Our Lady Queen of Peace
Catholic High School

Curriculum Overview

Year 11 ASPIRE

Careers		
Local Market Information	**Skills**	**Jobs**
Local science becomes specialist pathways and apprenticeships. Biology links to genetics, inheritance and diagnostics through NHS laboratory science. Chemistry links to analytical chemistry, organic chemistry and industrial processes through employers such as P&G, Pilkington/NSG, Victrex and Westinghouse Springfields. Physics links to waves, magnetism and energy with links to the buzzing nuclear and clean-energy careers e.g. Westinghouse Springfields and URENCO.	**Resilience** **Strong Work Ethic** **Commitment**	Biomedical scientist; genetics laboratory assistant; analytical technician; nuclear/process apprentice; materials scientist

	Knowledge & Understanding			**Subject Specific Literacy Development**	**Cultural Capital / Enrichment Opportunities**
	Topics (Bigger Picture)	**Knowledge (Key Concepts)**	**Recall & Retrieval Practice Focus**	**Key Vocabulary**	
Half Term 1	P2: Electricity	Components, Current & Charge, Potential Difference & Resistance, Series Circuits, Parallel Circuits, Resistance of a wire RP, Resistors (LDR, & Thermistors), IV Characteristics RP, National Grid & AC/DC, Cables & Plugs, Electrical Power Calculations, Static Electricity (Separates ONLY)	Recall simple circuits, electrical devices and conductors and insulators.	Current Charge Potential difference Resistance Series circuit Parallel circuit LDR Thermistor Diode National grids Transformer	Reading for meaning activities drawing on interesting articles in the news etc. Historical development of key concepts and discoveries; students will become familiar with influential scientists,

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	Topics (Bigger Picture)	**Knowledge (Key Concepts)**	**Recall & Retrieval Practice Focus**	**Key Vocabulary**	
				Live wire Earth wire Static charge Electric field	experiments, and milestones, e.g. Eddison and Tesla (AC/DC current)
	B4: Bioenergetics	Tissue and organs in plants, Transport in plants, Transpiration and Translocation, Factors affecting transpiration, Photosynthesis and Limiting Factors, The Rate of Photosynthesis RP Respiration and Metabolism, Aerobic Respiration, Anaerobic Respiration, Response to Exercise	Recall plant structures and requirements for plant growth. Recall the role of respiration in living organisms.	Xylem Phloem Photosynthesis Translocation Transpiration Potometer Limiting factor Respiration Metabolism Aerobic respiration Anaerobic respiration Oxygen debt	
	C3a: Quantitative Chemistry	Writing Chemical Equations, Conservation of mass, Uncertainty of Chemical Measurements, Relative Masses, Calculating percentage by mass, Concentration,	Recall chemical formulae, reactions and measurement of mass and volume.	Chemical equation Conservation of mass Uncertainty Relative formula mass Concentration	
Half Term 2	B5: Homeostasis	The Endocrine System, Control of Blood Glucose Levels, Menstrual Cycle, Artificial control of fertility	Recall cells, organ systems, hormones and the basic needs of living organisms.	Homeostasis Negative feedback Endocrine system Hormone Insulin ADH Menstrual cycle Ovulation Contraception	Reading for meaning activities drawing on interesting articles in the news etc. Historical development of key concepts and discoveries; students will become familiar with influential scientists, experiments, and

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					milestones.
	P5: Forces	Newton's First Law, Forces and Work Done, Forces and Elasticity, Investigating Springs RQP,	Recall motion, energy transfers and everyday examples of pushes, pulls and gravity.	Resultant force Work done Hooke's law Directly proportional	
	C6: Rates & Equilibrium	Rates of Reactions, Factors Affecting Rates of Reactions, Measuring Rates of Reactions (RQP), Rates of Reactions from Graphs, Reversible Reactions	Recall particles, chemical reactions, energy changes and collision ideas from previous chemistry topics.	Rate of reaction Collision theory Gradient Dynamic equilibrium	
Half Term 3	C7: Organic Chemistry	Crude Oil and Hydrocarbons, Fractional distillation of oil, Burning Hydrocarbons, Cracking hydrocarbons	Recall atomic structure, bonding, hydrocarbons and combustion reactions.	Hydrocarbon Alkane Fractional distillation Combustion Cracking Alkene	Historical development of key concepts and discoveries; students will become familiar with influential scientists, experiments, and milestones. Career spotlights for each topic STEM careers lesson (e.g. internation science week) Visits to local colleges and universities.
	P6: Waves	Transverse and Longitudinal Waves, Wave Speed, Ripple Tank RP,	Recall energy transfer, vibrations, sound and	Transverse Longitudinal	

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		Reflection & Refraction (Sep Only), Sound waves (Sep Only), Waves for detection and exploration (Sep Only), EM Spectrum and uses, EM Spectrum Uses – Communication, Infrared, Lenses (Sep Only), Visible Light (Sep Only), Black body radiation (Sep Only),	light from earlier science learning.	Wave speed Frequency Wavelength Reflection Refraction Sound wave Ultrasound Seismic wave Electromagnetic spectrum Infrared radiation Lens Visible light Black body radiation	
	B7: Ecology	Communities, Abiotic and Biotic Factors, Adaptations in plants, Adaptations in animals, Sampling, Recycling Materials, Decay (Sep Only), Feeding Relationships, Biodiversity, Pollution, Deforestation, Global Warming, Trophic	Recall feeding relationships, habitats, adaptation and interdependence of organisms.	Ecosystem Community Biotic Abiotic Adaptation Competition Sampling Quadrat Decay Tropic level Nutrient cycle Biodiversity Pollution Deforestation Global warming	
Half Term 4	C10: Using Resources	Finite and Renewable Resources, Life Cycle Assessment, Reuse, Reduce and Recycle, Potable Water, Wastewater	Recall material properties, separation techniques, chemical	Sustainable development Life cycle assessment	Career spotlights for each topic

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		Treatment, Water Analysis RQP	analysis and Earth's resources.	Recycling Potable water Waste water treatment Purity	STEM careers lesson (e.g. internation science week) Visits to local colleges and universities, STEM Big Bang etc.
	P7: Magnetism	Magnetism, Magnetic fields, Electromagnetism	Recall electricity, circuits and magnetic materials.	Magnetic field Induced magnetism Magnetic field lines Electromagnet	
	C9: Earth Atmosphere	Composition and Evolution of the Atmosphere, Greenhouse Gases and the Greenhouse Effect, Global Climate Change, Atmospheric Pollutants from Fuels, Carbon Footprint and Reducing Emissions,	Recall particle theory, gases, chemical reactions and Earth's resources.	Atmospheric evolution Pollution Greenhouse effect Climate change	

Key Assessments

When	What will be assessed?	Why is this being assessed?	How will results be stored & students receive feedback?
Half Term 1	Physics – Electricity – End of topic test Biology – Bioenergetics – End of topic test Chemistry – Quantitative Chemistry – End of topic test	To assess students understanding of electric circuits, current, potential difference, resistance, effects of components. Also, mains electricity & the national grid. To assess students understanding of photosynthesis and respiration as vital	Pupil Progress Teacher marked with WWW and EBI on green sheet.

	Required Practical DD Assessment	reactions, how organisms are adapted to maximise these reactions and how they can be affected. To assess students understanding of chemistry calculations – moles, concentration, formula mass	
Half Term 2	Biology – Homeostasis – End of topic test Physics – Forces – End of topic test Chemistry – Rates – End of topic test Mocks	To assess students understanding the endocrine systems role in homeostasis and hormonal control in relation to fertility. To assess students understanding of Newton's first law, Hooke's law. To assess students understanding of the factors that effect the rate of a chemical reaction and collision theory.	Pupil Progress Teacher marked with WWW and EBI on green sheet.
Half Term 3	Chemistry – Organic Chemistry– End of topic test Physics – Waves – End of topic test Biology - Ecology – End of topic test	To assess students understanding organic compounds, how they are obtained, refined and used. To assess students understanding of how waves transfer information and energy and the uses and dangers of EM waves. To assess students understanding of the Earth's atmosphere, how it developed and changed and the human impact (pollution). To assess students understanding of animal adaptations, human impact on the environment and how to investigate the distribution of organisms.	Pupil Progress Teacher marked with WWW and EBI on green sheet.

Half Term 4	Chemistry – Using resources – End of topic test Physics – Magnetism – End of topic test Chemistry – Earth's atmosphere – End of topic test	To assess students understanding of how the earth's resources can be obtained and used. Also, the impact of using resources on the environment. To assess students understanding of magnetic fields & electromagnets. To assess students understanding of the Earth's atmosphere, how it developed and changed and the human impact (pollution).	Pupil Progress Teacher marked with WWW and EBI on green sheet. Pupil Progress Teacher marked with WWW and EBI on green sheet.