Curriculum Sequencing Grid: Science

Year 7	**Term 1**	**Term 2**	**Term 3**
Unit (Tablet in 39 week plan)	Matter, Organisms, Forces, Ecosystems	Energy, Reactions, Earth	Electromagnets, Genes and Waves
Key Retainable Knowledge (Required for Y11/13) • What… How…. Why….	• Cells • Movement • Plant reproduction • Interdependence • Particle model • Separating mixtures • Speed • Gravity	• Acids and alkalis • Metals and non-metals • Universe • Earth structure • Energy costs • Energy transfers	• Current and voltage • Resistance • Human reproduction • Variation • Sound • Light
Key Technical Vocabulary (To be modelled and deliberately practiced in context.)	Bio: Membrane, Cytoplasm, Nucleus, Mitochondria, Ribosomes, Diffusion, Concentration, Stamen, Carpel, Stigma, Filament, Ovary Chem: Solid, Liquid, Gas, Evaporate, Condensate, Melt, Freeze, Boil, Distillation, Filtration, Chromatography Phys: Newton, Weight	Chem: Acid, Alkali, Neutralisation, pH scale, Malleable, Ductile, Brittle, Conductor Igneous, Metamorphic, Sedimentary, Sediment, Extrusive, Intrusive, Star, Planet, Satellite, Seasons, Tilt Phys: Power, Time, Watts, Joules, Chemical, Electrical, Kinetic	Bio: Penis, Vagina, Ovary, Fallopian tube, Natural selection, Sperm, Ovum, Competition Phys: Current, Voltage, Resistance, Electrons, Diameter, Temperature, Energy, Wave, Longitudinal, Transverse, Weight, Mass, Frequency

Curriculum Sequencing Grid: Science

Opportunities for Reading	General reading: BBC Bitesize, National Geographic, Eco Kids, How it works	General reading: BBC Bitesize, National Geographic, Eco Kids, How it works	General reading: BBC Bitesize, National Geographic, Eco Kids, How it works
Developing Cultural Capital (exposure to very best- essential knowledge and skills of educated citizens – appreciation of human creativity and achievement.)	Job links = Botanist, Marine Biologist, Conservationist Enrichment: STEM club	Appreciation of human creativity and achievement = James Prescott Joule Enrichment: STEM club/Science week	Job links = Medical Doctor, Physiotherapist, Nurse, Midwife Enrichment: Magna
Cross Curricular Links (Authentic Connections)	Rearranging equations – Maths Muscles and joints – P.E. Extended answers - English	Rearranging equations – Maths Extended answers – English Earth structure – Geography	Speed = distance/time – Maths Extended answers – English Reproduction – Life skills
Key Assessment	Topic Tests Synoptic Tests	Topic Tests Mid Year Synoptic Test	Topic Tests
How Science Work Skills in Science	• These skills will continuously throughout the year, some or all of which will be covered within each topic o Variables o Equipment o Risk assessments o Writing a method o Presenting data (bar charts and line graphs) o Interpreting data o Types of error (measuring, systematic, random)		

Curriculum Sequencing Grid: Science

	○ Equations, calculations and units ○ Evaluating ○ Models		
Year 8	**Term 1**	**Term 2**	**Term 3**
Unit (Tablet in 39 week plan)	Organisms, Energy, Matter, Reactions,	Forces, Ecosystems	Genes, Waves, Earth, Electromagnets
Key Retainable Knowledge (Required for Y11/13) • What… How…. Why….	• Breathing • Digestion • Chemical energy • Types of reactions • Elements • Periodic table • Heating and cooling • Work done	• Respiration • Photosynthesis • Contact forces • Pressure	• Evolution • Inheritance • Climate • Resources • Wave effects • Wave properties • Magnets • Electromagnets
Key Technical Vocabulary (To be modelled and deliberately practiced in context.)	Bio: Diaphragm, Ribs, Volume, Villi, Small intestine, Large intestine Chem: Exothermic, Endothermic, Bond, Reaction Profile, Catalyst, Combustion, Neutralisation, Element, Compound, Electrolysis, Group, Period Phys:	Bio: Glucose, Starch, Sunlight, Chloroplasts, Chlorophyll, Aerobic, Anaerobic, Fermentation, Lactic Acid Phys: Area, Surface Area, Force, Pascals, Friction, Push	Bio: Species, Competition, Natural Selection, Interspecific, Intraspecific, genes, Inheritance, offspring Chem: Greenhouse gases, Carbon Dioxide, global warming, climate change Phys: Frequency, Wavelength, Longitudinal, Transverse, Reflection,

Curriculum Sequencing Grid: Science

	Conduction, Convection, Radiation, Energy, Force		Refraction, Magnetism, Solenoid, Poles, Voltage, Coil
Opportunities for Reading	General reading: BBC Bitesize, National Geographic, Eco Kids, How it works	General reading: BBC Bitesize, National Geographic, Eco Kids, How it works	General reading: BBC Bitesize, National Geographic, Eco Kids, How it works
Developing Cultural Capital (exposure to very best- essential knowledge and skills of educated citizens – appreciation of human creativity and achievement.)	Job links = Medical Doctor, Electrician, electrical engineer Enrichment: STEM club	Job links = Research associate, Teacher Appreciation of human creativity and achievement = Charles Darwin, Lamarack Enrichment: STEM club/Science week	Job links = Data Scientist, Botanist, Arable Farming Appreciation of human creativity and achievement = Louis Pascal Enrichment: STEM club/Magna
Cross Curricular Links (Authentic Connections)	Balanced diets – P.E. Rearranging equations – maths Extended answers - English	Climate change – Geography Rearranging equations – maths Extended answers - English	Aerobic respiration – P.E. Rearranging equations – maths Extended answers - English
Key Assessment	Topic Tests Synoptic Tests	Topic Tests Mid Year Synoptic Test	Topic Tests
How Science Work Skills in Science	• These skills will continuously throughout the year, some or all of which will be covered within each topic o Variables o Equipment o Risk assessments		

Curriculum Sequencing Grid: Science

	○ Writing a method ○ Presenting data (bar charts and line graphs) ○ Interpreting data ○ Types of error (measuring, systematic, random) ○ Equations, calculations and units ○ Evaluating ○ Models		
Year 9	**Term 1**	**Term 2**	**Term 3**
Unit (Tablet in 39 week plan)	• B4.1 – Cells • B4.2 – Organisation • P6.2 – Electricity • P6.4 – Atomic Structure and Radiation	• C5.1 – Atomic Structure • P6.1 – Energy (Part)	• C5.2 Bonding and Structure • P6.1 – Energy (Part)
Key Retainable Knowledge (Required for Y11/13) • What… How…. Why….	• Cellular structure and organelles • Mitosis • Movement of substances • Adaptations of cells • Cells, Tissues and Organs • Respiration and photosynthesis • Enzymes • Use of symbols • Circuit diagrams • Generating electricity, renewable/non-renewable resources • Atomic structure • Periodic table • Evaluating skills	• Atomic structure • Periodic table • Separating techniques • Isotopes • Transfers of energy • Remembering and application of formulae/units • Specific heat capacity • Required practical skills	• Bonding types and properties • Atomic structure • Polymers • Transfers of energy • Remembering and application of formulae/units • Specific heat capacity Required practical skills

Curriculum Sequencing Grid: Science

	• Required practical skills		
Key Technical Vocabulary (To be modelled and deliberately practiced in context.)	• Organelles, cell, microscope, magnification, adaptation, diffusion, osmosis • Symbol, component, current, resistance, potential difference, renewable and non-renewable • Proton, neutron, electron, Relative atomic mass and atomic number, gamma	• Energy, transfer, dissipates, Joules, specific heat capacity, work done, efficiency, renewable and non-renewable, mass • Nucleus, proton, neutron, electron, shell	• Ionic, Covalent, Metallic, Lattice, Monomer, Polymer • Energy, transfer, dissipates, Joules, specific heat capacity, work done, efficiency, renewable and non-renewable, mass
Opportunities for Reading	• Newly discovered enzymes in nature • Research Iceland as a country for nuclear energy Research regions that only use renewable energy	• Analysing information about renewable and non-renewable energy sources • The news in terms of recent updates about energy resources	• Analysing information about renewable and non-renewable energy sources • The news in terms of recent updates about energy resources • Researching thermosetting and thermos-softening polymers
Developing Cultural Capital (exposure to very best- essential knowledge and skills of educated citizens – appreciation of human creativity and achievement.)	Job Links = pathologist, histologist, electrical engineering, telecommunications, energy	Appreciation of human creativity and achievement = Alpha Scattering Experiment	• Appreciation of human creativity and achievement = Archimedes, Brownian motion, Gilbert Newton Lewis discovery of bonding,
Cross Curricular Links (Authentic Connections)	• Maths – formula: application of formula and units, rearranging formula	• Maths – formula: application of formula and units, rearranging formula	• Maths – formula: application of formula and units, rearranging formula

Curriculum Sequencing Grid: Science

	Maths – line graphs: drawing and interpreting	Maths – line graphs: drawing and interpreting	Maths – line graphs: drawing and interpreting
Key Assessment	• End of Unit Tests	• End of Unit Tests	• End of Unit Tests • Synoptic Exam
How Science Work Skills in Science	• These skills will continuously throughout the year, some or all of which will be covered within each topic o Variables o Equipment o Risk assessments o Writing a method o Presenting data (bar charts and line graphs) o Interpreting data o Types of error (measuring, systematic, random) o Equations, calculations and units o Evaluating o Models		