




St Richard Reynolds Catholic High School

<p>SUBJECT: SEPARATE SCIENCE YEAR GROUP: 10</p> <p>TOPICS COVERED</p> <p>Biology: Practical skills, Infection and Response, Bioenergetics, Homeostasis, Inheritance, Variation and Evolution, Ecology</p> <p>Chemistry: Practical skills, Bonding, Energy Changes, Chemical changes, Quantitative Chemistry; The rate and extend of a chemical reaction, Organic Chemistry</p> <p>Physics: Practical skills, Electricity, Energy, Particle model of matter</p>	
<p style="text-align: center;">PROGRAMME OF STUDY</p>	<p style="text-align: center;">METHOD OF ASSESSMENT</p>
<p>Autumn Term</p> <p>Biology: GCSE – Infection and response – pathogens, spread of disease, HIV, malaria, body's defence against disease, vaccination, immunity, antibiotics, painkillers, Alexander Fleming, penicillin, discovery and development of drugs, medical trials and placebos, monoclonal antibodies</p> <p>Chemistry:</p> <ul style="list-style-type: none">• Bonding: (Ionic bonding, Simple covalent structures, Giant covalent structures, Metallic bonding, Buckminsterfullerene, Nanoparticles)• Quantitative chemistry: (conservation of mass, relative formula mass, moles and reacting masses calculations, using moles to balance chemical equations, concentration calculations, volumes of gases, % yield, atom economy, limiting reactants)• Chemical changes: Metal oxides, The reactivity series, displacement reactions, extractions of metals, reactions of acids with metals, acids and insoluble bases, neutralisation and the pH scale, strong and weak acids, Electrolysis <p>Physics:</p> <ul style="list-style-type: none">• Energy: Energy changes in a system, and the ways energy is stored before and after such changes, Conservation and dissipation of energy and Doing Work	<p>Practical assessment</p> <p>End of topic test after each unit</p> <p>Assessed HW tasks</p>

Spring Term

Biology: Bioenergetics, photosynthesis, factors affecting photosynthesis, limiting factors in photosynthesis, use of glucose by plants, aerobic respiration, anaerobic respiration, response to exercise, metabolism, respiration and gas exchange in plants

Chemistry:

- **Energy changes:** Exo and endothermic reactions, measuring energy transfers, reaction profiles, Bond energies, chemical cells, fuel cells.
- **Rate and extend of a chemical reaction:** Calculating rates, collision theory, catalyst, reversible reactions, equilibrium.

Physics

- **Particles at work:** Changes of state and the particle model and Particle model and pressure
- **Electricity:** Current, potential difference and resistance, Series and parallel circuits Domestic uses and safety, Energy transfers, Static electricity (physics only)

Practical assessment

End of topic test after each unit

Assessed HW tasks

Mock exams

Summer Term

Biology: Homeostasis – what is homeostasis, nervous system, reflex responses, reaction times, the brain, the eye, control of body temperature, endocrine system, control of blood sugar and diabetes, water balance, nitrogen balance, kidney function, kidney failure and its treatment, anti-diuretic hormone, menstrual cycle and hormones in the reproductive cycle, contraception, use of hormones in fertility treatment, IVF, negative feedback, control and coordination in plants, uses of plant hormones

Chemistry:

- **Organic Chemistry:** Hydrocarbons, Fractional distillation, cracking, combustion, reactions of alkenes, reactions and uses of alcohols, carboxylic acids and esters, alternative fuels, addition polymerisation, condensation polymerisation, DNA as polymer, Natural polymers

Physics:

- **Atomic Physics:** Atoms and isotopes, Atoms and radiation, Hazards and uses of radioactive emissions and of background radiation (physics only) and Nuclear fission and fusion (physics only)

Practical assessment

End of topic test after each unit

We will check the progress and tailor our teaching with regards to the needs of the students focusing either on revision, practical skills or moving further.

Exam board – AQA

Key Skills:

- Experimental work
- Collecting data
- Interpreting, analysing and evaluating data
- Research and hypothesising
- Predicting and concluding
- Evaluating