Chemistry

Organic Chemistry 1 - Hydrocarbons
➢ Contains carbon + hydrogen atoms only

Homologous Series
➢ Group of molecules with the same general formula
➢ Similar chemical properties gradually changing physical properties

Alkanes (CnH2n+2)
➢ Saturated – single bond only

<table>
<thead>
<tr>
<th>No.1 of carbon</th>
<th>Name</th>
<th>Molecular formula</th>
<th>Structure Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Methane</td>
<td>CH4</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Ethane</td>
<td>C2H6</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Propane</td>
<td>C3H8</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Butane</td>
<td>C4H10</td>
<td></td>
</tr>
</tbody>
</table>

➢ Low Mp and Bp – weak intermolecular forces between molecules need breaking, little energy is required
➢ As molecules get bigger, the forces get stronger as there are more electrons so MP and Bp increases
➢ Complete combustion of Alkanes & Alkenes – excess O2
➢ Hydrocarbon + oxygen → Carbon dioxide + water
➢ Incomplete combustion – limited supply of O2
➢ Soot and CO are produced
➢ 2CH4+3O2 → 2Co+ 4H2

Alkenes (CnH2n)
➢ Unsaturated – contains one carbon double bonds
➢ 2 molecules react to form 1
➢ Test for alkenes → Bromine water turns orange to colourless – alkanes stay the same
➢ Isomers have the same molecular formula but a different arrangement of atoms
➢ More than one option a number is added to tell us where the double bond starts from on carbon

➢ Reaction with Bromine
➢ Reaction with Water