Year 7 Science

5 Year Science: Edexcel GCSE Combined Science (Biology, Chemistry and Physics)

	Cycle One	Cycle Two	Cycle Three

Core Content	• Energy stores and transfers
	  ○ Conservation of energy
	• Heat transfer
	  ○ Conduction
	  ○ Convection
	  ○ Radiation
	• Energy in fuels and foods
	• Energy resources
	  ○ Electricity bills
	• Energy calculations
	  ○ GPE
	  ○ Kinetic energy
	• Particle model
	• States of matter
	  ○ Changes in state
	  ○ Pure substances and mixtures
	  ○ Heating and cooling curves
	• Life processes
	• Cell biology
	  ○ Microscopy
	  ○ Animal and plants cells
	  ○ Bacteria
	  ○ Specialised cells
	  ○ Tissues and Organs
	
	Independent learning: Sparx Science
		• Reproduction
		  ○ Types of reproduction
		  ○ Sex organs and sex cells
		  ○ Development and puberty
		  ○ Hormones
		  ○ Contraception
		• Forces
		  ○ Springs
		  ○ Resultant force
		  ○ Newton's Laws
		  ○ Mass and weight
		  ○ Pressure
		  ○ Moments
		  ○ Stopping distance
		• Solubility
		• Separation techniques
		  ○ Filtration
		  ○ Crystallisation
		  ○ Distillation
		  ○ Chromatography
		
		Independent learning: Sparx Science
			• Current electricity
			  ○ Circuit symbols
			  ○ Static
			  ○ Current
			  ○ Potential difference
			• Chemical reactions
			  ○ Word equations
			  ○ Conservation of mass
			• Respiration
			  ○ Respiratory system
			• Plants
			  ○ Plant structure
			  ○ Photosynthesis
			• Motion
			  ○ Scalars and vectors
			  ○ Distance/time
			  ○ Velocity/time
			  ○ Acceleration
			
			Independent learning: Sparx Science

Assessment	• Knowledge Pre-Assessment (Educake) • Mid Cycle Literacy Assessment • Mid Cycle Knowledge Assessment • End of Cycle Assessment • Knowledge Post-Assessment (Educake)	• Knowledge Pre-Assessment (Educake) • Mid Cycle Literacy Assessment • Mid Cycle Knowledge Assessment • End of Cycle Assessment • Knowledge Post-Assessment (Educake)	• Knowledge Pre-Assessment (Educake) • Mid Cycle Literacy Assessment • Mid Cycle Knowledge Assessment • End of Cycle Assessment • Knowledge Post-Assessment (Educake)

Year 8 Science

5 Year Science: Edexcel GCSE Combined Science (Biology, Chemistry and Physics)

	Cycle One: Biology	Cycle Two: Chemistry	Cycle Three: Physics

Core Content	• Transport in cells
	  ○ Osmosis
	• Waves
	  ○ Describing waves
	  ○ Sound waves
	  ○ Waves speed
	• Wave interactions
	  ○ Reflection
	  ○ Refraction
	  ○ Sound
	  ○ Colour
	• EM Spectrum
	  ○ Communication
	  ○ Uses
	  ○ Dangers
	• Atomic structure
	  ○ History of the atom
	• Periodic table
	  ○ Group 1
	  ○ Group 7
	  ○ Group 0
	  ○ Metals and non-metals
	  ○ Electronic configuration
	  ○ Isotopes
	• Balancing equations
	• Relative formula mass
	• Reactivity
	• Properties of materials
	• Magnetism
	  ○ Electromagnetism
	
	Independent learning: Sparx Science
		• Cell division
		  ○ Mitosis
		  ○ Stem cells
		  ○ Meiosis
		• DNA structure
		• Chemical bonding
		  ○ Ionic and Covalent bonding
		  ○ Structures and properties of compounds
		• Inheritance
		  ○ Inherited characteristics
		  ○ Punnett squares
		  ○ Genetic disease
		• Variation
		• Evolution
		  ○ Evidence for evolution
		  ○ Natural selection
		• Space physics
		  ○ Solar System
		  ○ Measuring distance
		• The digestive system
		• Enzymes
		  ○ Digestive enzymes
		  ○ Enzyme action
		
		Independent learning: Sparx Science
			• Density
			• Resistance
			  ○ IV graphs
			  ○ Power
			• Electrical safety
			• Acids and alkalis
			  ○ Indicators
			  ○ pH Scale
			  ○ Making salts
			  ○ Neutralisation
			• Health and disease
			  ○ Communicable disease
			  ○ Cardiovascular disease
			  ○ Drugs
			• Pathogens
			  ○ Body's defences
			
			Independent learning: Sparx Science

Assessment	• Knowledge Pre-Assessment (Educake) • Mid Cycle Literacy Assessment	• Knowledge Pre-Assessment (Educake) • Mid Cycle Literacy Assessment	• Knowledge Pre-Assessment (Educake) • Mid Cycle Literacy Assessment

Year 9 Science

5 Year Science: Edexcel GCSE Combined Science (Biology, Chemistry and Physics)

	Cycle One: Biology	Cycle Two: Chemistry	Cycle Three: Physics

Core Content	• Ecosystems
	  ○ Biotic and abiotic factors
	  ○ Sampling
	  ○ Biodiversity
	• Material Cycles
	  ○ Water
	  ○ Carbon
	  ○ Nitrogen
	• States of matter
	  ○ Mixtures
	• Separation techniques
	  ○ Chromatography
	  ○ Distillation
	• Energy
	  ○ Stores and transfers
	  ○ Efficiency
	  ○ Sankey diagrams
	  ○ Insulation
	  ○ GPE
	  ○ KE
	• Energy resources
	  ○ Renewable
	  ○ Non-renewable
	• Vectors and scalars
	  ○ Distance time graphs
	  ○ Acceleration
	  ○ Velocity time graphs
	
	Independent learning: Sparx Science
		• Cell biology
		  ○ Organelles
		  ○ Microscopes
		  ○ Specialised cells
		• Photosynthesis
		  ○ Limiting factors
		  ○ Water and mineral absorption
		  ○ Transpiration
		  ○ Translocation
		• Atomic structure
		  ○ Mass number
		  ○ Isotopes
		• Periodic table
		  ○ Electronic configuration
		  ○ Conservation of mass
		  ○ Group 1
		  ○ Group 7
		  ○ Halogen reactivity
		  ○ Group 0
		• Waves
		  ○ Properties of waves
		  ○ Wave speed calculations
		  ○ Refraction
		• Electromagnetic waves
		  ○ Uses
		  ○ Dangers
		  ○ Motion
		
		Independent learning: Sparx Science
			• Transporting substances
			  ○ Osmosis
			  ○ Active transport
			• Enzymes
			  ○ Enzyme activity
			  ○ Factors affecting enzymes
			  ○ Nutrition
			• Chemistry calculations
			  ○ Moles
			  ○ Empirical formula
			• Rates of reaction
			  ○ Factors affecting ROR
			  ○ Catalysts
			• Forces
			  ○ Newton's Laws
			  ○ Acceleration
			  ○ Vector diagrams
			  ○ Momentum
			  ○ Crash hazards
			  ○ Stopping distances
			
			Independent learning: Sparx Science

Assessment	• Knowledge Pre-Assessment (Educake) • Mid Cycle Literacy Assessment • Mid Cycle Knowledge Assessment • End of Cycle Assessment • Knowledge Post-Assessment (Educake)	• Knowledge Pre-Assessment (Educake) • Mid Cycle Literacy Assessment • Mid Cycle Knowledge Assessment • End of Cycle Assessment • Knowledge Post-Assessment (Educake)	• Knowledge Pre-Assessment (Educake) • Mid Cycle Literacy Assessment • Mid Cycle Knowledge Assessment • End of Cycle Assessment • Knowledge Post-Assessment (Educake)

Year 10 Science

5 Year Science: Edexcel GCSE Combined Science (Biology, Chemistry and Physics)

	Cycle One: Biology	Cycle Two: Chemistry	Cycle Three: Physics

Core Content	• Cell division
	  ○ Mitosis
	  ○ Differentiation
	  ○ Stem cells
	  ○ Meiosis
	• Nervous system
	  ○ Reflex arc
	  ○ Synapses
	• Ionic bonding
	  ○ Ionic bonds
	  ○ Ionic formulae
	  ○ Properties of ionic compounds
	• Covalent bonding
	  ○ Covalent compounds
	  ○ Molecular compounds
	  ○ Allotropes
	• Metallic properties
	  ○ Bonding models
	• Electricity and circuits
	  ○ Circuit symbols
	  ○ Current
	  ○ Potential difference
	  ○ Charge and energy
	• Resistance
	  ○ IV graphs
	• Power
	• Energy transfer
	• Electrical safety
	• Work done and power
	• Momentum and collisions
	• Stopping distances
	Independent learning: Sparx Science
		• DNA
		  ○ Genetic code
		  ○ DNA extraction
		  ○ Mutations
		• Variation
		• Inheritance
		  ○ Alleles
		  ○ Inherited disease
		• Evolution
		  ○ Evidence for evolution
		  ○ Natural selection
		  ○ Genetic engineering
		• Acids and bases
		  ○ Indicators
		  ○ Bases and salts
		  ○ Preparing a salt
		  ○ Balancing equations
		  ○ Neutralisation
		  ○ Acids and carbonates
		• Solubility
		• Particle model
		  ○ Density
		  ○ Energy and changes in state
		  ○ Heating curves
		  ○ Energy calculations
		  ○ Gas pressure
		Independent learning: Sparx Science
			• Electrolysis
			  ○ Electrolysis of copper sulfate
			  ○ Products of electrolysis
			• Non-communicable disease
			  ○ Cardiovascular disease
			  ○ Treatment
			  ○ Communicable disease
			  ○ STI's
			• Physical and chemical defences
			  ○ Immune system
			  ○ Immunisation
			  ○ Antibiotics
			  ○ Drug development
			• Radioactivity
			  ○ Atomic models
			  ○ Atomic structure
			  ○ Isotopes
			  ○ Background radiation
			  ○ Types of radiation
			  ○ Properties of ionizing radiation
			  ○ Radioactive decay / Decay equations
			  ○ Half-life
			  ○ Dangers
			• Reactivity series
			  ○ Products from Ores
			  ○ Oxidation and reduction
			• Life Cycle assessment
			• Dynamic equilibrium
			Independent learning: Sparx Science

Assessment	• Knowledge Pre-Assessment (Educake) • Mid Cycle Literacy Assessment • Mid Cycle Knowledge Assessment • End of Cycle Assessment • Knowledge Post-Assessment (Educake)	• Knowledge Pre-Assessment (Educake) • Mid Cycle Literacy Assessment • Mid Cycle Knowledge Assessment • Assessment - GCSE Biology paper • Knowledge Post-Assessment (Educake)	• Knowledge Pre-Assessment (Educake) • Mid Cycle Literacy Assessment • Mid Cycle Knowledge Assessment • Assessment - GCSE Chemistry and Physics papers • Knowledge Post-Assessment (Educake)

Year 11 Science

5 Year Science: Edexcel GCSE Combined Science (Biology, Chemistry and Physics)

	Cycle One: Biology/Chemistry/Physics	Cycle Two: Review and revision	Cycle Three:

Core Content	• Exchange and transport
	  ○ Efficient transport
	  ○ Circulatory system and Heart
	  ○ Respiration
	• Chemical calculations
	• Fuels
	  ○ Hydrocarbons
	  ○ Fractional distillation
	  ○ Alkanes
	• Combustion
	  ○ Complete and Incomplete
	  ○ Pollution
	• Elasticity
	  ○ Force and extension
	  ○ Hooke's Law
	  ○ Energy transfers
	• Atmospheric science
	  ○ Early atmosphere
	  ○ Changing atmosphere
	  ○ Current atmosphere
	  ○ Climate change
	• Endo/Exothermic reactions
	  ○ Bond energy
	  ○ Energy graphs
	  ○ Calculations
	
	Independent learning: Sparx Science and exam preparation
		• Hormones
		  ○ Adrenalin
		  ○ Thyroxine
		  ○ Menstrual cycle
		  ○ Contraception
		  ○ Diabetes
		• Magnetism
		  ○ Uses
		  ○ Magnetic fields
		• Electromagnetism
		  ○ Magnetic fields
		  ○ Solenoids
		  ○ Motor effect
		  ○ Left hand rule
		• Transformers
		  ○ Structure and function
		  ○ Calculations
		• Electromagnetic induction
		
		• Revisit all Core Practical activities
		• Recap and revision of all GCSE content
		• Exam preparation
		
		Independent learning: Sparx Science and exam preparation	

Assessment	• Knowledge Pre-Assessment (Educake) • Mid Cycle Literacy Assessment • Mid Cycle Knowledge Assessment • GCSE Biology, Chemistry and Physics paper 1 • Knowledge Post-Assessment (Educake)	• Knowledge Pre-Assessment (Educake) • Mid Cycle Literacy Assessment • Mid Cycle Knowledge Assessment • GCSE Biology, Chemistry and Physics paper 2 • Knowledge Post-Assessment (Educake)	