tbody>
</table>

- Packed closely
- Fixed positions
- Low energy
- Keeps its own shape
- Take shape of container
- Closely packed
- Slide over each other
- Intermediate energy
- Fill volume
- Compressed easily
- High energy
- Collide

- Positive = cation
- Negative = anion
- -ide = only element given
- -ite/-ate = oxygen
- -ite = less oxygen

- Combustion = hydrocarbon + oxygen \(\rightarrow\) carbon dioxide + water
- Isotopes = different atoms of the same element \(\rightarrow\) same no. protons and electrons but different no. of neutrons from nuclei
- Period number = number of shells
- Group number = number of outer shell electrons

Relative Atomic Mass (AR)

- Weighted mean mass of electrons of each atom in an element on the scale where 12C = 12
- 1 atom of carbon = 1.992x10\(^{-26}\) Kg
- AR = sum of Isotope abundance \(\times\) isotope mass number / sum of the abundances of all the isotopes
- E.g Chlorine 75% 35Cl 25% 37Cl
- 75/100 x 35 + 25/100 x 37 = 35.5

- Atom = Smallest part of an element to exist. It is neutral as it has the same number of protons and electrons
- Ion = Charged particle that consists of 1+ atoms. It is not neutral as it has the same number of protons but a different number of electrons