Curriculum Overview: Science

Exam Board: AQA Trilogy

St JAMES ACADEMY Dudley

	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
7	**Cells & Respiration** ○ Animal cells ○ Plant cells ○ Cell structures and functions **The Particle Model** ○ Solids, liquids and gases ○ Changing state	**Forces** ○ Balanced and unbalanced forces ○ Investigating forces **Human Organ System** ○ Digestive system ○ Respiratory system ○ Skeletal system ○ Muscular system	**Atoms, Elements, Compounds & Mixtures** ○ Atoms ○ Elements ○ Separating substances ○ Chemical formulae ○ Solubility	**Energy stores & pathways** ○ Energy stores ○ Efficiency ○ Conduction ○ Convection ○ Radiation ○ Renewable & non-renewable energy sources	**Reproduction** ○ Puberty ○ Male and female reproductive systems ○ Plant reproduction **Chemical Reaction** ○ pH scale ○ Acids and alkalis ○ Oxidation ○ Neutralisation ○ Metals & Acids	**Space** ○ The planets ○ The solar system ○ The wider universe ○ Mass, weight and gravity ○ The moon ○ The seasons
8	**Plants & Ecosystems** ○ Photosynthesis ○ Food chains ○ Food webs ○ Classification **Periodic Table & Reactivity** ○ Periodic table ○ Group 1 and 7 ○ Reactivity series	**Forces & Motion** ○ Speed ○ Acceleration ○ Friction ○ Pressure in solids and liquids **Health & Disease** ○ Diets ○ Circulatory system ○ Heart disease ○ Smoking ○ Drugs	**Controlling Reactions** ○ Rate of reaction ○ Effect of surface area ○ Effect of concentration ○ Effect of temperature ○ Catalysts ○ Exothermic & endothermic	**Electricity & Magnetism** ○ Series & parallel circuits ○ Current & potential difference ○ Resistance ○ Magnetic fields ○ Electromagnets	**Genetics & Evolution** ○ DNA ○ Inheritance ○ Variation ○ Evolution ○ Natural selection ○ Extinction **Earth Materials** ○ Sedimentary rocks ○ Igneous rocks ○ Metamorphic rocks ○ Fossils ○ Carbon cycle	**Waves** ○ Transverse waves ○ Longitudinal waves ○ Hearing & the ear ○ Echoes ○ Light and reflections ○ The Eye
9	**Cells** ○ Eukaryotes & Prokaryotes ○ Animal & Plant cells ○ Cell specialisation ○ Cell differentiation ○ Microscopy ○ Cell Division ○ Transport in cells	**Atomic Structure** ○ Models of the atom, symbols, relative atomic mass, electronic charge and isotopes. ○ The Periodic table ○ Trends in groups 1, 7 and 0	**Energy** ○ Energy changes in a system, and the way energy is stored before and after changes. ○ Conservation and dissipation of energy ○ National and global energy resources.	**Organisation** ○ Principles of organisation ○ Animal tissues, organs and organ ○ Plant tissues, organs and systems	**Particle Model of Matter** ○ Changes of state and particle model. ○ Internal energy and energy transfers. ○ Particle model and pressure.	**Structure & Bonding** ○ Chemical bonds, ionic, covalent and metallic. ○ How bonding and structure relate to the properties of substances.
10	**Electricity** ○ Current, potential difference & resistance ○ Series & parallel circuits. ○ Domestic uses & safety ○ Energy transfers ○ National Grid **Infection & response** ○ Communicable diseases ○ Body defence systems ○ Responses to infections and viruses	**Quantitative Chemistry** ○ Chemical measurements ○ Conservation of mass ○ Using moles ○ Concentration of solutions **Atomic Structure** ○ Atoms & Isotopes ○ Atoms & nuclear radiation. ○ Half lives & radiation	**Chemical Changes** ○ Reactivity of metals. ○ Reactions of acids ○ Electrolysis **Bioenergetics part 1** ○ Photosynthesis ○ Rate of photosynthesis ○ Uses of glucose	**Bioenergetics part 2** ○ Respiration ○ Response to exercise ○ Metabolism **Forces Part 1** ○ Forces and their interactions. ○ Work done	**Forces continued** ○ Energy Transfer. ○ Forces and elasticity **Energy Changes** ○ Exothermic and endothermic reactions. ○ Reaction profile diagrams	**Mock exams** ○ Revision of Biology, Chemistry and Physics paper 1 content **Rate of chemical change** ○ Rate of reaction. ○ Reversible reactions and dynamic equilibrium.
11	**Forces Part 2** ○ Forces and motion. ○ Acceleration ○ Newton's laws. ○ Stopping distances ○ Momentum **Homeostasis & Response** ○ Homeostasis ○ Human nervous system ○ Hormonal co-ordination in humans	**Organic Chemistry & Chemical Analysis** ○ Carbon compounds as fuels & feedstock. ○ Cracking & alkanes. ○ Purity, formulations & Chromatography **Waves** ○ Waves in air, fluids & solids. ○ Electro-magnetic waves.	**Magnetism** ○ Permanent & induced magnets ○ Magnetic forces ○ The motor effect. ○ Electro-magnetism **Inheritance & Evolution** ○ Reproduction ○ Variation and evolution ○ Understanding genetics	**Chemistry of the atmosphere** ○ Composition of Earth's atmosphere. ○ Greenhouse gasses. ○ Pollutants **Using Resources** ○ Using Earth's resources ○ Sustainable development ○ Potable water ○ Wastewater treatment ○ Life cycle assessments	**Exams** ○ GCSE exams	**Exam** ○ GCSE exams

Implementation is driven through our 4 TLPs: Sequencing, Scaffolding & Modelling, Questioning, Reviewing Material and Stages of Practice