

**TERM 1 TOPIC LIST**

<b>(EL)</b>	<b>Elements of life</b>
<b>(a) - (h)</b> atomic number, mass number & isotopes Avogadro constant relative isotopic mass, relative atomic mass, relative formula mass & relative molecular mass atomic structure bonding and structure: dot-and-cross diagrams, electron arrangements, giant lattice- and simple <b>(l) - (L)</b> molecular structures and physical properties <b>(m) - (s)</b> inorganic chemistry and periodic table <b>(t) - (u)</b> equilibria (acid-base) <b>(v) - (w)</b> energy and matter <b>(x)</b> modern analytical techniques	
<b>(DF)</b>	<b>Developing fuels</b>
<b>(a)</b> Volumes of gases Balanced chemical equations enthalpy changes <b>(b) - (c')</b> bonding and structure: bonding in organic compounds, molecular shapes, <b>(d) - (g)</b> energetics <b>(h) - (j)</b> kinetics: <b>(k)</b> inorganic chemistry and the table: origin of atmospheric pollutants & environmental implications <b>(L) - (m)</b> organic functional groups nomenclature, general formula and structural formulae <b>(n) - (o)</b> organic reactions Balanced chemical equations for combustion addition reactions of alkenes  <b>(p)</b> polymers <b>(q)</b> organic mechanisms mechanism of electrophilic addition  <b>(r') - (t)</b> isomerism <b>(u)</b> sustainability benefits and risks of fuels sustainable energy supply	

**TERM 2 TOPIC LIST**

<b>(ES)</b>	<b>Elements from the sea</b>
<b>(a)</b> formula equation and amount of substance <b>(b) - (g)</b> redox  inorganic chemistry and the table: halogens: physical properties, reactivities, redox changes, precipitation <b>(h) - (n)</b> reactions, hydrogen halides & its properties, risk associated with storage and transport of chlorine <b>(o) - (q)</b> equilibria	
<b>(OS)</b>	<b>The ozone story</b>
<b>(a) - (d)</b> electronegativity and trends in the periodic table bond polarity and shape of bonds intermolecular bonds: hydrogen bonds, dipole-induced dipole bonds, relative boiling points <b>(e) - (h)</b> kinetics activation enthalpy enthalpy profiles effects of concentration and pressure on rates of reaction Catalysts on rate of reaction Boltzmann distribution and temperature effects <b>(l)</b> inorganic chemistry and the periodic table calculation for composition by volume of a component in a gas <b>(j)</b> Organic functional groups haloalkanes amines <b>(k)</b> Organic reactions properties of haloalkanes boiling points nucleophilic substitution with water, hydroxide ions and ammonia	Continued on next page.

<p><b>(l) - (q)</b></p> <p><b>(r')</b></p> <p><b>(s) - (u)</b></p>	<p>Reaction mechanisms</p> <p>Sn2 mechanism</p> <p>radicals : formation, nature &amp; reactivity</p> <p>homolytic &amp; heterolytic bond fission</p> <p>sustainability</p> <p>formation and destruction of ozone and effects</p> <p>energy and matter</p>
<p><b>(WN)</b></p>	<p><b>what's in a medicine?</b></p>
<p><b>(a) - (b)</b></p> <p><b>(c') - (g)</b></p> <p><b>(h)</b></p> <p><b>(l) - (j)</b></p>	<p>organic functional groups of:</p> <p>carboxylic acids</p> <p>phenols</p> <p>acid anhydrides</p> <p>esters</p> <p>aldehydes</p> <p>ketones</p> <p>ethers</p> <p>organic reactions</p> <p>properties of phenols</p> <p>reactions of alcohols</p> <p>thin layer chromatography, filtration and re-crystallisation</p> <p>preparing &amp; purifying a liquid organic product</p> <p>principles of green chemistry</p> <p>reaction mechanisms</p> <p>modern analytic techniques</p> <p>interpretation of mass spectra</p> <p>effect of IR</p>