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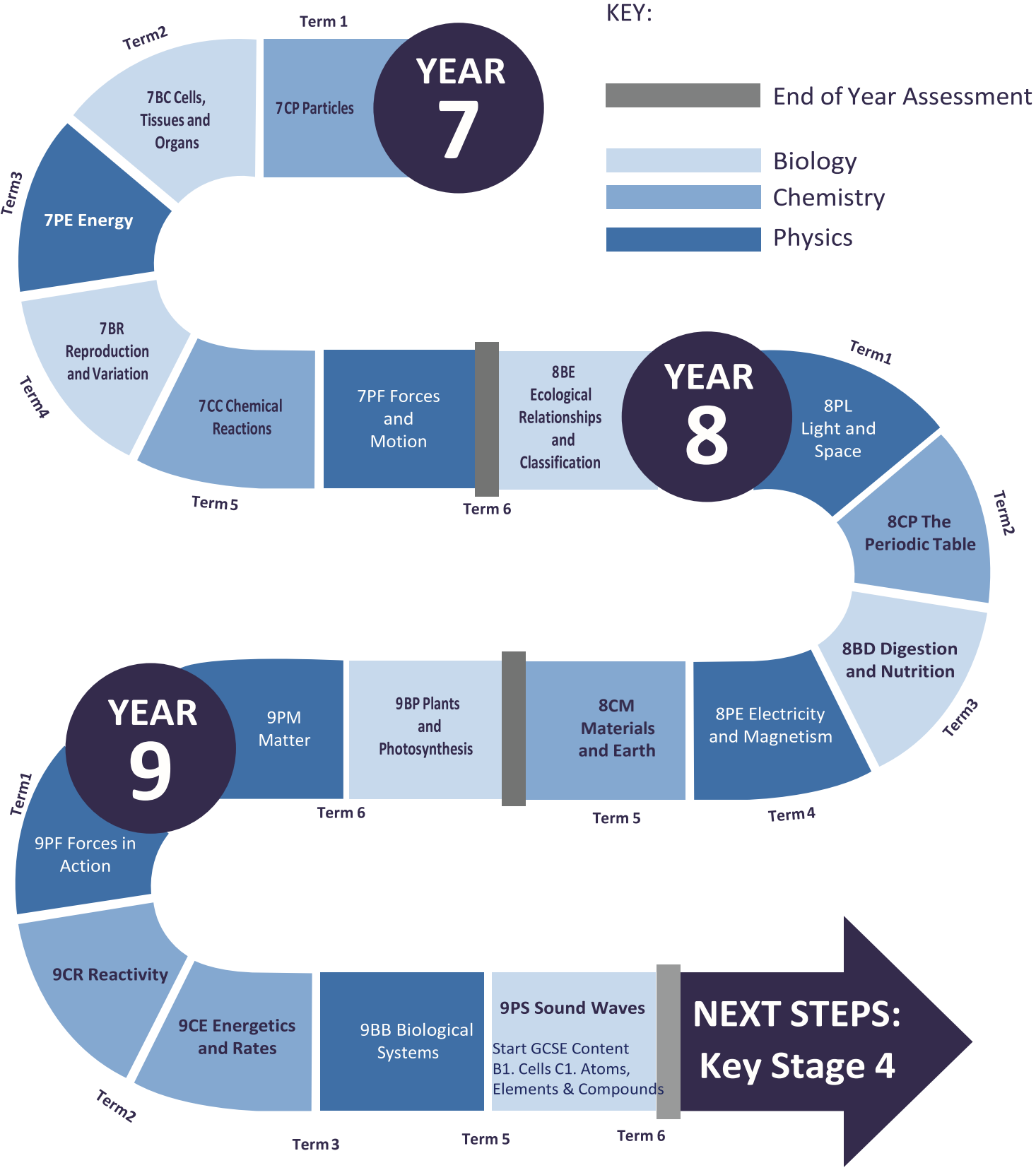
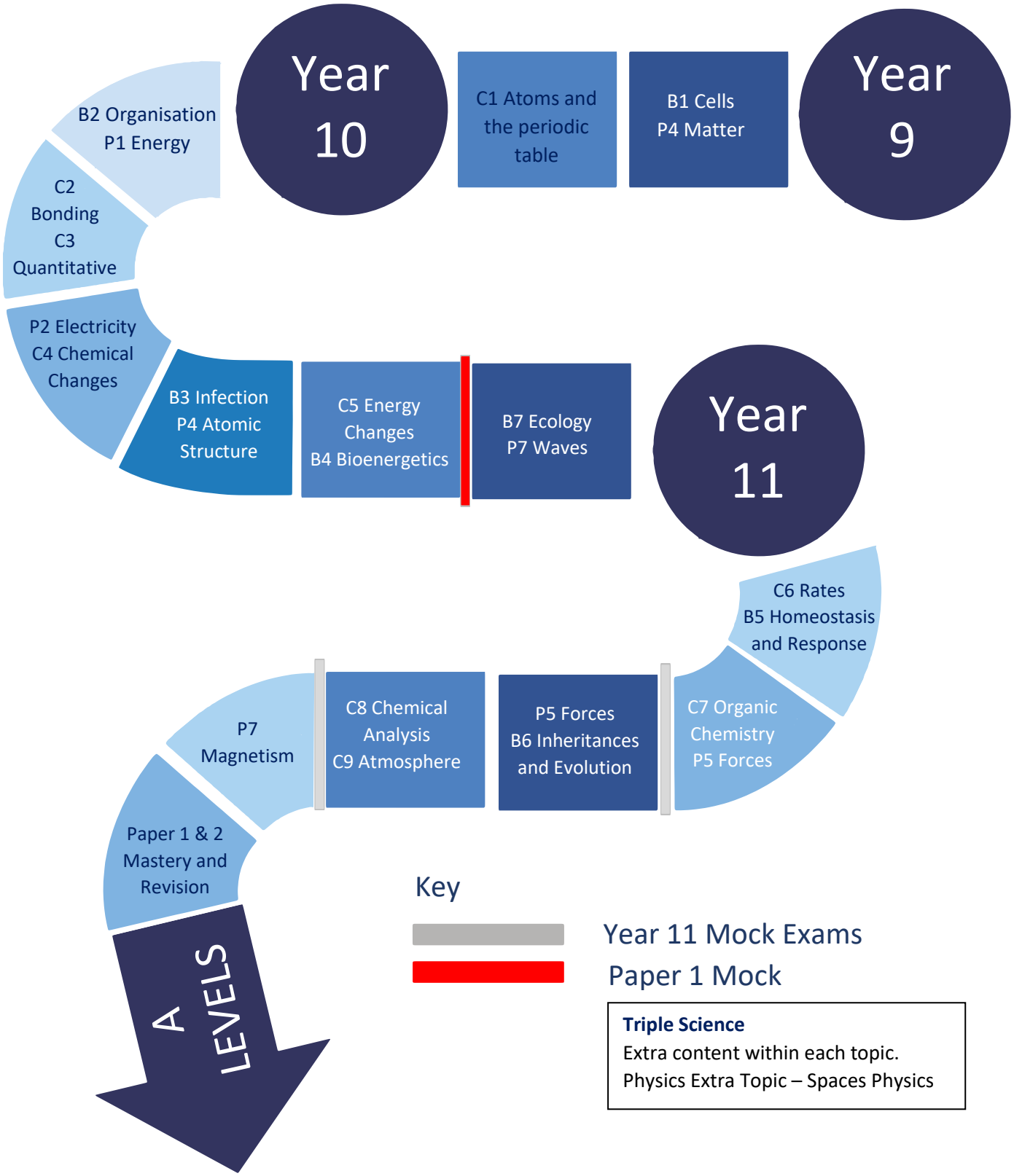
SCIENCE
Key Stage 3



SCIENCE

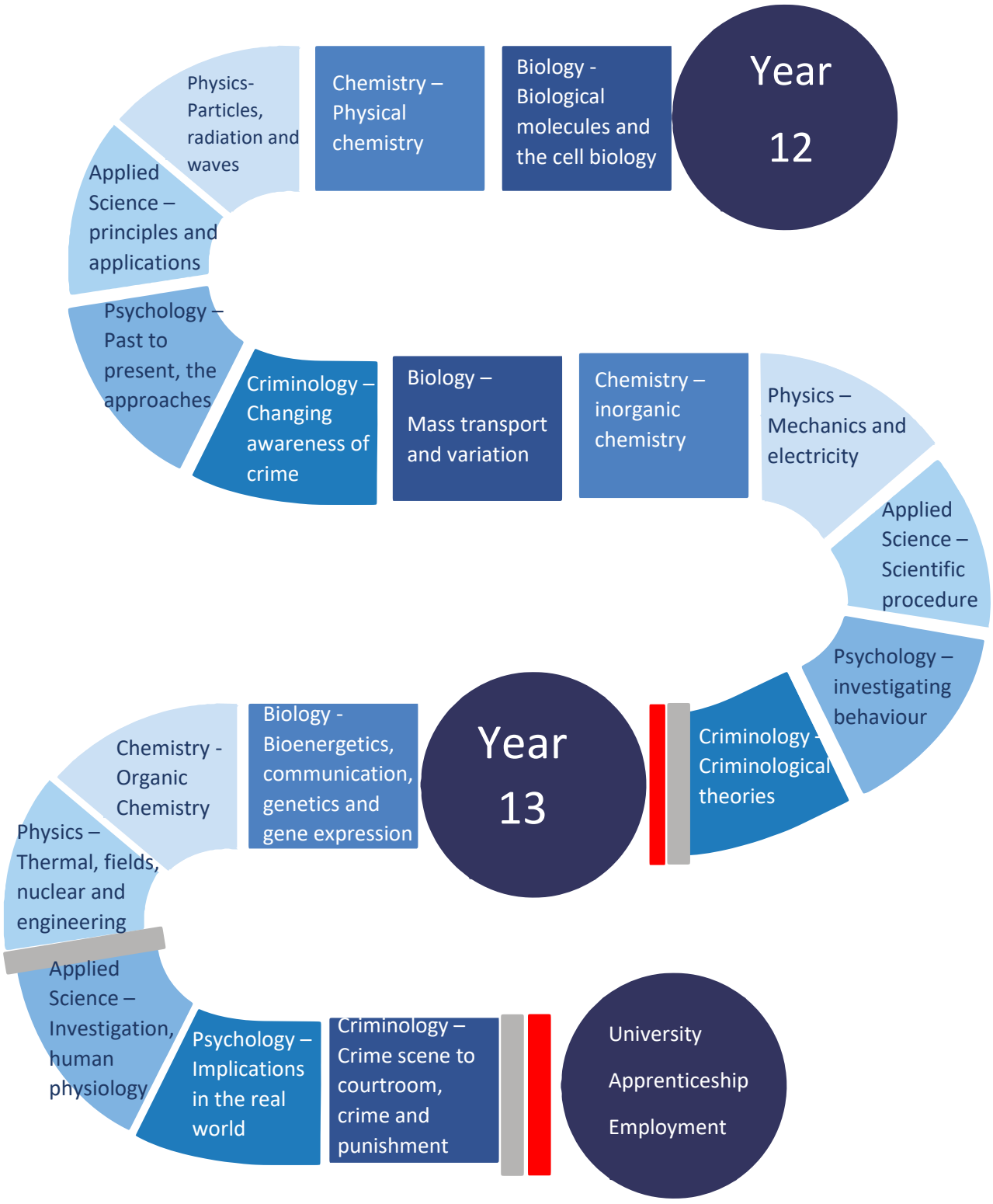
Key Stage 4



Triple Science
Extra content within each topic.
Physics Extra Topic – Spaces Physics

SCIENCE

Key Stage 5



Science

Key Stage 3 – Year 7

	UNIT	KEY THEMES OF EACH LESSON
7	7CP Particles	1. Particle model of matter 2. Change in state 3. Diffusion and gas pressure 4. Pure and impure substances. Simple separation techniques 5. Separation techniques practical's 6. Chromatography 7. Distillation 8. Investigating solubility
	7BC Cells, tissues and organs	1. Plant and animal cells 2. Unicellular organisms 3. Specialised cells 4. Using a microscopes 5. Calculating magnification 6. Investigation transport mechanisms 7. Diffusion
	7PE Energy	1. Energy stores and transfers 2. Investigating energy transfers 3. Efficiency 4. Conduction 5. Convection 6. Radiation 7. Insulation 8. Cost of electricity 9. Energy in foods investigation 10. Fossil Fuels 11. Energy resources: Renewable vs non-renewable
	7BR Reproduction and variation	1. Sexual reproduction 2. Birth and development 3. Growth and puberty 4. Reproduction in plants 5. Seed dispersal 6. Variation in plants and animals 7. Modelling variation
	TOPIC 6 7CC Chemical reaction	1. Chemical change 2. Acids, alkalis, and indictors 3. Metals and acids 4. Acid and alkali reactions 5. Simple titrations 6. Antacid investigation 7. Reteach of word equations
	7PF Forces and motion	1. What is a force? 2. Balanced and unbalanced forces 3. W = m x g 4. Pressure 5. friction in moving objects 6. calculating speed 7. Distance time graphs
	8BE Ecology	1. Food webs and impact on food webs 2. Field work 3. Decay 4. Adaptations 5. Classification

		6. Natural selection and evolution 7. Impact on biodiversity

Science

Key Stage 3 – Year 8

	UNIT	KEY THEMES OF EACH LESSON
8	8PL Light and Space	1. Light waves 2. Reflection 3. Refraction 4. Vision 5. Colour and dispersion 6. Gravity 7. Space
	8CP Periodic Table	1. Atomic structure and elements 2. Elements and compounds 3. Compounds, formula mass and changes 4. Conservation of mass 5. Group 1 and 7
	8BD Digestion and Nutrition	1. Diet 2. Food tests – sugars and starch 3. Food tests- protein and fats 4. Digestion 5. Chemical digestion 6. How energy is released from food 7. Model of respiration
	8PE Electricity and Magnetism	1. Circuits 2. Series and parallel circuits 3. Potential difference and cells 4. Ohms Law 5. Resistance in a wire 6. Insulators and static 7. Magnetic fields 8. Investigating electromagnets 9. Uses of electromagnets
	8CM Materials and Earth	1. Structure of the Earth 2. Igneous rocks 3. Sedimentary rocks 4. Metamorphic rocks 5. Fossils 6. Fossil fuels 7. Atmosphere changes 8. Greenhouse effects and global warming Resources and recycling
	9BP Plants and photosynthesis	1. Structure of the Earth 2. Igneous rocks 3. Sedimentary rocks 4. Metamorphic rocks 5. Fossils 6. Fossil fuels 7. Atmosphere changes 8. Greenhouse effects and global warming 9. Resources and recycling 10.
	9PM Matter	1. States of matters 2. Density 3. Pressure and Brownian motion

Science

Key Stage 3 – Year 9

	UNIT	KEY THEMES OF EACH LESSON
9	9PF Forces in Action	1. Forces and balance 2. Moments 3. Simple machines 4. Hooke's Law
	9CR Reactivity	1. Atomic structure, reactivity, and bonding 2. Atomic and formula mass 3. Acids and metals 4. Metal oxides and acid reactions 5. Metal carbonate and acid reactions 6. Acid and alkali reactions 7. Making a named salt 8. Reactivity series and metal extraction 9. Displacement
	9PS Sound waves	1. Measuring rates 2. Effect of concentration 3. Effect of surface area 4. Catalysts 5. Exothermic reactions 6. Endothermic reactions
	9BB Biological processes	1. Skeletal system 2. Muscles 3. Gas exchange 4. Breathing and lung volume 5. Exercise 6. Smoking 7. Alcohol 8. DNA 9. Inheritance
	B1 Cells (GCSE content)	1. Types of cell 2. Microscopes 3. Plant cells 4. Animal cells 5. Specialised cells 6. Diffusion 7. Exchange surfaces 8. Osmosis 9. Osmosis required practical 10. Active transport 11. The cell cycle 12. Stem cells 13. Triple – culturing microorganisms
	C1 Atoms and the periodic table (GCSE content) P4 Matter (GCSE content)	1. Elements, compounds, and mixtures 2. Mixtures and separation 3. Separation techniques 4. Atomic structure 5. Atomic model development 6. Isotopes 7. Electron configuration 8. Development of the periodic table 9. Why elements react 10. Group 1 11. Group 7 12. Displacement 13. Triple – transition metals
		End of Year Assessment

Science

Key Stage 4 – Year 10

UNIT	KEY THEMES OF EACH LESSON
P1 Energy	1. Energy stores and transfers 2. Kinetic energy 3. Gravitational potential energy 4. Elastic potential energy 5. Work done and power 6. Specific heat capacity required practical 7. Renewable and non-renewable energy sources
C2 Bonding and Properties	1. Ionic Bonding 2. Covalent Bonding 3. Polymers and Allotropes of carbon 4. Metals and alloys 5. States of matter 6. Nanoparticles (Triple only)
B2 organisation	1. Components of food and food testing 2. Digestion and absorption 3. Investigating Enzyme action RP 4. Gas exchange and blood components 5. The heart and blood vessels 6. Heart disease and lifestyle 7. Cancer and other diseases 8. Plant tissues and transport 9. Transpiration and translocation
C3 Quantitative Chemistry	1. Relative formular mass, percentage composition and balancing equations 2. Moles and Avogadro (Higher only) 3. Conservation of mass and reacting masses (Higher only) 4. Reacting masses (Higher tier only) 5. Solutions and concentrations 6. Limiting reactants (Higher tier only)
P2 Electricity	1. Circuits, current, charge and potential difference 2. Resistance in a wire RP 3. Series and parallel circuits 4. I-V in fixed resistor and diodes 5. I-V in filament bulbs 6. I-V in LDR and thermistors 7. National gird and domestic electricity 8. Appliances and power 9. Electric fields and static (Triple only) **Continued into Half term 3**
B3 Infection and response	1. Types of pathogens 2. Pathogens and disease 3. Vaccinations and antibiotics 4. Drug testing
C4 Chemical changes	1. Redox reactions 2. Reactions of metals 3. The reactivity series 4. Reacting metal oxides with acids 5. Reacting metal carbonates with acids 6. Preparing named salts 7. Acids and alkalis

	8. Electrolysis of a binary ionic compound 9. Electrolysis of solutions 10. Electrolysis required practical
P4 Atomic Structure	1. Types of radioactive decay 2. Half life 3. Radioactive contamination and uses
C5 Energy changes	1. Exo and endothermic reactions 2. Factors affecting the size of temperature change Reaction 3. profiles 4. Bond energy (Higher tier only) 5. Fuel cells (Higher Tier only)
B4 Bioenergetics	1. Photosynthesis, limiting factors and uses of glucose 2. Photosynthesis required practical 3. Aerobic and anaerobic respiration 4. Metabolism
	End of Year Assessment
B7 Ecology	1. Communities and interdependence 2. Sampling Required Practical 3. Adaptations 4. Impact of humans on biodiversity and cycling
P7 Waves	1. Waves and the wave equation 2. Measuring the speed of waves 3. Wave speed Required Practical 4. Electromagnetic waves 5. Infrared Required Practical

Science

Key Stage 4 – Year 11

UNIT	KEY THEMES OF EACH LESSON

7		
	C6 Rates of reaction	1. Measuring the rate of reaction 2. Effect of changing concentration Required Practical 3. Effect of changing temperature 4. Effect of surface area 5. Effect of pressure 6. Catalysts 7. Reversible reactions and (HT only) dynamic equilibrium (HT only) Le Chatelier's Principle 8.
	B5 Homeostasis and response	1. The nervous system 2. Reaction times Required Practical 3. Reaction times write up and applications 4. Hormonal responses 5. Blood sugar control 6. Diabetes 7. Menstrual cycle 8. Control of fertility
	P5 Forces	1. Forces and interactions 2. Resultant Force (Higher only) 3. Weight, mass and gravity 4. Work done and energy transfers 5. Forces and Elasticity 6. Speed and Velocity 7. Acceleration and velocity 8. Terminal velocity and Newtons Laws 9. F = m x a required practical 10. Forces and braking distances 11. Momentum (Higher tier only)
	C7 Organic chemistry	1. Alkanes and crude oil 2. Fractional distillation 3. Cracking and alkenes 4. Combustion of hydrocarbons
	B6 Inheritance, variation and evolution	1. DNA, cell division and the genome 2. Sexual and asexual reproduction 3. Genetic inheritance 4. Inherited disorders 5. Variation and natural selection 6. Evolution and extinction 7. Evidence for evolutions 8. Selective breeding 9. Genetic engineering 10. Classification
	C8 Chemical Analysis	1. Pure substances and formulation 2. Chromatography Required Practical 3. Gas tests
	C9 Atmosphere and using resources	1. Atmosphere past and present 2. Greenhouse effect and climate changes 3. Carbon footprint and pollutants 4. LCA's and recycling 5. Sewage treatment 6. Potable water Required Practical
	P7 Magnetism	1. Magnetic fields 2. Electromagnets and their uses 3. (HT only) The left-hand rule
	Paper 1 and 2 Mastery	**Revision of topics based on gaps in knowledge identified for each class**
		Completion of GCSE Examinations