KS4 Curriculum Overview

Subject: Science

Overview for students commencing Year 11 in September 2023 (Finishing summer 2024)

2023-24	Accreditation	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Current Year 11	**OCR Entry Level** **And** **OCR GCSE Gateway A**	**Hot Stuff** Insulator, conductor, particle model, solar furnace.	**Novel Materials** Covalent bonds, composite material, alloys and metal properties.	**Food Factory** Photosynthesis. Transpiration and translocation.	**Nuclear Power** Function of a nuclear power station, concept of a half-life, radioactive waves.	**Creepy Crawlies** Ecosystems, food webs, adaptations of predators and prey.	
		Acids and Alkalis pH scale, lab safety, protons and hydroxide ions, neutralisation.	**How Fast, How Slow?** Rates of reaction, catalysts, enzymes.	**A Place For Everything** Structure of an atom, periodic table (groups) Isotopes.	**Fooling Your Senses** Function and structure of the eye and taste buds. Reaction to stimuli.		

Overview for students commencing Year 10 in September 2023 (Finishing summer 2025)

2023-24	Accreditation	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Current Year 10	**OCR Entry Level** **And** **OCR GCSE Gateway A**	**Pushes and Pulls** Forces, gravity, Hooke's Law.	**Sorting Out** Pure substances and mixtures. Chromatography.	**Attractive Forces** Magnetism, electromagnets, earth's magnetic field.	**Let's Get Together** Periodic table, electrolysis. Dot and cross diagrams.	**Creepy Crawlies** Ecosystems, food webs, adaptations of predators and prey.	**Medical Rays** X-rays uses and risks. UV ray uses and risks.
		Extinction Variation, mutations habitats, extinction.	**Dead or Alive?** MRS GREN, animal cells, plant cells. Cancer as a cell mutation.	**Gasping for breath** Respiratory system function, hazards of smoking.	**Are you Overreacting?** Chemical reactions, hydrogen test, reactivity series.	**Getting the Message** Soundwaves, coding, binary codes, wireless technology.	**Full Spectrum** Electromagnetic spectrum. Infrared uses. Visible light uses. Microwave radiation.
		Control Systems Homeostasis, diabetes and insulin.					**CSI Plus** Crime scene contamination, fingerprints, collection of evidence.

2024-25 cohort	Accreditation	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 11	OCR Entry Level And OCR GCSE Gateway A	**Hot Stuff** Insulator, conductor, particle model, solar furnace.	**Novel Materials** Covalent bonds, composite material, alloys and metal properties.	**Food Factory** Photosynthesis. Transpiration and translocation.	**Fooling Your Senses** Function and structure of the eye and taste buds. Reaction to stimuli.	**Body Wars** Microbes, white blood cells, diseases, vaccinations.	
		Acids and Alkalis pH scale, lab safety, protons and hydroxide ions, neutralisation.	**How Fast, How Slow?** Rates of reaction, catalysts, enzymes.	**A Place For Everything** Structure of an atom, periodic table (groups) Isotopes.	**Nuclear Power** Function of a nuclear power station, concept of a half-life, radioactive waves.		

Overview for Starting ELC in September 2023

	Accreditation	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Current Year 9	**OCR Entry Level And OCR GCSE Gateway A**	**Babies** Male and female reproductive system. Embryonic development.	**Genes** Variation, punnet squares.	**You Only Have One Life** Healthy lifestyle including exercise and diet.	**Clean Air and Water** Global warming, pollutants.	**Casualty RRS** Anatomy/function of the heart. Healthy heart. Blood cells and functions.	**Heavy Metal** Reactivity series. Rusting. Recycling.
		Physical and Chemical Changes RRS theory, physical and chemical changes.	**Fly me to the Moon** Planets, force=mass x acceleration.	**Fuels** Hydrocarbons, fractional distillation, use of petrol and diesel.	**Alternative Energy** Fossil fuels, renewable energy.	**Driving Along** Speed=distance/time, speed limits, stopping distance=thinking time +braking distance.	**Our Electrical Supplies** Voltage, production of electricity. Transformers.
			Final Frontiers Orbit times of planets around the sun. Understand the sun and its place in our solar system.				

	Accreditation	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 10	**OCR Entry Level** **And** **OCR GCSE Gateway A**	**Pushes and Pulls** Forces, gravity, Hooke's Law.	**Sorting Out** Pure substances and mixtures. Chromatography.	**Attractive Forces** Magnetism, electromagnets, earth's magnetic field.	**Let's Get Together** Periodic table, electrolysis. Dot and cross diagrams.	**Creepy Crawlies** Ecosystems, food webs, adaptations of predators and prey.	**Medical Rays** X-rays uses and risks. UV ray uses and risks.
		Extinction Variation, mutations habitats, extinction.	**Dead or Alive?** MRS GREN, animal cells, plant cells. Cancer as a cell mutation.	**Gasping for breath** Respiratory system function, hazards of smoking.	**Are you Overreacting?** Chemical reactions, hydrogen test, reactivity series.	**Getting the Message** Soundwaves, coding, binary codes, wireless technology.	**Full Spectrum** Electromagnetic spectrum. Infrared uses. Visible light uses. Microwave radiation.
		Control Systems Homeostasis, diabetes and insulin.					**CSI Plus** Crime scene contamination, fingerprints, collection of evidence.

	Accreditation	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 11	OCR Entry Level And OCR GCSE Gateway A	**Hot Stuff** Insulator, conductor, particle model, solar furnace.	**Novel Materials** Covalent bonds, composite material, alloys and metal properties.	**Food Factory** Photosynthesis. Transpiration and translocation.	**Fooling Your Senses** Function and structure of the eye and taste buds. Reaction to stimuli.	**Body Wars** Microbes, white blood cells, diseases, vaccinations.	
		Acids and Alkalis pH scale, lab safety, protons and hydroxide ions, neutralisation.	**How Fast, How Slow?** Rates of reaction, catalysts, enzymes.	**A Place For Everything** Structure of an atom, periodic table (groups) Isotopes.	**Nuclear Power** Function of a nuclear power station, concept of a half-life, radioactive waves.		