**Chemistry**

**Atomic structure and the periodic table**

* Solid, liquids and gases
* A simple model of the atom
* The periodic table

**Structure, bonding and the properties of matter**

* Chemical bonds: ionic, covalent and metallic
* How bonding and structure are related to the properties of substances
* Structure and bonding of carbon
* Nanoparticles

**Chemical changes**

* Metals
* The reactivity series
* Metal carbonates
* Electrolysis

**Chemical analysis**

* Purity, formulations and chromatography
* Identification of common gases
* Identification of ions by chemical and spectroscopic means

**Acids, bases and salts**

* The properties of acids and bases
* Preparation of salts

**Quantitative chemistry**

* Conservation of mass including the quantitative interpretation of chemical equation
* Use of amount of substance in relation to masses of pure substances
* The mole concept
* Using molar concentrations of solutions and amount of substance in relation to volumes of gases

**Periodicity**

* Group properties
* Transition metals

**The rate and extent of chemical change**

* Rate of reaction
* Reversible reactions and dynamic equilibrium
* Redox reactions

**Energy changes**

* Exothermic and endothermic reactions
* Calculating and explaining energy change
* Chemical cells and fuel cells

**Organic chemistry**

* Carbon compounds as fuels
* Crude oil
* Hydrocarbons
* Obtaining useful substances from crude oil
* Synthetic and naturally occurring polymers
* Organic compounds – their structure and reactions
* Alcohols
* Carboxylic acids
* Esters