Collins

Five-Year Science Scheme of Work leading to AQA GCSE Biology, Chemistry and Physics (Two-Year KS3 and Three-Year KS4)

This 2-Year Scheme of Work offers a suggested topic order for KS3 using Collins AQA KS3 Science Student Books 1 and 2, assuming that one teacher teaching all three sciences rotates through the sciences to give variety. Other routes through the books are possible if you wish to teach different topics first or to suit timetabling or equipment needs. Note, however, that the suggested route ensures that each term's content builds upon the previous term's content and knowledge. The suggested timings are based on covering an average of three Student Book spreads per week, but can be tailored to suit the needs of a particular class or group of students.

Year 1 of 2-year scheme of work

Year	Term	Week	Student Book spread number and lesson plan reference	Big Idea/ subtopic and AQA syllabus reference	Title	Programme of study references	Learning objectives	CD-ROM resources
Book 1, Chapter 1: Forces – Speed *and* Gravity								
Year 7	Term 1	1	1.1.1	Forces, Speed 3.1.1	Understanding speed	Change depending on direction of force and its size Speed and the quantitative relationship between average speed, distance and time (speed = distance ÷ time)	• List the factors involved in defining speed. • Explain a simple method to measure speed. • Use the speed formula.	Worksheet 1.1.1; Practical sheet 1.1.1; Technician's notes 1.1.1
Year 7	Term 1	1	1.1.2	Forces, Speed 3.1.1	Describing journeys with distance–time graphs	The representation of a journey on a distance–time graph	• Gather relevant data to describe a journey. • Use the conventions of a distance–time graph. • Display the data on a distance–time graph.	Worksheet 1.1.2; Practical sheet 1.1.2; Technician's notes 1.1.2
Year 7	Term 1	1	1.1.3	Forces, Speed 3.1.1	Exploring journeys on distance–time graphs	The representation of a journey on a distance–time graph Speed and the quantitative relationship between average speed, distance and time (speed = distance ÷ time)	• Interpret distance–time graphs to learn about the journeys represented. • Relate distance–time graphs to different situations and describe what they show.	Worksheet 1.1.3; Practical sheet 1.1.3; Technician's notes 1.1.3
Year 7	Term 1	2	1.1.4	Forces, Speed 3.1.1	Investigating the motion of a car on a ramp	Relating ideas about changing speed and factors affecting it to the identification and management of variables to gather evidence and form conclusions.	• To describe the motion of an object whose speed is changing. • To devise questions that can be explored scientifically. • To present data so that it can be analysed to answer questions.	Worksheet 1.1.4; Practical sheet 1.1.4; Technician's notes 1.1.4
Year 7	Term 1	2	1.1.5	Forces, Speed 3.1.1	Understanding relative motion	Relative motion: trains and cars passing one another	• Describe the motion of objects in relation to each other. • Explain the concept of relative motion.	Worksheet 1.1.5; Practical sheet 1.1.5; Technician's notes 1.1.5

							• Apply the concept of relative motion to various situations.	
Year 7	Term 1	2	1.1.6	Forces, Gravity 3.1.2	Understanding forces	Forces as pushes or pulls arising from the interaction between two objects Using force arrows in diagrams	• Recognise different examples of forces. • List the main types of force. • Represent forces using arrows.	Worksheet 1.1.6
Year 7	Term 1	3	1.1.7	Forces, Gravity 3.1.2	Understanding gravitational fields	Gravity force, weight = mass × gravitational field strength (g), on Earth g =10 N/kg, different on other planets and stars	• Describe gravity as a non-contact force. • Explore the concept of gravitational field and weight. • Relate this concept to life on Earth.	Worksheet 1.1.7; Practical sheet 1.1.7; Technician's notes 1.1.7
Year 7	Term 1	3	1.1.8	Forces, Gravity 3.1.2	Understanding mass and weight	Explain the difference between mass and weight.	• To answer questions that draw on the distinction between mass and weight.	Technician's notes 1.1.8
Year 7	Term 1	3	1.1.9	Forces, Gravity 3.1.2	Understanding gravity	Understanding that weight is an effect caused by an object being in a gravitational field and that moving from one such field to another (such as various places in the solar system) causes a change in weight.	• Explain what gravity is. • Understand how gravity varies according to where you are in the solar system. • Apply ideas about gravity to various situations.	Technician's notes 1.1.9
Year 7	Term 1	4	End of chapter assessment					

Book 1, Chapter 5: Matter – Particle model *and* Separating mixtures

Year 7	Term 1	4	1.5.1	Matter, particle model 3.5.1	Using particles to explain matter	The properties of different states of matter (solid, liquid and gas) in terms of the particle model, including gas pressure	• Recognise differences between solids, liquids and gases. • Describe solids, liquids and gases in terms of the particle model.	Worksheet 1.5.1; Practical sheet 1.5.1; Technician's notes 1.5.1
Year 7	Term 1	5	1.5.2	Matter, particle model 3.5.1	Understanding solids	The properties of different states of matter (solid, liquid and gas) in terms of the particle model, including gas pressure	• Describe the properties of solids. • Relate the properties and behaviour of solids to the particle model.	Worksheet 1.5.2; Practical sheet 1.5.2; Technician's notes 1.5.2
Year 7	Term 1	5	1.5.3	Matter, particle model 3.5.1	Understanding liquids and gases		• Describe the properties of liquids and gases. • Relate the properties and behaviour of liquids and gases to the particle model.	Worksheet 1.5.3; Practical sheet 1.5.3; Technician's notes 1.5.3a; Technician's notes 1.5.3b

Year 7	Term 1	5	1.5.4	Matter, particle model 3.5.1	Exploring diffusion	Diffusion in liquids and gases driven by differences in concentration Diffusion in terms of the particle model	• Use the particle model to explain observations involving diffusion.	Worksheet 1.5.4; Practical sheet 1.5.4; Technician's notes 1.5.4
Year 7	Term 1	6	1.5.5	Matter, particle model 3.5.1	Explaining changes of state	Changes of state in terms of the particle model	• Recognise changes of state as being reversible changes. • Use scientific terminology to describe changes of state. • Explain changes of state using the particle model and ideas about energy transfer.	Worksheet 1.5.5; Practical sheet 1.5.5; Technician's notes 1.5.5
Year 7	Term 1	6	1.5.6	Matter, separating mixtures 3.5.2	Separating mixtures	Mixtures, including dissolving Simple techniques for separating mixtures: filtration	• Recognise the differences between substances and use these to separate them.	Worksheet 1.5.6; Technician's notes 1.5.6
Year 7	Term 1	6	1.5.7	Matter, separating mixtures 3.5.2	Exploring solutions	Mixtures, including dissolving	• Explain the terms solvent, solution, solute and soluble. • • Describe the effect of temperature on solubility. • • Analyse patterns and present data to explain solubility.	Worksheet 1.5.7; Practical sheet 1.5.7; Technician's notes 1.5.7
Year 7	Term 1	7	1.5.8	Matter, separating mixtures 3.5.2	Understanding distillation	Simple techniques for separating mixtures: distillation	• Use distillation to separate substances. • Explain why distillation can purify substances. • Devise ways to separate mixtures, based on their properties.	Worksheet 1.5.8a; Worksheet 1.5.8b; Practical sheet 1.5.8; Technician's notes 1.5.8
Year 7	Term 1	7	1.5.9	Matter, separating mixtures 3.5.2	Exploring chromatography	Simple techniques for separating mixtures: chromatography The identification of pure substances	• Use chromatography to separate dyes. • Use evidence from chromatography to identify unknown substances in a mixture.	Worksheet 1.5.9; Technician's notes 1.5.9
Year 7	Term 1	7/8	End of chapter assessment					

Book 1, Chapter 8: Organisms – Movement *and* Cells

Year 7	Term 1	8	1.8.1	Organisms, Movement 3.8.1	Exploring the human skeleton	The structure and functions of the human skeleton, to include support, protection, movement and making blood	• Identify bones of the human skeleton. • Describe the roles of the skeleton.	Worksheet 1.8.1; Technician's notes 1.8.1

						cells	• Explain why we have different shapes and sizes of bones.	
Year 7	Term 1	8	1.8.2	Organisms, Movement 3.8.1	Understanding the role of joints and muscles	Biomechanics – the interaction between skeleton and muscles, including the measurement of force exerted by different muscles	• Describe the roles of tendons, ligaments, joints and muscles. • Identify muscles used in different movements. • Compare different joints in the human skeleton.	Worksheet 1.8.2
Year 7	Term 1	9	1.8.3	Organisms, Movement 3.8.1	Examining interacting muscles	The function of muscles and examples of antagonistic muscles	• Describe antagonistic muscles and give examples. • Explain how antagonistic muscles bring about movement using scientific vocabulary • Plan an investigation to compare muscle strengths	Worksheet 1.8.3; Practical sheet 1.8.3a; Technician's notes 1.8.3b; Practical sheet 1.8.3a; Technician's notes 1.8.3b
Year 7	Term 1	9	1.8.4	Organisms, Movement 3.8.1	Exploring problems with the skeletal system	The structure and functions of the human skeleton, to include support, protection, movement and making blood cells Biomechanics – the interaction between skeleton and muscles, including the measurement of force exerted by different muscles	• Recall some medical problems with the skeletal system. • Explain how some conditions affect the skeleton. • Consider the benefits and risks of a technology for improving human movement.	Worksheet 1.8.4
Year 7	Term 1	9	1.8.5	Organisms, Cells 3.8.2	Understanding organisation in multicellular organisms	Hierarchical organisation of multicellular organisms: from cells to tissues to organs to systems to organisms	• Define the terms tissues, organs and organ systems. • Describe how some recreational drug affect body systems. • Suggest the effect of organ damage on other body systems.	Worksheet 1.8.5
Year 7	Term 1	10	1.8.6	Organisms, Cells 3.8.2	Describing plant and animal cells	Cells as the fundamental unit of living organisms, including how to observe and record cell structure using a light microscope The functions of the cell wall, cell membrane, cytoplasm, nucleus, vacuole, mitochondria and chloroplasts The similarities and differences between animal and plant cells	• Describe the structures found in animal and plant cells. • Explain the function of some of the structures within animal and plant cells. • Communicate ideas about cells effectively using scientific terminology.	Worksheet 1.8.6a; Worksheet 1.8.6b; Technician's notes 1.8.6

Year 7	Term 1	10	1.8.7	Organisms, Cells 3.8.2	Understanding adaptations of cells	The functions of the cell wall, cell membrane, cytoplasm, nucleus, vacuole, mitochondria and chloroplasts The similarities and differences between animal and plant cells	• Recall the purpose of specialised cells. • Identify examples of specialised plant and animal cells. • Explain the structure and function of specialised cells.	Worksheet 1.8.7; Technician's notes 1.8.7
Year 7	Term 1	10	1.8.8	Organisms, Cells 3.8.2	Exploring cells	Cells as the fundamental unit of living organisms, including how to observe and record cell structure using a light microscope The similarities and differences between animal and plant cells	• Observe cells using a microscope and record findings. • Explain how to use a microscope to identify and compare cells. • Explain how developments in science can change ideas.	Worksheet 1.8.8; Practical sheet 1.8.8a; Practical sheet 1.8.8b; Technician's notes 1.8.8
Year 7	Term 1	11	1.8.9	Organisms, Cells 3.8.2	Understanding unicellular organisms	The structural adaptations of some unicellular organisms	• Recognise different types of unicellular organisms. • Explain how unicellular organisms are adapted to carry out functions. • Compare and contrast features of unicellular organisms.	Worksheet 1.8.9
Year 7	Term 1	11	End of chapter assessment					

Book 1, Chapter 2: Electromagnets – Voltage and resistance *and* Current

Year 7	Term 1	12	1.2.1	Electromagnets, Voltage and resistance 3.2.1	Describing electric circuits	Other processes that involve energy transfer: completing an electrical circuit Electric current, measured in amperes, in circuits	• Describe and draw circuit diagrams. • Explain what is meant by current. • Explain how materials allow current to flow.	Worksheet 1.2.1; Practical sheet 1.2.1; Technician's notes 1.2.1
Year 7	Term 1	12	1.2.2	Electromagnets, Voltage and resistance 3.2.1	Understanding energy in circuits	Other processes that involve energy transfer: completing an electrical circuit Electric current, measured in amperes, in circuits Potential difference, measured in volts, battery and bulb ratings	• Describe what the voltage does in a circuit.	Worksheet 1.2.2; Technician's notes 1.2.2

Year 7	Term 1	12	1.2.3	Electromagnets, Voltage and resistance; Current 3.2.1, 3.2.2	Explaining resistance	Potential difference, measured in volts, battery and bulb ratings Resistance, measured in ohms, as the ratio of potential difference (p.d.) to current	• Explain what resistance is and how it affects the circuit. • Investigate and identify the relationship between voltage and current.	Worksheet 1.2.3; Practical sheet 1.2.3; Technician's notes 1.2.3
Year 7	Term 2	1	1.2.4	Electromagnets, Voltage and resistance; Current 3.2.1, 3.2.2	Describing series and parallel circuits	Series and parallel circuits, currents add where branches meet and current as flow of charge	• Describe how the voltage, current and resistance are related in different circuits. • Understand the differences between a series and a parallel circuit.	Worksheet 1.2.4; Technician's notes 1.2.4
Year 7	Term 2	1	1.2.5	Electromagnets, Voltage and resistance; Current 3.2.1, 3.2.2	Comparing series and parallel circuits	Electric current, measured in amperes, in circuits Series and parallel circuits, currents add where branches meet and current as flow of charge Potential difference, measured in volts, battery and bulb ratings	• Investigate and explain current and voltage in series and parallel circuits. • Explain the circuits in our homes.	Worksheet 1.2.5; Practical sheet 1.2.5; Technician's notes 1.2.5
Year 7	Term 2	1	1.2.6	Electromagnets, Current 3.2.2	Investigating static charge	Non-contact forces: forces due to static electricity Separation of positive or negative charges when objects are rubbed together: transfer of electrons, forces between charged objects	• Recognise the effects of static charge. • Explain how static charge can be generated. • Use evidence to develop ideas about static charge.	Worksheet 1.2.6; Practical sheet 1.2.6; Technician's notes 1.2.6
Year 7	Term 2	2	1.2.7	Electromagnets, Current 3.2.2	Explaining static charge		• Explain static charge in terms of electron transfer. • Apply this explanation to various examples.	Worksheet 1.2.7; Technician's notes 1.2.7
Year 7	Term 2	2	1.2.8	Electromagnets, Current 3.2.2	Understanding electrostatic fields	Non-contact forces: forces due to static electricity Separation of positive or negative charges when objects are rubbed together: transfer of electrons, forces between charged objects The idea of electric field, forces acting across the space between objects not in contact	• Explain static electricity in terms of fields. • Explain how charged objects affect each other.	Worksheet 1.2.8; Technician's notes 1.2.8
Year 7	Term	2/3	End of chapter assessment					

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Book 1, Chapter 6: Reactions – Metals and non-metals *and* Acids and alkalis

Year 7	Term 2	3	1.6.1	Reactions, metals and non-metals 3.6.1	Using metals and non-metals	The varying physical and chemical properties of different elements The properties of metals and non-metals	• Recognise the properties and uses of metals and non-metals. • Explain the uses of metals and non-metals based on their properties.	Worksheet 1.6.1; Practical sheet 1.6.1; Technician's notes 1.6.1
Year 7	Term 2	3	1.6.2	Reactions, metals and non-metals 3.6.1	Exploring the reactions of acids with metals	Reactions of acids with metals to produce a salt plus hydrogen	• Describe the reaction between acids and metals using word equations and particle diagrams. • Explain the reaction between acids and metals. • Compare the reactivities of different metals.	Worksheet 1.6.2; Practical sheet 1.6.2; Technician's notes 1.6.2
Year 7	Term 2	4	1.6.3	Reactions, metals and non-metals 3.6.1	Understanding displacement reactions	The order of metals and carbon in the reactivity series; representing chemical reactions using formulas and using equations; displacement reactions; changes of state and chemical reactions.	• Represent and explain displacement reactions using equations and particle diagrams. • Make inferences about reactivity from displacement reactions.	Worksheet 1.6.3; Practical sheet 1.6.3; Technician's notes 1.6.3
Year 7	Term 2	4	1.6.4	Reactions, metals and non-metals 3.6.1	Understanding oxidation reactions	Combustion, thermal decomposition, oxidation and displacement reactions	• Recall examples of oxidation reactions. • Describe oxidation using word equations and particle diagrams. • Investigate changes caused by oxidation.	Worksheet 1.6.4; Practical sheet 1.6.4a; Practical sheet 1.6.4b; Technician's notes 1.6.4
Year 7	Term 2	4	1.6.5	Reactions, Acids and alkalis 3.6.2	Exploring acids	Defining acids and alkalis	• Describe what an acid is and give examples. • Evaluate the hazards that acids pose.	Worksheet 1.6.5; Technician's notes 1.6.5
Year 7	Term 2	5	1.6.6	Reactions, Acids and alkalis 3.6.2	Exploring alkalis		• Describe what an alkali is and give examples. • Identify the hazards that alkalis pose.	Worksheet 1.6.6; Technician's notes 1.6.6
Year 7	Term 2	5	1.6.7	Reactions, Acids and alkalis 3.6.2	Using indicators	The pH scale for measuring acidity/alkalinity; and indicators	• Use indicators to identify acids and alkalis. • Analyse data from different indicators.	Worksheet 1.6.7; Practical sheet 1.6.7; Technician's notes 1.6.7

							• Compare the effectiveness of different indicators. • Describe what a pH scale measures.	
Year 7	Term 2	5	1.6.8	Reactions, Acids and alkalis 3.6.2	Exploring neutralisation	Defining acids and alkalis in terms of neutralisation reactions The pH scale for measuring acidity/alkalinity; and indicators	• Recall and use the neutralization equation. • Use indicators to identify chemical reactions. • Explain colour changes in terms of pH and neutralisation.	Worksheet 1.6.8; Practical sheet 1.6.8; Technician's notes 1.6.8
Year 7	Term 2	6	1.6.9	Reactions, Acids and alkalis 3.6.2	Investigating neutralisation	Reactions of acids with alkalis to produce a salt plus water	• Design an investigation to compare the effectiveness of indigestion remedies. • Analyse data to identify a suitable indigestion remedy and suggest improvements.	Worksheet 1.6.9; Practical sheet 1.6.9; Technician's notes 1.6.9
Year 7	Term 2	6	End of chapter assessment					

Book 1, Chapter 9: Ecosystems – Interdependence *and* Plant reproduction

Year 7	Term 2	7	1.9.1	Ecosystems, Interdependence 3.9.1	Understanding food webs	The interdependence of organisms in an ecosystem, including food webs	• Describe how food webs are made up of a number of food chains. • Make predictions about factors affecting plant and animal populations. • Analyse and evaluate changes in a food web.	Worksheet 1.9.1a; Worksheet 1.9.1b; Technician's notes 1.9.1
Year 7	Term 2	7	1.9.2	Ecosystems, Interdependence 3.9.1	Understanding the effects of toxins in the environment	How organisms affect, and are affected by, their environment, including the accumulation of toxic materials	• Describe how toxins pass along the food chain. • Explain how toxins enter and accumulate in food chains. • Evaluate the advantages and disadvantages of using pesticides.	Worksheet 1.9.2; Technician's notes 1.9.2
Year 7	Term 2	7	1.9.3	Ecosystems, Interdependence 3.9.1	Exploring the importance of insects	The interdependence of organisms in an ecosystem, including insect-pollinated crops The importance of plant reproduction through insect pollination in human food security	• Describe the impact of low pollination on fruit production. • Explain why artificial pollination is used for some crops. • Evaluate the risks of monoculture on world food security.	Worksheet 1.9.3; Practical sheet 1.9.3

Year 7	Term 2	8	1.9.4	Ecosystems, Interdependence 3.9.1	Exploring ecological balance	The interdependence of organisms in an ecosystem, including insect-pollinated crops How organisms affect, and are affected by, their environment, including the accumulation of toxic materials	• Describe ways in which organisms affect their environment. • Explain why prey populations affect predator populations. • Evaluate a model of predator–prey populations and explain the importance of predators.	Worksheet 1.9.4a; Worksheet 1.9.4b; Technician's notes 1.9.4
Year 7	Term 2	8	1.9.5	Ecosystems, Plant reproduction 3.9.2	Exploring flowering plants	Reproduction in plants, including flower structure, wind and insect pollination	• Identify parts of flowering plants. • Describe the function of the parts of flowering plants and link structure and function. • Evaluate the differences between wind-pollinated and insect-pollinated plants.	Worksheet 1.9.5; Practical sheet 1.9.5; Technician's notes 1.9.5
Year 7	Term 2	8	1.9.6	Ecosystems, Plant reproduction 3.9.2	Exploring fertilisation	Reproduction in plants, including flower structure, wind and insect pollination, fertilisation	• Describe the processes of pollination and fertilisation. • Describe the role of pollen tubes. • Explain how seeds are formed.	Worksheet 1.9.6; Practical sheet 1.9.6a; Practical sheet 1.9.6b; Technician's notes 1.9.6
Year 7	Term 2	9	1.9.7	Ecosystems, Plant reproduction 3.9.2	Understanding how seeds are dispersed	Reproduction in plants, including seed and fruit formation and dispersal	• Recognise the variety of different structures shown by different seeds. • Describe the need for plants to disperse their seed. • Plan an investigation into seed dispersal by wind.	Worksheet 1.9.7a; Worksheet 1.9.7b; Technician's notes 1.9.7
Year 7	Term 2	9	1.9.8	Ecosystems, Plant reproduction 3.9.2	Understanding how fruits disperse seeds	Reproduction in plants, including seed and fruit formation and dispersal, including quantitative investigation of some dispersal mechanisms	• Describe how fruits are used in seed dispersal. • Compare evidence about seed dispersal by wind and by fruit formation. • Use data to evaluate different seed dispersal mechanisms.	Worksheet 1.9.8
Year 7	Term 2	9/10	End of chapter assessment					

Book 1, Chapter 3: Energy – Energy costs *and* Energy transfer

Year 7	Term 2	10	1.3.1	Energy, Energy transfer 3.3.2	Understanding energy transfers by fuels and food	Energy as a quantity that can be quantified and calculated; the total energy has the same value before and after a change Comparing energy values of different foods (from labels) (kJ) Other processes that involve energy transfer: metabolism of food, burning fuels	• Describe the use of fuels in the home. • Explain that foods are energy stores and that the amount stored can be measured. • Explain that energy is not a material and can be neither created nor destroyed.	Worksheet 1.3.1; Technician's notes 1.3.1
Year 7	Term 2	10	1.3.2	Energy, Energy transfer 3.3.2	Comparing rates of energy transfer	Comparing power ratings of appliances in watts (W, kW) Comparing amounts of energy transferred (J, kJ, kW hour)	• Describe what is meant by 'rate of energy transfer'. • Recall and use the correct units for rate of energy transfer. • Calculate quantities of energy transferred when change happens.	Worksheet 1.3.2; Technician's notes 1.3.2
Year 7	Term 2	11	1.3.3	Energy, Energy costs 3.3.1	Looking at the cost of energy use in the home	Comparing power ratings of appliances in watts (W, kW) Comparing amounts of energy transferred (J, kJ, kW hour) Domestic fuel bills: fuel use and costs	• Describe the information a typical fuel bill provides. • Explain and use the units used on a fuel bill. • Explain how the cost of energy used can be calculated.	Worksheet 1.3.3
Year 7	Term 2	11	1.3.4	Energy, Energy transfer 3.3.2	Getting the electricity we need	Calculation of fuel uses and costs in the domestic context: fuels and energy resources.	• Describe ways of generating electricity. • Explain advantages and disadvantages of different methods. • Evaluate the consequences of using various generating method.	Worksheet 1.3.4; Technician's notes 1.3.4
Year 7	Term 2	11	1.3.5	Energy, Energy costs 3.3.1	Using electricity responsibly	Calculation of fuel uses and costs in the domestic context: comparing power ratings of appliances in watts (W, kW), comparing amounts of energy transferred (J, kJ, kW hour), domestic fuel bills, fuel use and costs and fuels and energy resources.	• Apply the concept of energy transfers to a device such as a hand crank torch. • Critique claims made for the running costs of fluorescent light bulbs. • Evaluate actions that could be taken in response to rising energy demand.	Worksheet 1.3.5; Technician's notes 1.3.5
Year 7	Term 2	12	1.3.6	Energy, Energy transfer 3.3.2	Stores and transfers	Processes that involve energy transfer and changes in systems, including: energy as	• Investigate a model of energy. • Describe energy stores and transfers.	Worksheet 1.3.6; Technician's notes 1.3.6

						a quantity that can be quantified and calculated; comparing the starting with the final conditions of a system and describing increases and decreases in the amounts of energy.	• Apply the energy model to different situations.	
Year 7	Term 2	12	1.3.7	Energy, Energy transfer 3.3.2	Exploring energy transfers	Other processes that involve energy transfer: changing motion, dropping an object, completing an electrical circuit, burning fuels Energy as a quantity that can be quantified and calculated; the total energy has the same value before and after a change.	• Recognise what energy is and its unit. • Describe a range of energy transfers using simple diagrams. • Use a Sankey diagram as a model to represent simple energy changes.	Worksheet 1.3.7; Technician's notes 1.3.7
Year 7	Term 2	12	1.3.8	Energy, Energy transfer 3.3.2	Understanding potential energy and kinetic energy	Other processes that involve energy transfer: changing motion, dropping an object	• Recognise energy transfers due to falling objects. • Describe factors affecting energy transfers related to falling objects. • Explain how energy is conserved when objects fall.	Worksheet 1.3.8; Technician's notes 1.3.8
Year 7	Term 3	1	1.3.9	Energy, Energy transfer 3.3.2	Understanding elastic potential energy	Other processes that involve energy transfer: stretching a spring. Work done and energy changes on deformation. Comparing the starting with the final conditions of a system and describing increases and decreases in the amounts of energy in elastic distortions	• Describe different situations that use the energy stored in compressing and stretching elastic materials. • Describe how elastic potential energy in different materials can be compared. • Explain how elastic potential energy is transferred.	Worksheet 1.3.9; Practical sheet 1.3.9; Technician's notes 1.3.9
Year 7	Term 3	1	End of chapter assessment					

Book 1, Chapter 7: Earth – Earth structure *and* Universe

Year 7	Term 3	2	1.7.1	Earth, Earth structure 3.7.1	Understanding the structure of the Earth	The composition of the Earth The structure of the Earth	• Describe the layers of the Earth. • Describe the characteristics of the different layers. • Explain how volcanoes change the Earth.	Worksheet 1.7.1a; Worksheet 1.7.1b; Technician's notes 1.7.1

Year 7	Term 3	2	1.7.2	Earth, Earth structure 3.7.1	Exploring igneous rocks	The rock cycle and the formation of igneous, sedimentary and metamorphic rocks	• Describe how igneous rocks are formed. • Explain how the pH of the magma affects the formation of rocks. • Investigate the effect of cooling rate on the formation of crystals.	Worksheet 1.7.2; Practical sheet 1.7.2a; Practical sheet 1.7.2b; Technician's notes 1.7.2
Year 7	Term 3	2	1.7.3	Earth, Earth structure 3.7.1	Exploring sedimentary rocks		• Describe how sedimentary rocks are formed. • Explain how fossils give clues about the past. • Explain the properties of sedimentary rocks.	Worksheet 1.7.3; Practical sheet 1.7.3a; Practical sheet 1.7.3b; Technician's notes 1.7.3
Year 7	Term 3	3	1.7.4	Earth, Earth structure 3.7.1	Exploring metamorphic rocks		• Describe how metamorphic rocks are formed. • Explain the properties of metamorphic rocks.	Worksheet 1.7.4; Practical sheet 1.7.4; Technician's notes 1.7.4
Year 7	Term 3	3	1.7.5	Earth, Earth structure 3.7.1	Understanding the rock cycle		• Describe the rock cycle. • Explain how rocks can change from one type to another.	Worksheet 1.7.5a; Worksheet 1.7.5b; Practical sheet 1.7.5; Technician's notes 1.7.5
Year 7	Term 3	3	1.7.6	Earth, Universe 3.7.2	Describing stars and galaxies	Our Sun as a star, other stars in our galaxy, other galaxies	• Describe the characteristics of a star. • Relate our Sun to other stars. • Explain the concept of galaxies and the position of our galaxy compared to others.	Worksheet 1.7.6
Year 7	Term 3	4	1.7.7	Earth, Universe 3.7.2	Explaining the effects of the Earth's motion	The seasons and the Earth's tilt, day length at different times of year, in different hemispheres	• Describe variation in length of day, apparent position of the Sun and seasonal variations. • Compare these with changes in the opposite hemisphere. • Explain these changes with reference to the motion of the Earth.	Worksheet 1.7.7; Practical sheet 1.7.7; Technician's notes 1.7.7
Year 7	Term 3	4	1.7.8	Earth, Universe 3.7.2	Exploring our neighbours in the Universe	The light year as a unit of astronomical distance	• Recall that the light year is used to measure astronomical distances. • Explain the limitation of units such as kilometres in describing astronomical distances.	Worksheet 1.7.8; Practical sheet 1.7.8; Technician's notes 1.7.8

							• Explain what causes the appearance of the Moon to change.	
Year 7	Term 3	4	1.7.9	Earth, Universe 3.7.2	Using models in science	understanding that scientific methods and theories develop as earlier explanations are modified to take account of new evidence and ideas	• Explore how we can use models to explain ideas in science. • Construct an explanation using ideas and evidence. • Decide if a model is good enough to be useful.	Worksheet 1.7.9; Technician's notes 1.7.9
Year 7	Term 3	5	End of chapter assessment					

Book 1, Chapter 10: Genes – Variation *and* Human reproduction

Year 7	Term 3	5	1.10.1	Genes, Variation 3.10.1	Looking at variation	The variation between individuals within a species being continuous or discontinuous, to include measurement and graphical representation of variation	• Describe what is meant by variation in a species. • Explain the difference between continuous and discontinuous variation. • Plot graphs to show variation.	Worksheet 1.10.1; Technician's notes 1.10.1
Year 7	Term 3	6	1.10.2	Genes, Variation 3.10.1	Exploring the causes of variation	Heredity as the process by which genetic information is transmitted from one generation to the next	• Identify whether a feature is inherited or determined by the environment. • Understand that offspring from the same parents may show variation.	Worksheet 1.10.2; Practical sheet 1.10.2; Technician's notes 1.10.2
Year 7	Term 3	6	1.10.3	Genes, Variation 3.10.1	Considering the importance of variation	The variation between species and between individuals of the same species means some organisms compete more successfully, which can drive natural selection.	• Describe the importance of variation. • Explain how variation may help a species to survive. • Apply ideas about variation and survival to specific examples.	Worksheet 1.10.3; Technician's notes 1.10.3
Year 7	Term 3	6	1.10.4	Genes, Human reproduction 3.10.2	Understanding the female reproductive system and fertility	Reproduction in humans (as an example of a mammal), including the structure and function of the male and female reproductive systems, menstrual cycle (without details of hormones), gametes, fertilisation, gestation and birth	• Describe the structures and functions of different parts of the female reproductive system. • Describe the process of menstruation. • Describe causes of low fertility.	Worksheet 1.10.4; Technician's notes 1.10.4
Year 7	Term 3	7	1.10.5	Genes, Human reproduction 3.10.2	Understanding the male reproductive system and fertilisation	Reproduction in humans (as an example of a mammal), including the structure and function of the male and female reproductive systems	• Describe the structure and function of different parts of the male reproductive system. • Describe fertilisation in humans.	Worksheet 1.10.5; Technician's notes 1.10.5
Year 7	Term 3	7	1.10.6	Genes, Human reproduction 3.10.2	Learning how a foetus develops	Reproduction in humans (as an example of a mammal), fertilisation, gestation and birth	• Describe the role of the mother in supporting and protecting the developing foetus. • Recognise the development of a foetus.	Worksheet 1.10.6; Technician's notes 1.10.6
Year 7	Term 3	7	1.10.7	Genes, Human reproduction 3.10.2	Understanding factors affecting a developing foetus	Reproduction in humans (as an example of a mammal), to include the effect of maternal lifestyle on the foetus through the placenta	• Describe the effects of different factors on a developing foetus. • Evaluate the strength of data. • Analyse advice given to pregnant women.	Worksheet 1.10.7

Year 7	Term 3	8	1.10.8	Genes, Human reproduction 3.10.2	Communicating ideas about smoking in pregnancy	Reproduction in humans (as an example of a mammal), to include the effect of maternal lifestyle on the foetus through the placenta	• Critique claims linked with the effects of smoking in pregnancy. • Identify potential bias in sources of information. • Give a reasoned opinion.	Worksheet 1.10.8; Technician's notes 1.10.8
Year 7	Term 3	8	End of chapter assessment					

Book 1, Chapter 4: Waves – Sound *and* Light

Year 7	Term 3	9	1.4.1	Waves, sound 3.4.1	Exploring sound	Sound produced by vibrations of objects; sound waves are longitudinal	• Identify how sounds are made. • Describe how sound waves transfer energy. • Explain how loud and quiet sounds are made.	Worksheet 1.4.1; Practical sheet 1.4.1; Technician's notes 1.4.1
Year 7	Term 3	9	1.4.2	Waves, sound 3.4.1	Describing sound	Sound produced by vibrations of objects, in loudspeakers; detected by their effect on microphone diaphragm and the ear drum Frequencies of sound waves, measured in hertz (Hz)	• Explain what is meant by pitch. • Understand frequency, wavelength and amplitude. • Relate sounds to displayed waveforms.	Worksheet 1.4.2; Technician's notes 1.4.2
Year 7	Term 3	9	1.4.3	Waves, sound 3.4.1	Hearing sounds	Sound produced by vibrations of objects, detected by their effects on microphone diaphragm and the ear drum Waves transferring information for conversion to electrical signals by microphone	• Explain what is meant by audible range. • Understand how the ear detects sounds. • Apply ideas about sound to explaining defects in hearing.	Worksheet 1.4.3; Practical sheet 1.4.3; Technician's notes 1.4.3
Year 7	Term 3	10	1.4.4	Waves, sound 3.4.1	Understanding how sound travels through materials	Echoes, reflection and absorption of sound	• Recognise how the speed of sound changes in different substances. • Explain why the speed of sound varies between solids, liquids and gases.	Worksheet 1.4.4; Practical sheet 1.4.4; Technician's notes 1.4.4
Year 7	Term 3	10	1.4.5	Waves, light 3.4.2	Learning about the reflection and absorption of sound	The transmission of light through materials: absorption, diffuse scattering and specular reflection at a surface	• Recognise which materials reflect the quality of sound. • Analyse the effect of different materials on sound waves. • Use ideas about energy transfer to explain how soundproofing works.	Worksheet 1.4.5; Practical sheet 1.4.5; Technician's notes 1.4.5
Year 7	Term 3	10	1.4.6	Waves, light	Exploring properties of light	Use of the ray model to explain imaging in mirrors, the	• Describe how light passes through different materials.	Worksheet 1.4.6; Practical sheet 1.4.6;

				3.4.2		pinhole camera, the refraction of light and action of convex lens in focusing (qualitative); the human eye	• Explain the difference between scattering and specular reflection. • Explain how shadows are formed in eclipses.	Technician's notes 1.4.6
Year 7	Term 3	11	1.4.7	Waves, light 3.4.2	Exploring reflection	Use of the ray model to explain imaging in mirrors, the pinhole camera, the refraction of light and action of convex lens in focusing (qualitative); the human eye	• Describe how a mirror reflects light. • Explain the difference between specular and diffuse reflection. • Apply the law of reflection.	Worksheet 1.4.7; Practical sheet 1.4.7; Technician's notes 1.4.7
Year 7	Term 3	11	1.4.8	Waves, light 3.4.2	Exploring refraction	Use of the ray model to explain imaging in mirrors, the pinhole camera, the refraction of light and action of convex lens in focusing (qualitative); the human eye	• Describe how light is refracted when it enters a different medium. • Explain how this can cause it to change direction. • Apply ideas about refraction to understanding lenses.	Worksheet 1.4.8; Practical sheet 1.4.8; Technician's notes 1.4.8
Year 7	Term 3	11	1.4.9	Waves, light 3.4.2	Seeing clearly	Use of the ray model to explain imaging in mirrors, the pinhole camera, the refraction of light and action of convex lens in focusing (qualitative); the human eye	• Describing how the human eye works. • Explaining how the eye focuses on objects different distances away. • Applying ideas about lenses to the correction of vision.	Worksheet 1.4.9; Practical sheet 1.4.9; Technician's notes 1.4.9
Year 7	Term 3	12	1.4.10	Waves, light 3.4.2	Exploring coloured light	Colour and the different frequencies of light, white light and prisms (qualitative only); differential colour effects in absorption and diffuse reflection	• Describe how a spectrum can be produced from white light. • Compare the properties of light atdifferent frequencies. • Explain how light of different wavelengths can be split and recombined.	Worksheet 1.4.10; Practical sheet 1.4.10; Technician's notes 1.4.10
Year 7	Term 3	12	End of chapter assessment and end of year assessment					

Year 2 of 2-year scheme of work

Year	Term	Week	Student Book spread number and lesson plan reference	Big Idea/ subtopic and AQA syllabus reference	Title	Programme of study references	Learning objectives	CD-ROM resources
Book 2, Chapter 1: Forces – Contact forces *and* Pressure								
Year 8	Term 1	1	2.1.1	Forces, Contact forces	Analysing equilibrium	Opposing forces and equilibrium: weight held by stretched spring or supported on a compressed surface Using force arrows in diagrams, adding forces in one dimension, balanced and unbalanced forces	• Analyse situations to identify the various forces that are acting. • Explore static situations in which objects are held in equilibrium and the nature of the forces involved.	Worksheet 2.1.1; Practical sheet 2.1.1; Technician's notes 2.1.1
Year 8	Term 1	1	2.1.2	Forces, Contact forces	What a drag!	Forces associated with rubbing and friction between surfaces, with pushing things out of the way; resistance to motion of air and water	• Describe the effects of drag and other forces on objects as they move. • Describe factors which affect the size of frictional and drag forces. • Evaluate how well sports or vehicle technology reduces frictional or drag forces.	Worksheet 2.1.2; Technician's notes 2.1.2
Year 8	Term 1	1	2.1.3	Forces, Contact forces	Understanding stretch and compression	Forces associated with deforming objects Measurements of stretch or compression as force is changed	• Explain the relationship between an applied force and the change of shape of an object. • Investigate forces involved in compressing and stretching materials. • Identify applications for compressible and stretchable materials.	Worksheet 2.1.3; Practical sheet 2.1.3; Technician's notes 2.1.3
Year 8	Term 1	2	2.1.4	Forces, Contact forces	Investigating Hooke's Law	Forces associated with deforming objects; stretching and squashing – springs Measurements of stretch or compression as force is changed Force–extension linear relation; Hooke's Law as a special case	• Investigate the effects of applied forces on springs. • Generate data to produce a graph and analyse outcomes.	Worksheet 2.1.4; Practical sheet 2.1.4; Technician's notes 2.1.4

Year 8	Term 1	2	2.1.5	Forces, Pressure	Exploring pressure on a solid surface	Pressure measured by ratio of force over area – acting normal to any surface	• Explain how pressure can be applied on a solid surface. • Describe some effects of varying pressure.	Worksheet 2.1.5a; Worksheet 2.1.5b; Practical sheet 2.1.5; Technician's notes 2.1.5
Year 8	Term 1	2	2.1.6	Forces, Pressure	Exploring pressure in a fluid	Pressure in liquids, increasing with depth Atmospheric pressure; decreases with increase of height as weight of air above decreases with height	• Describe how pressure in a liquid alters with depth. • Describe how pressure in a gas varies with height above the Earth. • Explain pressure changes in relation to particles and gravity.	Worksheet 2.1.6; Technician's notes 2.1.6
Year 8	Term 1	3	2.1.7	Forces, Pressure	Calculating pressure	Pressure measured by ratio of force over area – acting normal to any surface	• Identify the factors that determine the size of pressure on a solid. • Calculate the size of pressure exerted.	Worksheet 2.1.7; Practical sheet 2.1.7; Technician's notes 2.1.7
Year 8	Term 1	3	2.1.8	Forces, Pressure	Explaining floating and sinking	Upthrust effects, floating and sinking	• Explain why some objects float and others sink. • Relate floating and sinking to density, displacement and upthrust. • Explain the implications of these ideas.	Worksheet 2.1.8; Practical sheet 2.1.8; Technician's notes 2.1.8
Year 8	Term 1	3/4	End of chapter assessment					

Book 2, Chapter 5: Matter – Periodic table *and* Elements

Year 8	Term 1	4	2.5.1	Matter, periodic table	Looking at the periodic table of elements	The principles underpinning the Mendeleev periodic table The periodic table: periods and groups; metals and non-metals	• Navigate the periodic table and identify some of the elements. • Identify features of the periodic table and describe how it is organised. • Explain why the periodic table is useful.	Worksheet 2.5.1; Technician's notes 2.5.1
Year 8	Term 1	4	2.5.2	Matter, periodic table	Exploring metals in the periodic table	The varying physical and chemical properties of different elements How patterns in reactions can be predicted with reference to the Periodic Table The properties of metals and non-metals	• Describe the physical properties of Group 1 metals. • Describe the pattern in reactions of Group 1 metals. • Use data to predict the reactivity and position of metals within the periodic table.	Worksheet 2.5.2; Practical sheet 2.5.2; Technician's notes 2.5.2
Year 8	Term 1	5	2.5.3	Matter, periodic table	Exploring non-metals in the periodic table	The varying physical and chemical properties of different elements How patterns in reactions can be predicted with reference to the Periodic Table The properties of metals and non-metals	• Describe the physical properties of the halogens. • Describe the pattern in reactions of the halogens. • Use data to predict the reactivity and position of non-metals within the periodic table.	Worksheet 2.5.3; Practical sheet 2.5.3; Technician's notes 2.5.3
Year 8	Term 1	5	2.5.4	Matter, periodic table	Analysing wider patterns within the periodic table	The varying physical and chemical properties of different elements How patterns in reactions can be predicted with reference to the Periodic Table	• Sort elements using chemical data and relate this to their position in the periodic table.	Worksheet 2.5.4
Year 8	Term 1	5	2.5.5	Matter, Elements	Combining elements	Differences between atoms, elements and compounds Chemical symbols and formulas for elements and compounds	• Explain what is meant by a compound. • Recognise how compounds are formed and named. • Interpret the ratio of atoms and formula of compounds.	Worksheet 2.5.5; Practical sheet 2.5.5; Technician's notes 2.5.5
Year 8	Term 1	6	2.5.6	Matter, Elements	Comparing elements and compounds	Differences between atoms, elements and compounds The chemical properties of metal and non-metal oxides	• Describe the properties of elements and the compound that they form. • Compare the properties of elements with the properties of the compounds that they form.	Worksheet 2.5.6; Practical sheet 2.5.6; Technician's notes 2.5.6

Year 8	Term 1	6	2.5.7	Matter, Elements	Exploring polymers	Properties of ceramics, polymers and composites (qualitative)	• Describe what a polymer is, using examples. • Explain how the properties of polymers relate to their function.	Worksheet 2.5.7; Technician's notes 2.5.7
Year 8	Term 1	6	2.5.8	Matter, Elements	Exploring ceramics and composites	Properties of ceramics, polymers and composites (qualitative)	• Describe what is meant by ceramic and composite, using examples. • Explain how the properties of ceramics and composites relate to their function.	Worksheet 2.5.8; Practical sheet 2.5.8; Technician's notes 2.5.8
Year 8	Term 1	7	End of chapter assessment					

Book 2, Chapter 8: Organisms – Breathing *and* Digestion

Year 8	Term 1	7	2.8.1	Organisms, Breathing	Understanding how we breathe	The mechanism of breathing to move air in and out of the lungs, using a pressure model to explain the movement of gases	• Describe the mechanism of breathing in and out. • Explain how changes in pressure help us to breathe. • Evaluate a model of breathing.	Worksheet 2.8.1; Technician's notes 2.8.1
Year 8	Term 1	8	2.8.2	Organisms, Breathing	Measuring breathing	The mechanism of breathing to move air in and out of the lungs, including simple measurements of lung volume	• Describe what is meant by lung volume and identify some simple methods to measure it. • Identify independent, dependent and control variables in a lung volume investigation. • Interpret and evaluate data linked to lung volume.	Worksheet 2.8.2; Practical sheet 2.8.2; Technician's notes 2.8.2
Year 8	Term 1	8	2.8.3	Organisms, Breathing	Explaining gas exchange in humans	The structure and functions of the gas exchange system in humans, including adaptations to function	• Describe the features of the human gas exchange system. • Explain how the features enable gases to be exchanged. • Distinguish between breathing and respiration.	Worksheet 2.8.3; Technician's notes 2.8.3
Year 8	Term 1	8	2.8.4	Organisms, Digestion	Exploring the effects of disease and lifestyle	The impact of exercise, asthma and smoking on the human gas exchange system	• Describe the physical effects of disease and lifestyle on the breathing system. • Explain the physical effects of disease and lifestyle on the breathing system. • Describe how our understanding about the effects of smoking has changed over time.	Worksheet 2.8.4; Technician's notes 2.8.4
Year 8	Term 1	9	2.8.5	Organisms, Digestion	Exploring a healthy diet	Content of a healthy human diet: carbohydrates, lipids (fats and oils), proteins, vitamins, minerals, dietary	• Describe the components of a healthy diet. • Examine the importance of each component of a healthy diet.	Worksheet 2.8.5

						fibre and water, and why each is needed	• Compare the energy requirements of different healthy diets.	
Year 8	Term 1	9	2.8.6	Organisms, Digestion	Understanding the effects of an unbalanced diet	The consequences of imbalances in the diet including obesity, starvation and deficiency diseases	• Describe the physical effects of eating too much and eating too little. • Identify the causes and effects of some deficiencies in the diet.	Worksheet 2.8.6
Year 8	Term 1	9	2.8.7	Organisms, Digestion	Understanding the human digestive system	The tissues and organs of the digestive system, including adaptations to function	• Identify the organs of the human digestive system. • Describe the process of digestion. • Evaluate a model of the digestive system.	Worksheet 2.8.7; Practical sheet 2.8.7; Technician's notes 2.8.7
Year 8	Term 1	10	2.8.8	Organisms, Digestion	Understanding the roles of the digestive organs	The tissues and organs of the digestive system, including adaptations to function	• Describe the roles of the organs of the digestive system. • Describe the importance of enzymes and gut bacteria in digestion. • Explain how the structure of each of the organs is adapted to its function.	Worksheet 2.8.8; Technician's notes 2.8.8
Year 8	Term 1	10	End of chapter assessment					

Book 2, Chapter 2: Electromagnets – Magnetism *and* Electromagnetism

Year 8	Term 1	11	2.2.1	Electromagnets, Magnetism	Forces and fields	Magnetic poles, attraction and repulsion. Magnetic fields by plotting with compass, representation by field lines Earth's magnetism, compass and navigation	• Know the laws of magnetic attraction. • Explain how a magnetic field can be represented by field lines. • Apply ideas about attraction to magnetic materials placed in a field.	Worksheet 2.2.1; Technician's notes 2.2.1
Year 8	Term 1	11	2.2.2	Electromagnets, Magnetism	Using ideas about fields	Magnetic poles, attraction and repulsion. Magnetic fields by plotting with compass, representation by field lines Earth's magnetism, compass and navigation	• Describe key features of the Earth's magnetic field. • Explain why fields vary in strength. • Explore the fields around combinations of magnets.	Worksheet 2.2.2; Technician's notes 2.2.2
Year 8	Term 1	11	2.2.3	Electromagnets, Electromagnets	Investigating electromagnetism	The magnetic effect of a current, electromagnets	• Describe what an electromagnet is. • Investigate the factors affecting the strength of electromagnets.	Worksheet 2.2.3; Practical sheet 2.2.3; Technician's notes 2.2.3
Year 8	Term 1	12	2.2.4	Electromagnets, Electromagnets	Using electromagnets	Electromagnets	• Describe different applications of electromagnets.	Worksheet 2.2.4
Year 8	Term 1	12	2.2.5	Electromagnets, Electromagnets	Investigating strength of electromagnets	The magnetic effect of a current, electromagnets, D.C. motors	• Identify and manage variables • Investigate the effect of changing variables. • Draw conclusions about how the strength of an electromagnet can be controlled.	Worksheet 2.2.5; Technician's notes 2.2.5
Year 8	Term 1	12	End of chapter assessment					

Book 2, Chapter 6: Reactions – Chemical energy *and* Types of reaction

Year 8	Term 2	1	2.6.1	Reactions, chemical energy	Understanding exothermic reactions	Internal energy stored in materials; exothermic chemical reactions (qualitative); comparing the starting with the final conditions of a system and describing increases and decreases in the amounts of energy associated with chemical compositions	• Describe examples of exothermic reactions. • Explain the energy changes taking place during an exothermic reaction.	Worksheet 2.6.1; Practical sheet 2.6.1; Technician's notes 2.6.1
Year 8	Term 2	1	2.6.2	Reactions, chemical energy	Comparing endothermic and exothermic changes	Exothermic and endothermic chemical reactions (qualitative); comparing the starting with the final conditions of a system and describing increases and decreases in the amounts of energy associated with chemical compositions	• Describe examples of endothermic reactions.	Worksheet 2.6.2; Practical sheet 2.6.2; Technician's notes 2.6.2
Year 8	Term 2	1	2.6.3	Reactions, chemical energy	Investigating endothermic reactions	Exothermic and endothermic chemical reactions (qualitative);	• Choose a suitable range and interval of values in an investigation. • Consider how to present data to make conclusions.	Worksheet 2.6.3; Practical sheet 2.6.3; Technician's notes 2.6.3
Year 8	Term 2	2	2.6.4	Reactions, chemical energy	Explaining the use of catalysts	What catalysts do	• Describe what a catalyst is. • Explain how catalysts work.	Worksheet 2.6.4; Practical sheet 2.6.4; Technician's notes 2.6.4
Year 8	Term 2	2	2.6.5	Reactions, types of reaction	Exploring combustion	Chemical reactions as the rearrangement of atoms Representing chemical reactions using formulas and using equations Combustion Fuels and energy resources Exothermic and endothermic chemical reactions (qualitative);	• Summarise combustion using an equation. • Make observations during chemical reactions. • Write word equations to represent chemical changes. • Explain chemical changes using a model.	Worksheet 2.6.5; Technician's notes 2.6.5
Year 8	Term 2	2	2.6.6	Reactions, types of reaction	Exploring the use of fuels		• Identify applications of combustion reactions. • Identify fuels used in different applications.	Worksheet 2.6.6; Practical sheet 2.6.6; Technician's notes 2.6.6

							• Compare the energy content of different fuels.	
Year 8	Term 2	3	2.6.7	Reactions, types of reaction	Understanding thermal decomposition	Chemical reactions, thermal decomposition	• Recognise and explain thermal decomposition reactions. • Describe some uses of thermal decomposition.	Worksheet 2.6.7; Practical sheet 2.6.7a; Practical sheet 2.6.7b; Technician's notes 2.6.7
Year 8	Term 2	3	2.6.8	Reactions, types of reaction	Explaining changes	Differences between atoms, elements and compounds Chemical symbols and formulae for elements and compounds Conservation of mass changes of state and chemical reactions Chemical reactions as the rearrangement of atoms Thermal decomposition, oxidation	• Observe and explain mass changes for chemical and physical processes. • Use particle diagrams to explain chemical processes.	Worksheet 2.6.8; Practical sheet 2.6.8; Technician's notes 2.6.8
Year 8	Term 2	3/4	Assessments					

Book 2, Chapter 9: Ecosystems – Respiration *and* Photosynthesis

Year 8	Term 2	4	2.9.1	Ecosystems, Respiration	Understanding aerobic respiration	Aerobic and anaerobic respiration in living organisms, including the breakdown of organic molecules to enable all the other chemical processes necessary for life The word equation for aerobic respiration	• Recall the equation for respiration and describe what it shows. • Explain the importance of respiration. • Apply what we know about respiration.	Worksheet 2.9.1; Practical sheet 2.9.1; Technician's notes 2.9.1
Year 8	Term 2	4	2.9.2	Ecosystems, Respiration	Exploring respiration in sport	Aerobic and anaerobic respiration in living organisms, including the breakdown of organic molecules to enable all the other chemical processes necessary for life	• Describe what is meant by anaerobic respiration. • Explain why some sports involve more aerobic or more anaerobic respiration. • Explain what is meant 5by oxygen debt.	Worksheet 2.9.2
Year 8	Term 2	5	2.9.3	Ecosystems, Respiration	Understanding anaerobic respiration	The process of anaerobic respiration in humans and micro-organisms, including	• Recall that plants and microbes carry out anaerobic respiration.	Worksheet 2.9.3; Practical sheet 2.9.3; Technician's notes

						fermentation, and the word equation for anaerobic respiration	• Recall the word equation for fermentation in plants and microbes. • Describe some evidence to show that anaerobic respiration can produce carbon dioxide.	2.9.3
Year 8	Term 2	5	2.9.4	Ecosystems, Respiration	Investigating fermentation	The process of anaerobic respiration in humans and micro-organisms, including fermentation, and the word equation for anaerobic respiration	• Describe some applications of fermentation. • Identify dependent, independent and control variables in an investigation. • Analyse data and identify next steps.	Worksheet 2.9.4; Practical sheet 2.9.4; Technician's notes 2.9.4
Year 8	Term 2	5	2.9.5	Ecosystems, Respiration	Comparing aerobic and anaerobic respiration	The differences between aerobic and anaerobic respiration in terms of the reactants, the products formed and the implications for the organism	• Describe some similarities and differences between aerobic and anaerobic respiration.	Worksheet 2.9.5
Year 8	Term 2	6	2.9.6	Ecosystems, Photosynthesis	Exploring how plants make food	The reactants in, and products of, photosynthesis, and a word summary for photosynthesis Plants making carbohydrates in their leaves by photosynthesis	• Describe a method to show that chlorophyll is essential for photosynthesis. • Identify risks and control measures.	Worksheet 2.9.6; Practical sheet 2.9.6; Technician's notes 2.9.6
Year 8	Term 2	6	2.9.7	Ecosystems, Photosynthesis	Looking at leaves	The adaptations of leaves for photosynthesis	• Relate the size of a leaf to the availability of light. • Relate the function of the leaf to its structure and the types of cell. • Evaluate the structure of a cell related to its function.	Worksheet 2.9.7; Practical sheet 2.9.7; Technician's notes 2.9.7
Year 8	Term 2	6	2.9.8	Ecosystems, Photosynthesis	Exploring the movement of water and minerals in plants	Plants gain mineral nutrients and water from the soil via their roots	• Identify how water and minerals move through a plant. • Explain how water and minerals move through a plant. • Evaluate the cell structures that allow the movement of water and minerals through a plant.	Worksheet 2.9.8a; Worksheet 2.9.8b; Practical sheet 2.9.8; Technician's notes 2.9.8
Year 8	Term 2	7	2.9.9	Ecosystems, Photosynthesis	Investigating the importance of minerals to plants		• Identify the minerals essential to healthy plant growth. • Explain the effects of a deficiency in essential minerals. • Evaluate the limitations of evidence.	Worksheet 2.9.9a; Worksheet 2.9.9b; Practical sheet 2.9.9; Technician's notes 2.9.9

Year 8	Term 2	7	2.9.10	Ecosystems, Photosynthesis	Investigating photosynthesis	The reactants in, and products of, photosynthesis, and a word summary for photosynthesis	• Identify the factors that can affect photosynthesis. • Predict results of investigations. • Interpret secondary data about photosynthesis.	Worksheet 2.9.10a; Worksheet 2.9.10b; Practical sheet 2.9.10a; Practical sheet 2.9.10b; Technician's notes 2.9.10
Year 8	Term 2	7/8	End of chapter assessment					

Book 2, Chapter 3: Energy – Work *and* Heating and cooling

Year 8	Term 2	8	2.3.1	Energy, Work	Doing work	Work done; simple machines give bigger force but at the expense of smaller movement (and vice versa): product of force and displacement unchanged	• Recognise situations where work is done. • Describe the relationship work done = force × distance. • Apply the equation for work done to different situations.	Worksheet 2.3.1; Technician's notes 2.3.1
Year 8	Term 2	8	2.3.2	Energy, Work	Making work easier	Work done; simple machines give bigger force but at the expense of smaller movement (and vice versa): product of force and displacement unchanged	• Understand what simple machines are. • Explain why they are useful. • Compare and contrast different machines	Worksheet 2.3.2; Technician's notes 2.3.2
Year 8	Term 2	9	2.3.3	Energy, heating and cooling	Explaining thermal energy	Heating and thermal equilibrium: temperature difference between two objects leading to energy transfer from the hotter to the cooler one Comparing the starting with the final conditions of a system and describing increases and decreases in the amounts of energy associated with temperatures	• Describe how temperature differences lead to energy transfer.	Worksheet 2.3.3; Practical sheet 2.3.3; Technician's notes 2.3.3
Year 8	Term 2	9	2.3.4	Energy, heating and cooling	How heat travels		• Explain how heat can travel by conduction, convection and radiation. • Give examples of each of these happening.	Worksheet 2.3.4; Technician's notes 2.3.4
Year 8	Term 2	9	2.3.5	Energy, heating and cooling	How to stop heat from travelling		• Explain the difference between conductors and insulators. • Explain how insulation works. • Apply ideas about insulation to practical applications.	Worksheet 2.3.5; Practical sheet 2.3.5; Technician's notes 2.3.5
Year 8	Term 2	10	2.3.6	Energy, heating and cooling	Energy and temperature	Heating and thermal equilibrium: temperature difference between two objects leading to energy transfer from the hotter to the cooler one, through contact (conduction) or radiation; such transfers tending to reduce the temperature difference: use of insulators	• Describe the warming and cooling of objects. • Explain the relationship between energy transfer and temperature change.	Worksheet 2.3.6; Practical sheet 2.3.6; Technician's notes 2.3.6
Year 8	Term 2	10	End of chapter assessment					

Book 2, Chapter 7: Earth – Climate *and* Earth resources

Year 8	Term 2	11	2.7.1	Earth, Climate	Understanding our atmosphere	The composition of the atmosphere	• Describe the composition of our atmosphere.	Worksheet 2.7.1; Practical sheet 2.7.1;

							• Describe how the atmosphere has changed over time. • Explain why the atmosphere has changed.	Technician's notes 2.7.1
Year 8	Term 2	11	2.7.2	Earth, Climate	Understanding how carbon is recycled	The carbon cycle	• Describe the carbon cycle.	Worksheet 2.7.2; Practical sheet 2.7.2; Technician's notes 2.7.2
Year 8	Term 2	11	2.7.3	Earth, Climate	Exploring how humans affect the carbon cycle	the carbon cycle, the composition of the atmosphere and the production of carbon dioxide by human activity and the impact on climate.	• Understand that human activities affect the carbon cycle. • Appreciate the scale of this impact. • Explain how the impact relates to carbon stores as well as carbon dioxide producers.	Worksheet 2.7.3; Technician's notes 2.7.3
Year 8	Term 2	12	2.7.4	Earth, Climate	Understanding global warming	The production of carbon dioxide by human activity and the impact on climate	• Describe the effects of global warming. • Explain the consequences of global warming for living things. • Evaluate the arguments for human activity impacting on global warming.	Worksheet 2.7.4
Year 8	Term 2	12	2.7.5	Earth, Earth resources	Exploring damage to the Earth's resources		• Describe resources that the Earth provides. • Explain how human activity limits these resources. • Justify decisions about making changes to the environment.	Worksheet 2.7.5
Year 8	Term 2	12	2.7.6	Earth, Earth resources	Considering the importance of recycling	Earth as a source of limited resources and the efficacy of recycling	• Describe examples of recycling. • Explain the benefits and limitations of recycling schemes. • Compare the efficiency of recycling methods.	Worksheet 2.7.6; Practical sheet 2.7.6; Technician's notes 2.7.6
Year 8	Term 3	1	2.7.7	Earth, Earth resources	How to extract metals	The order of metals and carbon in the reactivity series and the use of carbon in obtaining metals from metal oxides	• Understand that most metals are found as ores. • Understand how less reactive metals can be extracted. • Understand how more reactive metals can be extracted.	Worksheet 2.7.7; Technician's notes 2.7.7
Year 8	Term 3	1	End of chapter assessment					

Book 2, Chapter 10: Genes – Evolution *and* Inheritance

Year 8	Term 3	2	2.10.1	Genes, Evolution	Explaining natural selection	The variation between species and between individuals of the same species means some organisms compete more successfully, which can drive natural selection	• Describe how variation causes competition for resources, and drives natural selection.	Worksheet 2.10.1; Practical sheet 2.10.1; Technician's notes 2.10.1
Year 8	Term 3	2	2.10.2	Genes, Evolution	Understanding the importance of biodiversity	Changes in the environment may leave individuals within a species, and some entire species, less well adapted to compete successfully and reproduce, which in turn may lead to extinction The importance of maintaining biodiversity and the use of gene banks to preserve hereditary material	• Describe what is meant by biodiversity. • Explain the importance of biodiversity.	Worksheet 2.10.2
Year 8	Term 3	2	2.10.3	Genes, Evolution	Explaining extinction	Changes in the environment may leave individuals within a species, and some entire species, less well adapted to compete successfully and reproduce, which in turn may lead to extinction The importance of maintaining biodiversity and the use of gene banks to preserve hereditary material	• Identify changes that can cause a species to become extinct. • Explain the use of gene banks to preserve hereditary material before a species becomes extinct. • Analyse and evaluate theories of what caused the extinction of the dinosaurs.	Worksheet 2.10.3
Year 8	Term 3	3	2.10.4	Genes, Inheritance	Understanding the nature of genetic material	A simple model of chromosomes, genes and DNA in heredity, including the part played by Watson, Crick, Wilkins and Franklin in the development of the DNA model	• Identify that the nucleus contains chromosomes, which carry inherited genetic information. • Describe the link between chromosomes, genes and DNA. • Describe the structure of DNA. • Assess the work of Watson, Crick, Wilkins and Franklin on DNA structure.	Worksheet 2.10.4a; Worksheet 2.10.4b; Practical sheet 2.10.4; Technician's notes 2.10.4

Year 8	Term 3	3	2.10.5	Genes, Inheritance	Exploring the role of chromosomes	A simple model of chromosomes, genes and DNA in heredity	• Identify that a fertilised egg contains a full set of chromosomes, half from each parent. • Explain the number of chromosomes in gametes. • Explain how some genetic disorders arise.	Worksheet 2.10.5a; Worksheet 2.10.5b; Practical sheet 2.10.5; Technician's notes 2.10.5
Year 8	Term 3	3	2.10.6	Genes, Inheritance	Understanding variation	Heredity as the process by which genetic information is transmitted from one generation to the next	• Identify inherited characteristics in plants and animals that vary between offspring. • Explain how inherited differences arise by genetic material from both parents combining. • Describe how identical twins occur and analyse data about their features.	Worksheet 2.10.6; Technician's notes 2.10.6
Year 8	Term 3	4	2.10.7	Genes, Inheritance	Modelling inheritance	Heredity as the process by which genetic information is transmitted from one generation to the next	• Use a model to represent inheritance of a trait. • Predict likelihood of offspring inheriting specific traits.	Worksheet 2.10.7
Year 8	Term 3	4	End of chapter assessment					

Book 2, Chapter 4: Waves – Wave effects *and* Wave properties

Year 8	Term 3	5	2.4.1	Waves, Wave effects	Exploring sound	frequencies of sound waves, measured in hertz (Hz); echoes, reflection and absorption of sound sound needs a medium to travel, the speed of sound in air, in water, in solids auditory range of humans and animals. use for cleaning and physiotherapy by ultra-sound; waves transferring information for conversion to electrical signals by microphone. sound produced by vibrations of objects, in loud speakers, detected by their effects on microphone diaphragm and the ear drum; sound waves are longitudinal	• Understand how sound waves vary in frequency. • Apply ideas about frequency to understand ultrasound. • Understand practical applications of ultrasound.	Worksheet 2.4.1; Technician's notes 2.4.1
Year 8	Term 3	5	2.4.2	Waves, Wave effects	Sound systems		• Understand the function of microphones and loudspeakers. • Understand how audio equipment responds to different frequencies.	Worksheet 2.4.2; Technician's notes 2.4.2
Year 8	Term 3	5	2.4.3	Waves, wave properties	Exploring light	the similarities and differences between light waves and waves in matter light waves travelling through a vacuum; speed of light the transmission of light through materials: absorption, diffuse scattering and specular reflection at a surface use of ray model to explain imaging in mirrors, the pinhole camera, the refraction of light and action of convex lens in focusing (qualitative); the human eye light transferring energy from source to absorber leading to chemical and	• Understanding light can vary in frequency. • Describe UV light and its risks. • Explain the uses of UV light.	Worksheet 2.4.3; Technician's notes 2.4.3
Year 8	Term 3	6	2.4.4	Waves, wave properties	Exploring waves		• Use water waves to model wave behaviour. • Understand and apply the processes of reflection and absorption.	Worksheet 2.4.4; Technician's notes 2.4.4
Year 8	Term 3	6	2.4.5	Waves, wave properties	Comparing transverse and longitudinal waves		• Understanding longitudinal waves. • Understanding transverse waves. • Comparing types of wave	Worksheet 2.4.5; Practical sheet 2.4.5; Technician's notes 2.4.5

						electrical effects; photo-sensitive material in the retina and in cameras colours and the different frequencies of light, white light and prisms (qualitative only); differential colour effects in absorption and diffuse reflection. Waves on water as undulations which travel through water with transverse motion; these waves can be reflected, and add or cancel – superposition		
Year 8	Term 3	6/7	End of chapter assessment					
Year 8	Term 3	7 to 12	Revision and end of Key Stage assessment					

Collins

Five-Year Science Scheme of Work leading to AQA GCSE Biology, Chemistry and Physics (Two-Year KS3 and Three-Year KS4)

This Three-Year Scheme of Work for Years 9 to 11 is made up of lessons in Collins AQA GCSE Biology / Chemistry / Physics (single science student books) and is matched to the AQA Combined Science GCSE specification. It offers a flexible approach for KS4 based on eight science lessons per fortnight (usually three Biology, three Chemistry and two Physics). Lessons can be used for 40-60 minute sessions. Lessons are scheduled to finish in the first term of Year 11 to allow time for revision and GCSE examinations in the summer term.

			Collins AQA GCSE Biology / Chemistry / Physics						
Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
Year 9	Term 1	1/2	**B: 1 Cell biology**	1.1	Looking at cells	• Describe the structure of eukaryotic cells. • Recognise the order of magnitude of cells. • Explain how the main sub-cellular structures are related to their functions.	4.1.1.1; 4.1.1.2	Worksheets 1.1.1, 1.1.2 and 1.1.3; PowerPoint presentation	Quick starter Homework worksheet Homework quiz Slideshow
Year 9	Term 1	1/2	**B: 1 Cell biology**	1.2	The light microscope	• Observe plant and animal cells with a light microscope. • Understand the limitations of light microscopy.	4.1.1.5	Worksheet 1.2; Practical sheet 1.2; Technician's notes 1.2; PowerPoint presentation	Quick starter Homework worksheet Homework quiz Slideshow
Year 9	Term 1	1/2	**B: 1 Cell biology**	1.3	Looking at cells in more detail	• Identify the differences in the magnification and resolving power of light and electron microscopes. • Describe simply how electron microscopes work in comparison to light microscopes. • Explain how electron microscopy has increased our	4.1.1.5	Worksheet 1.3; PowerPoint presentation	Quick starter Homework worksheet Homework quiz

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						understanding of sub-cellular structures.			
Year 9	Term 1	1/2	**C: 1 Atomic structure and the periodic table**	1.1	Elements and compounds	• Identify symbols of elements from the periodic table • Recognise compounds from their formula. • Identify the elements in a compound	5.1.1.1	Practical sheet 1.1.1, Worksheet 1.1.1, Worksheet 1.1.2, Technician's notes 1.1.1	Quick starter Homework worksheet Homework quiz Slideshow
Year 9	Term 1	1/2	**C: 1 Atomic structure and the periodic table**	1.2	Atoms, formulae and equations	• Explain that an element consists of the same type of atoms. • Explain that atoms join together to make molecules. • Explain how formulae represent elements and compounds	5.1.1.1	Practical sheet 1.2; Worksheets 1.2.1, 1.2.2 and 1.2.3; Technician's notes 1.2; Presentation 1.2.1	Quick starter Homework worksheet Homework quiz Slideshow Video
Year 9	Term 1	1/2	**C: 1 Atomic structure and the periodic table**	1.3	Mixtures	• Recognise that all substances are chemicals • Understand that all substances are either mixtures, compounds or elements. • Explain that mixtures can be separated.	5.1.1.2	Practical sheet 1.3.1; Worksheets 1.3.1 and 1.3.2; Technician's notes 1.3.1	Quick starter Homework worksheet Homework quiz
Year 9	Term 1	1/2	**P: 1 Energy**	1.1	Potential energy	• Consider what happens when a spring is stretched. • Describe what is meant by gravitational potential energy.	6.1.1.1 6.1.1.2	Worksheet 1.1; Practical sheet 1.1; Technician's notes 1.1	Quick starter Homework worksheet Homework quiz

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						• Calculate the energy stored by an object raised above ground level.			
Year 9	Term 1	1/2	**P: 1 Energy**	1.2	Investigating kinetic energy	• Describe how the kinetic energy store of an object changes as its speed changes • Calculate kinetic energy. • Consider how energy is transferred.	6.1.1.1 6.1.1.2	Worksheet 1.2; Practical sheets 1.2.1 and 1.2.2; Technician's notes 1.2	Quick starter Homework worksheet Homework quiz Slideshow
Year 9	Term 1	3/4	**B: 1 Cell biology**	1.4	Required practical: Using a light microscope to observe and record animal and plant cells	• Apply knowledge to select techniques, instruments, apparatus and materials to observe cells. • Make and record observations and measurements. • Present observations and other data using appropriate methods.	4.1.1.2 Prac 1	Worksheets 1.4.1 and 1.4.2; Practical sheets 1.4.1 and 1.4.2; Technician's notes 1.4	Quick starter Homework worksheet Homework quiz Video
Year 9	Term 1	3/4	**B: 1 Cell biology**	1.5	Primitive cells	• Describe and explain the differences between prokaryotic cells and eukaryotic cells. • Explain how the main sub-cellular structures of prokaryotic and eukaryotic cells are	4.1.1.1; 4.1.1.2; 4.6.4	Worksheet 1.5; PowerPoint presentation	Quick starter Homework worksheet Homework quiz

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						related to their functions.			
Year 9	Term 1	3/4	**B: 1 Cell biology**	1.6	Cell division	• Describe the process of mitosis in growth, and mitosis as part of the cell cycle. • Describe how the process of mitosis produces cells that are identical genetically to the parent cell.	4.1.2.1; 4.1.2.2	Worksheets 1.6.1 and 1.6.2; Technician's notes 1.6; PowerPoint presentation	Quick starter Homework worksheet Homework quiz
Year 9	Term 1	3/4	**C: 1 Atomic structure and the periodic table**	1.4	Changing ideas about atoms	• Describe how the atomic model has changed over time. • Explain why the atomic model has changed over time • Understand that a theory is provisional until the next piece of evidence is available.	5.1.1.3	Worksheets 1.4.1, 1.4.2 and 1.4.3; Technician's notes 1.4.1; Presentation 1.4.1	Quick starter Homework worksheet Homework quiz Video
Year 9	Term 1	3/4	**C: 1 Atomic structure and the periodic table**	1.5	Modelling the atom	• Describe the atom as a positively charged nucleus surrounded by negatively charged electrons. • Explain that most of the mass of an atom is in the nucleus. • Explain that the nuclear radius is much smaller than that of the atom and most of the mass is in the nucleus.	5.1.1.4	Worksheet 1.5.1; Technician's notes 1.5.1; Presentation 1.5.1 'Helium'; Graph plotter 1.5.1	Quick starter Homework worksheet Homework quiz

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Year 9	Term 1	3/4	**C: 1 Atomic structure and the periodic table**	1.6	Relating charges and masses	• Describe the structure of atoms. • Recall the relative masses and charges of protons, neutrons and electrons. • Explain why atoms are neutral.	5.1.1.4	Worksheet 1.6.1; Technician's notes 1.6.1; Presentation 1.6.1	Quick starter Homework worksheet Homework quiz
Year 9	Term 1	3/4	**P: 1 Energy**	1.3	Work done and energy transfer	• Understand what is meant by work done. • Explain the relationship between work done and force applied. • Identify the transfers between energy stores when work is done against friction.	6.1.1.1, 6.5.2	Worksheet 1.3; Practical sheets 1.3.1 and 1.3.2; Technician's notes 1.3	Quick starter Homework worksheet Homework quiz Slideshow
Year 9	Term 1	3/4	**P: 1 Energy**	1.4	Understanding power	• Define power. • Compare the rate of energy transfer by various machines and electrical appliances. • Calculate power.	6.1.1.4	Worksheet 1.4; Practical sheets 1.4.1 and 1.4.2; Technician's notes 1.4.1 and 1.4.2	Quick starter Homework worksheet Homework quiz
Year 9	Term 1	5/6	**B: 1 Cell biology**	1.7	Cell differentiation	• Explain the importance of cell differentiation. • Describe how cells, tissues, organs and organ systems are organised to make up an organism. • Understand size and scale in	4.1.1.3; 4.1.1.4	Worksheet 1.7; PowerPoint presentation	Quick starter Homework worksheet Homework quiz

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						relation to cells, tissues, organs and body systems.			
Year 9	Term 1	5/6	**B: 1 Cell biology**	1.8	Cancer	• Describe cancer as a condition resulting from changes in cells that lead to their uncontrolled growth, division and spread. • Understand some of the risk factors that trigger cells to become cancerous. • Use data to analyse and evaluate the impact of cancer.	4.2.2.7	Worksheets 1.8.1, 1.8.2 and 1.8.3; PowerPoint presentation	Quick starter Homework worksheet Homework quiz Slideshow Video
Year 9	Term 1	5/6	**B: 1 Cell biology**	1.9	Stem cells	• Describe the function of stem cells in embryonic and adult animals. • Discuss potential benefits and risks associated with the use of stem cells in medicine.	4.1.2.3	Worksheets 1.9.1 and 1.9.2; PowerPoint presentation	Quick starter Homework worksheet Homework quiz
Year 9	Term 1	5/6	**C: 1 Atomic structure and the periodic table**	1.7	Sub-atomic particles	• Use the definition of atomic number and mass number. • Calculate the numbers of protons, neutrons and electrons in *atoms*. • Calculate the numbers of sub-atomic particles in isotopes and ions.	5.1.1.5; 5.1.1.6	Worksheets 1.7.1 and 1.7.2; Presentation 1.7.1	Quick starter Homework worksheet Homework quiz Slideshow

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Year 9	Term 1	5/6	**C: 1 Atomic structure and the periodic table**	1.8	Electronic structure	• Explain how electrons occupy 'shells' in order. • Describe the pattern of the electrons in shells for the first 20 elements.	5.1.1.7	Worksheets 1.8.1, 1.8.2 and 1.8.3; Technician's notes 1.8.1; Presentation 1.8.1	Quick starter Homework worksheet Homework quiz
Year 9	Term 1	5/6	**C: 1 Atomic structure and the periodic table**	1.9	The periodic table	• Explain how the electronic structure of atoms follows a pattern. • Recognise that the number of electrons in an element's atoms outer shell corresponds to the element's group number.	5.1.2.1	Worksheet 1.9.1, Worksheet 1.9.2, Worksheet 1.9.3, Presentation 1.9.1	Quick starter Homework worksheet Homework quiz Video
Year 9	Term 1	5/6	**P: 1 Energy**	1.5	Specific heat capacity	• Understand how things heat up. • Find out about heating water. • Find out about specific heat capacity.	6.1.1.3	Worksheet 1.5; Practical sheet 1.5; Technician's notes 1.5	Quick starter Homework worksheet Homework quiz
Year 9	Term 1	5/6	**P: 1 Energy**	1.6	Required practical: Investigating specific heat capacity	• Use theories to develop a hypothesis. • Evaluate a method and suggest improvements. • Perform calculations to support conclusions.	6.1.1.3 Prac 14	Worksheet 1.6; Practical sheet 1.6; Technician's notes 1.6	Quick starter Homework worksheet Homework quiz
Year 9	Term 1	7/8	**B: 1 Cell biology**	1.10	Stem cell banks	• Explore the use of stem cells in medicine.	4.1.2.3	Worksheet 1.10; PowerPoint presentation	Quick starter Homework worksheet

			Collins AQA GCSE Biology / Chemistry / Physics						
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						• Identify the risks in using stem cells. • Evaluate the benefits and disadvantages of using stem cells.			Homework quiz Video
Year 9	Term 1	7/8	**B: 1 Cell biology**	1.11	Key concept: Cell development	• Give examples of where mitosis is necessary to produce identical daughter cells. • Understand the need for reduction division, meiosis. • Describe the use and potential of cloned cells in biological research.	4.1.2	Worksheets 1.11.1 and 1.11.2; PowerPoint presentation	Quick starter Homework worksheet Homework quiz Slideshow Video
Year 9	Term 1	7/8	**B: 1 Cell biology**	1.12	Cells at work	• Recognise that all organisms respire. • Explain respiration as the process of making energy. • Describe aerobic respiration as an exothermic reaction.	4.4.2.1	Worksheet 1.12; Practical sheet 1.12; Technician's notes 1.12; PowerPoint presentation	Quick starter Homework worksheet Homework quiz
Year 9	Term 1	7/8	**C: 1 Atomic structure and the periodic table**	1.10	Developing the periodic table	• Describe the steps in the development of the periodic table. • Explain how Mendeleev left spaces for undiscovered elements. • Explain why the element order in the	5.1.2.2	Worksheets 1.10.1 and 1.10.2; Technician's notes 1.10.1; Presentation 1.10.1	Quick starter Homework worksheet Homework quiz

			Collins AQA GCSE Biology / Chemistry / Physics						
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						modern periodic table was changed. • Explain how testing a prediction can support or refute a new scientific idea.			
Year 9	Term 1	7/8	**C: 1 Atomic structure and the periodic table**	1.11	Comparing metals and non-metals	• Recall a number of physical properties of metals and non-metals. • Describe some chemical properties of metals and non-metals. • Explain the differences between metals and non-metals on the basis of their characteristic physical and chemical properties.	5.1.2.3	Practical sheet 1.11.1; Worksheet 1.11.1; Technician's notes 1.11.1; Presentations 1.11.1 and 1.11.2.2	Quick starter Homework worksheet Homework quiz
Year 9	Term 1	7/8	**C: 1 Atomic structure and the periodic table**	1.12	Metals and non-metals	• Describe that metals are found on the left of the periodic table and non-metals on the right. • Explain the differences between metals and non-metals based on their physical and chemical properties. • Explain that metals form positive ions and non-metals do not.	5.1.2.3	Worksheets 1.12.1 and 1.12.2; Technician's notes 1.12.1	Quick starter Homework worksheet Homework quiz Video

			Collins AQA GCSE Biology / Chemistry / Physics						
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Year 9	Term 1	7/8	**P: 1 Energy**	1.7	Dissipation of energy	• Explain ways of reducing unwanted energy transfer. • Describe what affects the rate of cooling of a building. • Understand that energy is dissipated.	6.1.2.1	Worksheet 1.7; Practical sheets 1.7.1, 1.7.2 and 1.7.3; Technician's notes 1.7	Quick starter Homework worksheet Homework quiz Slideshow
Year 9	Term 1	7/8	**P: 1 Energy**	1.8	Energy efficiency	• Explain what is meant by energy efficiency. • Calculate the efficiency of energy transfers. • Find out about conservation of energy.	6.1.2.2	Worksheet 1.8; Practical sheets 1.8.1, 1.8.2, 1.8.3, 1.8.4 and 1.8.5; Technician's notes 1.8.1 and 1.8.2	Quick starter Homework worksheet Homework quiz
Year 9	Term 1	9/10	**B: 1 Cell biology**	1.13	Living without oxygen	• Describe the process of anaerobic respiration. • Explain when anaerobic processes occur. • Compare the processes of aerobic and anaerobic respiration.	4.4.2.1	Worksheet 1.13; PowerPoint presentation	Quick starter Homework worksheet Homework quiz Slideshow Video
Year 9	Term 1	9/10	**B: 1 Cell biology**	1.17	Maths skills: Size and number	• Make estimates of the results of simple calculations, without using a calculator. • Use ratio and proportion to		Worksheets 1.17.1 and 1.17.2	Quick starter Homework worksheet Homework quiz Slideshow Video

			Collins AQA GCSE Biology / Chemistry / Physics						
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						calibrate a microscope. • Recognise and use numbers in decimal and standard form.			
Year 9	Term 1	9/10	**B: 1 Cell biology**	End of chapter test Student Book End of chapter test Collins *Connect*		Assessment			End of chapter test
Year 9	Term 1	9/10	**C: 1 Atomic structure and the periodic table**	1.13	Key concept: The outer electrons	• Recognise when electrons transfer • Recognise when atoms share electrons. • Predict when electrons are transferred most easily.	5.1.1; 5.1.2	Worksheet 1.13.1; Technician's notes 1.13.1; Presentation 1.13.1	Quick starter Homework worksheet Homework quiz
Year 9	Term 1	9/10	**C: 1 Atomic structure and the periodic table**	1.14	Exploring Group 0	• Describe the unreactivity of the noble gases. • Predict and explain the trend in boiling point of the noble gases (going down the group). • Explain how properties of the elements in Group 0 depend on the outer shell of electrons of their atoms	5.1.2.4	Worksheet 1.14.1; Graph plotter 1.14.1; Presentations 1.14.1 and 1.14.2	Quick starter Homework worksheet Homework quiz Slideshow
Year 9	Term 1	9/10	**C: 1 Atomic structure and the periodic table**	1.15	Exploring Group 1	• Explain why Group 1 metals are known as the alkali metals. • Predict the properties of other Group 1	5.1.2.5	Worksheets 1.15.1, 1.15.2 and 1.15.3; Technician's notes 1.14.1; Presentation 1.15.1	Quick starter Homework worksheet Homework quiz

			Collins AQA GCSE Biology / Chemistry / Physics						
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						metals from trends down the group. • Relate the properties of the alkali metals to the number of electrons in their outer shell.			
Year 9	Term 1	9/10	**P: 1 Energy**	1.10	Using energy resources	• Describe the main energy sources available for use on Earth. • Distinguish between renewable and non-renewable sources. • Explain the ways in which the energy resources are used.	6.1.3	Worksheet 1.10; Practical sheet 1.10; Technician's notes 1.10	Quick starter Homework worksheet Homework quiz
Year 9	Term 1	9/10	**P: 1 Energy**	1.11	Global energy supplies	• Analyse global trends in energy use. • Understand what the issues are when using energy resources.	6.1.3	Worksheet 1.11; Practical sheet 1.11; Technician's notes 1.11	Quick starter Homework worksheet Homework quiz Slideshow
Year 9	Term 1	11/12	**B: 2 Photosynthesis**	2.1	Explaining photosynthesis	• Identify the raw materials and products of photosynthesis. • Describe photosynthesis by an equation. • Explain gas exchange in leaves.	4.4.1.1	Worksheet 2.1; Practical sheet 2.1; Technician's notes 2.1	Quick starter Homework worksheet Homework quiz Slideshow
Year 9	Term 1	11/12	**B: 2 Photosynthesis**	2.2	Looking at photosynthesis	• Explain the importance of photosynthesis.	4.4.1.1; 4.2.3.2	Worksheet 2.2; Technician's notes 2.2	Quick starter Homework worksheet Homework quiz

			Collins AQA GCSE Biology / Chemistry / Physics						
Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
						• Explain how plants use the glucose they produce.			
Year 9	Term 1	11/12	**B: 2 Photosynthesis**	2.3	Investigating leaves	• Identify the internal structures of a leaf. • Explain how the structure of a leaf is adapted for photosynthesis. • Recall that chloroplasts absorb light energy for photosynthesis.	4.2.3.1	Worksheets 2.3.1, 2.3.2 and Technician's notes 2.3	Quick starter Homework worksheet Homework quiz Slideshow
Year 9	Term 1	11/12	**C: 1 Atomic structure and the periodic table**	1.16	Exploring Group 7	• Recall that fluorine, chlorine, bromine and iodine are non-metals called halogens. • Describe that they react vigorously with alkali metals. • Construct balanced symbol equations for the reactions of metals with halogens.	5.1.2.6	Worksheets 1.16.1, 1.16.2 and 1.16.3; Technician's notes 1.16.1 and 1.16.2; Presentation 1.16.1	Quick starter Homework worksheet Homework quiz Slideshow
Year 9	Term 1	11/12	**C: 1 Atomic structure and the periodic table**	1.17	Reaction trends and predicting reactions	• Explain why the trends down the group in Group 1 and in Group 7 are different. • Explain the changes across a period. • Predict the reactions of elements with water, dilute acid or oxygen from their position in the periodic table.	5.1.2.1	Worksheet 1.17.1; Presentation 1.17.1	Quick starter Homework worksheet Homework quiz

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Year 9	Term 1	11/12	**C: 1 Atomic structure and the periodic table**	1.19	Maths skills: Standard form and making estimates	• Recognise the format of standard form. • Convert decimals to standard form and vice versa. Make estimates without calculators so the answer in standard form seems reasonable.		Worksheet 1.19.1; Technician's notes 1.19.1; Presentation 1.19.1	Homework quiz
Year 9	Term 1	11/12	**C: 1 Atomic structure and the periodic table**	End of chapter test Student Book End of chapter test Collins *Connect*		Assessment			End of chapter test
Year 9	Term 1	11/12	**P: 1 Energy**	1.12	Key concept: Energy transfer	• Be able to recognise objects with energy • Be able to recognise the different types of energy • Be able to describe energy transfers • Be able to use and describe the law of conservation of energy	6.1	Worksheet 1.12; Practical sheets 1.12.1 and 1.12.2; Technician's notes 1.12.1 and 1.12.2	Quick starter Homework worksheet Homework quiz Slideshow
Year 9	Term 1	11/12	**P: 1 Energy**	1.13	Maths skills: Calculations using significant figures	• Substitute numerical values into equations and use appropriate units. • Change the subject of an equation. • Give an answer to an appropriate number of significant figures	6.1	Worksheet 1.13	Quick starter Homework worksheet Homework quiz

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Year 9	Term 2	13/14	**B: 2 Photosynthesis**	2.4	Required practical: Investigate the effect of light intensity on the rate of photosynthesis using an aquatic organism such as pondweed	• Use scientific ideas to evaluate a hypothesis. • Use the correct sampling techniques to ensure that readings are representative. • Present results in a graph.	4.4.1.2 Prac 5	Worksheet 2.4; Practical sheets 2.4.1, 2.4.2 and 2.4.3; Technician's notes 2.4	Quick starter Homework worksheet Homework quiz Slideshow
Year 9	Term 2	13/14	**B: 2 Photosynthesis**	2.5	Increasing photosynthesis	• Identify factors that affect the rate of photosynthesis. • Interpret data about the rate of photosynthesis. • Explain the interaction of factors in limiting the rate of photosynthesis.	4.4.1.2	Worksheet 2.5; Technician's notes 2.5	Quick starter Homework worksheet Homework quiz
Year 9	Term 2	13/14	**B: 2 Photosynthesis**	2.6	Increasing food production	• Identify the factors that increase food production. • Explain how these factors can be controlled. • Evaluate the benefits of manipulating the environment to increase food production.	4.4.1.2	Worksheet 2.6; Technician's notes 2.6	Quick starter Homework worksheet Homework quiz Slideshow Video
Year 9	Term 2	13/14	**C: 2 Structure, bonding and the properties of matter**	2.1	Chemical bonds	• Describe the three main types of bonding. • Explain how electrons are used in the three	5.2.1.1	Worksheets 2.1.1 and 2.1.2	Quick starter Homework worksheet Homework quiz

			Collins AQA GCSE Biology / Chemistry / Physics						
Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
						main types of bonding. • Explain how bonding and properties are linked.			Homework quiz – higher tier
Year 9	Term 2	13/14	**C: 2 Structure, bonding and the properties of matter**	2.2	Ionic bonding	• Represent an ionic bond with a diagram. • Draw dot and cross diagrams for ionic compounds. • Work out the charge on the ions of metals from the group number of the element (1, 2, 6 and 7).	5.2.1.2	Practical sheet 2.2.1; Worksheet 2.2.1; Technician's notes 2.2.1	Quick starter Homework worksheet Homework quiz Homework quiz – higher tier Video
Year 9	Term 2	13/14	**C: 2 Structure, bonding and the properties of matter**	2.3	Ionic compounds	• Identify ionic compounds from structures. • Explain the limitations of diagrams and models. • Work out the empirical formula of an ionic compound.	5.2.1.3	Practical sheet 2.3.1; Worksheets 2.3.1, 2.3.2 and 2.3.3; Technician's notes 2.3.1	Quick starter Homework worksheet Homework quiz Homework quiz – higher tier
Year 9	Term 1	13/14	**P: 1 Energy**	1.14	Maths skills: Handling data	• Recognise the difference between mean, mode and median. • Explain the use of tables and frequency tables. • Explain when to use scatter diagrams, bar charts and histograms.	6.1.1.1, 6.1.3	Worksheet 1.14	Quick starter Homework worksheet Homework quiz

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Year 9	Term 1	13/14	**P: 1 Energy**	End of chapter test Student Book End of chapter test Collins *Connect*		Assessment			End of chapter test
Year 9	Term 2	15/16	**B: 2 Photosynthesis**	2.7	Key concept: Diffusion in living systems	• Use concentration gradients to explain the direction of diffusion. • Apply the principles of diffusion to movement of different substances in plants.	4.1.3.1	Worksheets 2.7.1, 2.7.2 and 2.7.3; Practical sheet 2.7; Technician's notes 2.7	Quick starter Homework worksheet Homework quiz Slideshow Video
Year 9	Term 2	15/16	**B: 2 Photosynthesis**	2.8	Looking at stomata	• Describe transpiration in plants. • Explain the structure and function of stomata. • Explain the relationship between transpiration and leaf structure.	4.2.3.1; 4.2.3.2	Worksheet 2.8; Practical sheet 2.8; Technician's notes 2.8	Quick starter Homework worksheet Homework quiz Video
Year 9	Term 2	15/16	**B: 2 Photosynthesis**	2.9	Moving water	• Describe the structure and function of xylem and roots. • Describe how xylem and roots are adapted to absorb water. • Explain why plants in flooded or waterlogged soil die.	4.2.3.1; 4.2.3.2	Worksheets 2.9.1, 2.9.2 and 2.9.3; Practical sheet 2.9; Technician's notes 2.9	Quick starter Homework worksheet Homework quiz Video

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						• Explain how wilting occurs.			
Year 9	Term 2	15/16	**C: 2 Structure, bonding and the properties of matter**	2.4	Covalent bonding	• Recognise substances made of small molecules from their formula. • Draw dot and cross diagrams for small molecules. • Deduce molecular formulae from models and diagrams.	5.2.1.4	Worksheets 2.4.1 and 2.4.2	Quick starter Homework worksheet Homework quiz Video
Year 9	Term 2	15/16	**C: 2 Structure, bonding and the properties of matter**	2.5	Metallic bonding	• Describe that metals form giant structures. • Explain how metal ions are held together. • Explain the delocalisation of electrons.	5.2.1.5	Practical sheet 2.5.1; Worksheets 2.5.1 and 2.5.2; Technician's notes 2.5.1	Quick starter Homework worksheet Homework quiz Homework quiz – higher tier Video
Year 9	Term 2	15/16	**C: 2 Structure, bonding and the properties of matter**	2.6	Three states of matter	• Use data to predict the states of substances. • Explain the changes of state. • Use state symbols in chemical equations.	5.2.2.1, 5.2.2.2	Practical sheet 2.6.1; Worksheets 2.6.1 and 2.6.2: Technician's notes 2.6.1	Quick starter Homework worksheet Homework quiz Homework quiz – higher tier Slideshow Video
Year 9	Term 2	15/16	**P: 2 Electricity**	2.3	Electric current	• Know circuit symbols. • Recall that current is a rate of flow of electric charge. • Recall that current (*I*) depends on resistance (*R*) and potential difference (*V*)	6.2.1.1, 6.2.1.2, 6.2.1.3	Worksheets 2.3.1, 2.3.2 and 2.3.3	Quick starter Homework worksheet Homework quiz

			Collins AQA GCSE Biology / Chemistry / Physics						
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						• Explain how an electric current passes round a circuit.			
Year 9	Term 2	15/16	**P: 2 Electricity**	2.4	Series and parallel circuits	• Recognise series and parallel circuits. • Describe the changes in the current and potential difference in series and parallel circuits.	6.2.2	Worksheets 2.4.1, 2.4.2 and 2.4.3	Quick starter Homework worksheet Homework quiz Slideshow
Year 9	Term 2	15/16	**P: 2 Electricity**	2.5	Investigating circuits	• Use series circuits to test components and make measurements. • Carry out calculations on series circuits.	6.2.2	Worksheets 2.5.1, 2.5.2 and 2.5.3; Practical sheet 2.5; Technician's notes 2.5	Quick starter Homework worksheet Homework quiz
Year 9	Term 2	17/18	**B: 2 Photosynthesis**	2.10	Investigating transpiration	• Describe how transpiration is affected by different factors. • Explain the movement of water in the xylem.	4.2.3.2	Worksheet 2.10; Practical sheet 2.10; Technician's notes 2.10	Quick starter Homework worksheet Homework quiz Slideshow
Year 9	Term 2	17/18	**B: 2 Photosynthesis**	2.11	Moving sugar	• Describe the movement of sugar in a plant as translocation. • Explain how the structure of phloem is adapted to its function in the plant. • Explain the movement of sugars around the plant.	4.2.3.2	Worksheet 2.11; Technician's notes 2.11	Quick starter Homework worksheet Homework quiz

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Year 9	Term 2	17/18	**B: 2 Photosynthesis**	2.12	Maths skills: Surface area to volume ratio	• Be able to calculate surface area and volume. • Be able to calculate surface area to volume ratio. • Know how to apply ideas about surface area and volume.	4.1.3.1	Worksheet 2.12	Quick starter Homework worksheet Homework quiz Slideshow Video
Year 9	Term 2	17/18	**C: 2 Structure, bonding and the properties of matter**	2.7	Properties of ionic compounds	• Describe the properties of ionic compounds. • Relate their melting points to forces between ions. • Explain when ionic compounds can conduct electricity.	5.2.2.3	Practical sheets 2.7.1 and 2.7.2; Worksheet 2.7.1; Technician's notes 2.7.1 and 2.7.2	Quick starter Homework worksheet Homework quiz Homework quiz – higher tier Video
Year 9	Term 2	17/18	**C: 2 Structure, bonding and the properties of matter**	2.8	Properties of small molecules	• Identify small molecules from formulae. • Explain the strength of covalent bonds. • Relate the intermolecular forces to the bulk properties of a substance.	5.2.2.4	Worksheets 2.8.1 and 2.8.2	Quick starter Homework worksheet Homework quiz Homework quiz – higher tier Video
Year 9	Term 2	17/18	**C: 2 Structure, bonding and the properties of matter**	2.9	Polymer structures	• Identify polymers from diagrams showing their bonding and structure. • Explain why some polymers can stretch. • Explain why some plastics do not soften on heating.	5.2.2.5	Practical sheet 2.9.1; Worksheet 2.9.1; Technician's notes 2.9.1	Quick starter Homework worksheet Homework quiz Homework quiz – higher tier

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Year 9	Term 2	17/18	**P: 2 Electricity**	2.6	Circuit components	• Set up a circuit to investigate resistance. • Investigate the changing resistance of a filament lamp. • Compare the properties of a resistor and filament lamp.	6.2.1.4	Practical sheet 2.6; Technician's notes 2.6	Quick starter Homework worksheet Homework quiz Slideshow
Year 9	Term 2	17/18	**P: 2 Electricity**	2.7	Required practical: Investigate, using circuit diagrams to construct circuits, the *I*–*V* characteristics of a filament lamp, a diode and a resistor at constant temperature	• Understand how an experiment can be designed to test an idea • Evaluate how an experimental procedure can yield more accurate data • Interpret and explain graphs using scientific ideas.	6.2.1.4 Prac 16	Practical sheet 2.7; Technician's notes 2.7	Quick starter Homework worksheet Homework quiz
Year 9	Term 2	19/20	**B: 2 Photosynthesis**	End of chapter test Student Book End of chapter test Collins *Connect* End of teaching block test Collins *Connect*		Assessment			End of chapter test End of teaching block test
Year 9	Term 2	19/20	**B: 3 Moving and changing materials**	3.1	Explaining water movement	• Describe how water moves by osmosis in living tissues. • Identify factors that affect the rate of osmosis.	4.1.3.2	Worksheet 3.1; Practical sheet 3.1; Technician's notes 3.1	Quick starter Homework worksheet Homework quiz Slideshow

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Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
						• Explain what the term 'partially permeable membrane' means.			
Year 9	Term 2	19/20	**B: 3 Moving and changing materials**	3.2	Required practical: Investigate the effect of a range of concentrations of salt or sugar solutions on the mass of plant tissue	• Use scientific ideas to develop a hypothesis. • Plan experiments to test a hypothesis. • Draw conclusions from data and compare these with hypotheses made.	4.1.3.2 Prac 2	Worksheet 3.2; Practical sheets 3.2.1 and 3.2.2; Technician's notes 3.2	Quick starter Homework worksheet Homework quiz Slideshow
Year 9	Term 2	19/20	**C: 2 Structure, bonding and the properties of matter**	2.10	Giant covalent structures	• Recognise giant covalent structures from diagrams. • Explain the properties of giant covalent structures. • Recognise the differences in different forms of carbon.	5.2.2.6	Practical sheet 2.10.1; Worksheets 2.10.1 and 2.10.2; Technician's notes 2.10.1	Quick starter Homework worksheet Homework quiz
Year 9	Term 2	19/20	**C: 2 Structure, bonding and the properties of matter**	2.11	Properties of metals and alloys	• Identify metal elements and their properties, and metal alloys. • Describe the purpose of a tin-lead alloy. • Explain why alloys are harder than pure metals due to the distortion of the layers of atoms.	5.2.2.7, 5.2.2.8	Practical sheet 2.11.1; Worksheets 2.11.1 and 2.11.2; Technician's notes 2.11.1	Quick starter Homework worksheet Homework quiz Slideshows
Year 9	Term 2	19/20	**C: 2 Structure, bonding and the properties of matter**	2.12	Diamond	• Identify why diamonds are so hard.	5.2.3.1	Worksheet 2.12.1	Quick starter Homework worksheet Homework quiz

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						• Explain how the properties relate to the bonding structure in diamond. • Explain why diamond differs from graphite.			Homework quiz – higher tier Slideshow Video
Year 9	Term 2	19/20	**P: 2 Electricity**	2.8	Required practical: Use circuit diagrams to set up and check appropriate circuits to investigate the factors affecting the resistance of electrical circuits, including the length of a wire at constant temperature and combinations of resistors in series and parallel	• Use a circuit to determine resistance • Gather valid data to use in calculations • Apply the circuit to determine the resistance of combinations of components	6.2.1.3 Prac 15	Worksheet 2.8; Practical sheets 2.8.1, 2.8.2 and 2.8.3; Technician's notes 2.8	Quick starter Homework worksheet Homework quiz
Year 9	Term 2	19/20	**P: 2 Electricity**	2.9	Control circuits	• Use a thermistor and light-dependent resistor (LDR). • Investigate the properties of thermistors, LDRs and diodes.	6.2.1.4	Worksheet 2.9; Practical sheet 2.9; Technician's notes 2.9	Quick starter Homework worksheet Homework quiz
Year 9	Term 2	21/22	**B: 3 Moving and changing materials**	3.3	Learning about active transport	• Describe active transport. • Explain how active transport is different from diffusion and osmosis. • Explain why active transport is important.	4.1.3.3	Worksheet 3.3; Technician's notes 3.3	Quick starter Homework worksheet Homework quiz

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Year 9	Term 2	21/22	**B: 3 Moving and changing materials**	3.4	Key concept: Investigating the need for transport systems	• Describe how the size of an organism affects the rate of diffusion. • Explain how changes in conditions affect the rate of diffusion. • Explain the need for exchange surfaces and transport systems using surface area to volume ratio.	4.1.3.1	Worksheet 3.4; Practical sheet 3.4; Technician's notes 3.4	Quick starter Homework worksheet Homework quiz Slideshow Video
Year 9	Term 2	21/22	**C: 2 Structure, bonding and the properties of matter**	2.13	Graphite	• Describe the structure and bonding of graphite. • Explain the properties of graphite. • Explain the similarity to metals.	5.2.3.2	Worksheets 2.13.1 and 2.13.2	Quick starter Homework worksheet Homework quiz Homework quiz – higher tier Video
Year 9	Term 2	21/22	**C: 2 Structure, bonding and the properties of matter**	2.14	Graphene and fullerenes	• Explain the properties of graphene in terms of its structure and bonding. • Recognise graphene and fullerenes from their bonding and structure. • Describe the uses of fullerenes, including carbon nanotubes.	5.2.3.3	Worksheets 2.14.1 and 2.14.2	Quick starter Homework worksheet Homework quiz Homework quiz – higher tier Video
Year 9	Term 2	21/22	**P: 2 Electricity**	2.10	Electricity in the home	• Recall that the domestic supply in the UK is a.c. at 50 Hz and about 230 V.	6.2.3.1 6.2.3.2	Worksheets 2.10.1, 2.10.2 and 2.10.3	Quick starter Homework worksheet Homework quiz Slideshow

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						• Describe the main features of live, neutral and earth wires.			
Year 9	Term 2	21/22	**P: 2 Electricity**	2.11	Transmitting electricity	• Describe how electricity is transmitted using the National Grid. • Explain why electrical power is transmitted at high potential differences. • Understand the role of transformers.	6.2.4.3	Worksheet 2.11	Quick starter Homework worksheet Homework quiz
Year 9	Term 2	21/22	**P: 2 Electricity**	2.12	Power and energy transfers	• Describe the energy transfers in different domestic appliances. • Describe power as a rate of energy transfer. • Calculate the energy transferred.	6.2.4.2	Worksheets 2.12.1, 2.12.2 and 2.12.3; Practical sheet 2.12; Technician's notes 2.12	Quick starter Homework worksheet Homework quiz
Year 9	Term 2	23/24	**B: 3 Moving and changing materials**	3.5	Explaining enzymes	• Describe what enzymes are and how they work. • Explain the lock-and-key theory. • Use the collision theory to explain enzyme action.	4.2.2.1	Worksheet 3.5; Practical sheet 3.5; Technician's notes 3.5	Quick starter Homework worksheet Homework quiz Slideshow
Year 9	Term 2	23/24	**B: 3 Moving and changing materials**	3.6	Required practical: Investigate the effect of pH on the rate of reaction of amylase enzyme	• Describe how safety is managed, apparatus is used and accurate measurements are made.	4.2.2.1 Prac 4	Worksheets 3.6.1, 3.6.2 and 3.6.3; Practical sheet 3.6; Technician's notes 3.6	Quick starter Homework worksheet Homework quiz Slideshow

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						• Explain how representative samples are taken. • Make and record accurate observations. • Draw and interpret a graph from secondary data using knowledge and observations.			
Year 9	Term 2	23/24	**B: 3 Moving and changing materials**	3.7	Learning about the digestive system	• Identify and locate the organs in the digestive system, and describe their functions. • Describe how the products of digestion are absorbed into the body. • Explain why the small intestine is an efficient exchange surface.	4.2.2.1	Worksheet 3.7; Practical sheet 3.7 (teacher demonstration); Technician's notes 3.7	Quick starter Homework worksheet Homework quiz Slideshow
Year 9	Term 2	23/24	**C: 2 Structure, bonding and the properties of matter**	2.16	Key concept: Sizes of particles and orders of magnitude	• Identify the scale and measurements of length. • Explain the conversion of small lengths to metres. • Explain the relative sizes of electrons, nuclei and atoms.	5.1, 5.2	Practical sheet 2.16.1; Worksheets 2.16.1 and 2.16.2; Technician's notes 2.16.1	Quick starter Homework worksheet Homework quiz Slideshow Video
Year 9	Term 2	23/24	**C: 2 Structure, bonding and the properties of matter**	2.17	Maths skills: Visualise and represent 2D and 3D shapes	• Use two-dimensional (2D) diagrams and 3D models to:	5.2	Worksheets 2.17.1, 2.17.2 and 2.17.3	

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						○ represent atoms, molecules and ionic structure ○ represent giant covalent structures ○ calculate empirical formulae of ionic structures.			
Year 9	Term 2	23/24	**C: 2 Structure, bonding and the properties of matter**	End of chapter test Student Book End of chapter test Collins *Connect* End of teaching block test Collins *Connect*		Assessment			End of chapter test End of teaching block test
Year 9	Term 2	23/24	**P: 2 Electricity**	2.13	Calculating power	• Calculate power. • Use power equations to solve problems. • Consider power ratings and changes in stored energy.	6.2.4.1, 6.1.1.1, 6.1.1.2, 6.1.1.3	Worksheets 2.13.1, 2.13.2 and 2.13.3; Practical sheet 2.13; Technician's notes 2.13	Quick starter Homework worksheet Homework quiz
Year 9	Term 2	23/24	**P: 2 Electricity**	2.14	Key concept: What's the difference between potential difference and current?	• Understand and be able to apply the concepts of current and potential difference. • Use these concepts to explain various situations.	6.2.1	Worksheet 2.14; Practical sheets 2.14.1, 2.14.2 and 2.14.3; Technician's notes 2.14	Quick starter Homework worksheet Homework quiz Slideshow
Year 9	Term 2	23/24	**P: 2 Electricity**	2.15	Maths skills: Using formulae and understanding graphs	• Recognise how algebraic equations define the relationships between variables. • Solve simple algebraic equations	6.2	Worksheets 2.15.1 and 2.15.2	Quick starter Homework worksheet Homework quiz

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						by substituting numerical values. • Describe relationships expressed in graphical form.			
Year 9	Term 3	25/26	**B: 3 Moving and changing materials**	3.8	Explaining digestion	• Describe how physical digestion helps to increase the rate of chemical digestion. • Name the sites of production and action of specific enzymes. • Interpret data about digestive enzymes.	4.2.2.1	Worksheet 3.8	Quick starter Homework worksheet Homework quiz
Year 9	Term 3	25/26	**B: 3 Moving and changing materials**	3.9	Required practical: Use qualitative reagents to test for a range of carbohydrates, lipids and proteins	• Suggest appropriate apparatus for the procedures. • Describe how safety is managed and apparatus is used. • Describe how accurate measurements are made. • Interpret observations and make conclusions.	4.2.2.1 Prac 3	Practical sheets 3.9.1 and 3.9.2; Technician's notes 3.9	Quick starter Homework worksheet Homework quiz
Year 9	Term 3	25/26	**B: 3 Moving and changing materials**	3.10	Looking at more exchange surfaces	• Identify the structures responsible for gas exchange in fish. • Describe the adaptations of	4.1.3.1	Worksheets 3.10.1, 3.10.2 and 3.10.3 (NB. Not all resources may be suitable – Combined students need to know only about fish, not about amphibians nor insects)	Quick starter Homework worksheet Homework quiz Video

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						different gas exchange surfaces.			
Year 9	Term 3	25/26	**C: 3 Chemical quantities and calculations**	3.1	Key concept: Conservation of mass and balanced equations	• Explain the law of conservation of mass. • Explain why a multiplier appears as a subscript in a formula. • Explain why a multiplier appears in equations before a formula.	5.3.1.1	Worksheet 3.1.1; Technician's notes 3.1.1; Presentation 3.1.1	Quick starter Homework worksheet Homework quiz Slideshow Video
Year 9	Term 3	25/26	**C: 3 Chemical quantities and calculations**	3.2	Relative formula mass	• Identify the relative atomic mass of an element from the periodic table. • Calculate the relative formula masses from atomic masses. • Verify the law of conservation of mass in a balanced equation.	5.3.1.2	Worksheets 3.2.1, 3.2.2 and 3.2.3; Technician's notes 3.2.1; Presentation 3.2.1	Quick starter Homework worksheet Homework quiz
Year 9	Term 3	25/26	**C: 3 Chemical quantities and calculations**	3.3	Mass changes when gases are in reactions	• Explain any observed changes in mass in a chemical reaction. • Identify the mass changes using a balanced symbol equation. • Explain these changes in terms of the particle model.	5.3.1.3	Worksheet 3.3.1; Practical sheet 3.3.1; Technician's notes 3.3.1; Presentations 3.3.1 and 3.3.2; Graph Plotter 3.3.1	Quick starter Homework worksheet Homework quiz Slideshow
Year 9	Term 3	25/26	**P: 2 Electricity**	End of chapter test Student Book		Assessment			End of chapter test

			Collins AQA GCSE Biology / Chemistry / Physics						
Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
				End of chapter test Collins *Connect* End of teaching block test Collins *Connect*					End of teaching block test
Year 9	Term 3	25/26	**P: 3 Particle model of matter**	3.1	Density	• Use the particle model to explain the different states of matter and differences in density. • Calculate density.	6.3.1.1	Worksheet 3.1; Practical sheet 3.1; Technician's notes 3.1	Quick starter Homework worksheet Homework quiz Slideshow
Year 9	Term 3	25/26	**P: 3 Particle model of matter**	3.2	Required practical: To investigate the densities of regular and irregular solid objects and liquids	• Interpret observations and data. • Use spatial models to solve problems. • Plan experiments and devise procedures. • Use an appropriate number of significant figures in measurements and calculations.	6.3.1.1 Prac 17	Worksheet 3.2; Practical sheet 3.2; Technician's notes 3.2	Quick starter Homework worksheet Homework quiz
Year 9	Term 3	27/28	**B: 3 Moving and changing materials**	3.11	Learning about plants and minerals	• Describe how mineral ions from the soil help plants to grow. • Explain how root hair cells are adapted for efficient osmosis. • Describe the function of different mineral ions in a plant.	4.1.3.3; 4.2.3.2	Worksheet 3.11	Quick starter Homework worksheet Homework quiz

			Collins AQA GCSE Biology / Chemistry / Physics						
Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
Year 9	Term 3	27/28	**B: 3 Moving and changing materials**	3.12	Investigating how plants use minerals	• Describe why plants need different mineral ions. • Explain the importance of fertilisers.	4.1.3.3	Worksheet 3.12; Practical sheet 3.12; Technician's notes 3.12 (NB. Not all resources will be suitable – Combined students don't need to know about mineral deficiencies in plants)	Quick starter Homework worksheet Homework quiz Video
Year 9	Term 3	27/28	**B: 3 Moving and changing materials**	3.13	Learning about the circulatory system	• Identify the parts of the circulatory system. • Describe the functions of the parts of the circulatory system. • Explain how the structure of each part of the circulatory system relates to its function.	4.2.2.2; 4.2.2.3	Worksheets 3.13.1, 3.13.2 and 3.13.3; Practical sheets 3.13.1 and 3.13.2; Technician's notes 3.13	Quick starter Homework worksheet Homework quiz
Year 9	Term 3	27/28	**C: 3 Chemical quantities and calculations**	3.4	Chemical measurements and uncertainty	• Understand that all measurements have a degree of uncertainty. • Estimate the uncertainty from the distribution of results. • Measure uncertainty from the range of a set of measurements and their mean.	5.3.1.4	Technician's notes 3.4.1; Presentation 3.4.1	Quick starter Homework worksheet Homework quiz
Year 9	Term 3	27/28	**C: 3 Chemical quantities and calculations**	3.5	Moles (Higher tier only)	• Describe the measurement of amounts of substances in moles. • Calculate the number of moles in a given mass.	5.3.2.1	Worksheets 3.5.1 and 3.5.2; Technician's notes 3.5.1	Quick starter Homework worksheet Homework quiz

			Collins AQA GCSE Biology / Chemistry / Physics						
Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
						• Calculate the mass of a given number of moles.			
Year 9	Term 3	27/28	**C: 3 Chemical quantities and calculations**	3.6	Amounts of substances in equations (Higher tier only)	• Calculate the masses of substances in a balanced symbol equation. • Calculate the masses of reactants and products from balanced symbol equations. • Calculate the mass of a given reactant or product.	5.3.2.2	Worksheet 3.6.1	Quick starter Homework worksheet Homework quiz Slideshow
Year 9	Term 3	27/28	**P: 3 Particle model of matter**	3.3	Changes of state	• Describe how, when substances change state, mass is conserved. • Describe energy transfer in changes of state. • Explain changes of state in terms of particles.	6.3.1.2	Worksheet 3.3; Practical sheet 3.3; Technician's notes 3.3	Quick starter Homework worksheet Homework quiz Slideshow
Year 9	Term 3	27/28	**P: 3 Particle model of matter**	3.4	Internal energy	• Describe the particle model of matter. • Understand what is meant by the internal energy of a system. • Describe the effect of heating on the energy stored within a system.	6.3.2.1	Worksheet 3.4; Practical sheets 3.4.1, 3.4.2, 3.4.3, 3.4.4, 3.4.5, 3.4.6; Technician's notes 3.4	Quick starter Homework worksheet Homework quiz

			Collins AQA GCSE Biology / Chemistry / Physics						
Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
Year 9	Term 3	29/30	**B: 3 Moving and changing materials**	3.14	Exploring the heart	• Describe the structure and functions of the heart. • Identify the functions and adaptations of the parts of the heart. • Explain the movement of blood around the heart.	4.2.2.2	Worksheet 3.14; Practical sheet 3.14; Technician's notes 3.14	Quick starter Homework worksheet Homework quiz Slideshow Videos
Year 9	Term 3	29/30	**B: 3 Moving and changing materials**	3.15	Studying blood	• Identify the parts of the blood and their functions. • Explain the adaptations of red blood cells. • Explain how red blood cells and haemoglobin transport oxygen efficiently.	4.2.2.3	Worksheets 3.15.1 and 3.15.2	Quick starter Homework worksheet Homework quiz Video
Year 9	Term 3	29/30	**B: 3 Moving and changing materials**	3.16	Investigating gas exchange	• Identify the parts of the human gas exchange system and know their functions. • Explain how gas exchange occurs in humans. • Explain the adaptations of the gas exchange surfaces.	4.1.3.1; 4.2.2.2	Worksheet 3.16; Practical sheet 3.16; Technician's notes 3.16	Quick starter Homework worksheet Homework quiz Video
Year 9	Term 3	29/30	**C: 3 Chemical quantities and calculations**	3.7	Using moles to balance equations (Higher tier only)	• Convert masses in grams to amounts in moles. • Balance an equation given the masses of	5.3.2.3, 5.3.2.4	Worksheet 3.7.1	Quick starter Homework worksheet Homework quiz

			Collins AQA GCSE Biology / Chemistry / Physics						
Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
						reactants and products. • Change the subject of a mathematical equation.			
Year 9	Term 3	29/30	**C: 3 Chemical quantities and calculations**	3.8	Concentration of solutions	• Relate mass, volume and concentration. • Calculate the mass of solute in solution.	5.3.2.5	Practical sheet 3.8.1, Worksheet 3.8.1, Technician's notes 3.8.1 (NB. Not all may be suitable, as Combined students do not need to work with concentrations in units of mol/dm^3)	Quick starter Homework worksheet Homework quiz
Year 9	Term 3	29/30	**P: 3 Particle model of matter**	3.5	Specific heat capacity	• Describe the effect of increasing the temperature of a system in terms of particles. • State the factors that are affected by an increase in temperature of a substance. • Explain specific heat capacity.	6.3.2.2	Worksheet 3.5; Practical sheet 3.5; Technician's notes 3.5	Quick starter Homework worksheet Homework quiz Slideshow
Year 9	Term 3	29/30	**P: 3 Particle model of matter**	3.6	Latent heat	• Explain what is meant by latent heat. • Describe that when a change of state occurs it changes the energy stored but not the temperature. • Perform calculations involving specific latent heat.	6.3.2.3	Worksheet 3.6; Practical sheet 3.6; Technician's notes 3.6	Quick starter Homework worksheet Homework quiz Slideshow
Year 9	Term 3	31/32	**B: 3 Moving and changing materials**	3.17	Learning about coronary heart disease	• Identify the causes and symptoms of coronary heart	4.2.2.4	Worksheets 3.17.1, 3.17.2 and 3.17.3	Quick starter Homework worksheet Homework quiz

			Collins AQA GCSE Biology / Chemistry / Physics						
Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
						disease and heart failure. • Describe possible treatments of coronary heart disease and heart failure. • Evaluate the possible treatments of coronary heart disease and heart failure.			
Year 9	Term 3	31/32	**B: 3 Moving and changing materials**	3.18	Maths skills: Extracting and interpreting information	• Extract and interpret information from tables, charts and graphs.		Worksheets 3.18.1, 3.18.2 and 3.18.3	Quick starter Homework worksheet Homework quiz Slideshow Video
Year 9	Term 3	31/32	**B: 3 Moving and changing materials**	End of chapter test Student Book End of chapter test Collins *Connect*		Assessment			End of chapter test
Year 9	Term 3	31/32	**C: 3 Chemical quantities and calculations**	3.13	Key concept: Amounts in chemistry	• Use atomic masses to calculate formula masses. • Explain how formula mass relates to the number of moles. • Explain how the number of moles relates to other quantities.	5.3.2	Worksheets 3.13.1 and 3.13.2	Quick starter Homework worksheet Homework quiz Homework quiz – higher Slideshow Video
Year 9	Term 3	31/32	**C: 3 Chemical quantities and calculations**	3.14	Maths skills: Change the subject of an equation	• Use an equation to demonstrate conservation. • Change the subject of an equation.		Worksheet 3.14.1; PowerPoint 3.14.1	Quick starter Homework worksheet Homework quiz Video

			Collins AQA GCSE Biology / Chemistry / Physics						
Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
						• Carry out a multi-step calculation.			
Year 9	Term 3	31/32	**C: 3 Chemical quantities and calculations**	End of chapter test Student Book End of chapter test Collins *Connect*		Assessment			End of chapter test
Year 9	Term 3	31/32	**P: 3 Particle model of matter**	3.7	Particle motion in gases	• Relate the temperature of a gas to the average kinetic energy of the particles. • Explain how a gas has a pressure. • Explain that changing the temperature of a gas held at constant volume changes its pressure.	6.3.3.1	Worksheet 3.7; Practical sheet 3.7; Technician's notes 3.7	Quick starter Homework worksheet Homework quiz
Year 9	Term 3	31/32	**P: 3 Particle model of matter**	3.9	Key concept: Particle model and changes of state	• Use the particle model to explain states of matter. • Use ideas about energy and bonds to explain changes of state. • Explain the relationship between temperature and energy.	6.3	Worksheet 3.9; Practical sheet 3.9; Technician's notes 3.9	Quick starter Homework worksheet Homework quiz
Year 9	Term 3	31/32	**P: 3 Particle model of matter**	3.10	Maths skills: Drawing and interpreting graphs	• Draw a graph of temperature against time. • Interpret a graph of temperature against time.	6.3.2.3	Worksheet 3.10; Practical sheet 3.10; Technician's notes 3.10	Quick starter Homework worksheet Homework quiz

			Collins AQA GCSE Biology / Chemistry / Physics						
Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
Year 9	Term 3	33/34	**B: 4 Health matters**	4.1	Learning about health	• Recall the difference between health and disease. • Explain how some diseases interact. • Evaluate data about lifestyle and health.	4.2.2.5; 4.2.2.6; 4.2.2.7	Worksheets 4.1.1, 4.1.2 and 4.1.3; Practical sheet 4.1; Technician's notes 4.1	Quick starter Homework worksheet Homework quiz
Year 9	Term 3	33/34	**B: 4 Health matters**	4.2	Key concept: Looking at risk factors	• Recall the causes of some non-communicable diseases. • Describe the impact of lifestyle on non-communicable diseases. • Explain the impact of lifestyle on non-communicable diseases.	4.2.2.6	Worksheets 4.2.1 and 4.2.2	Quick starter Homework worksheet Homework quiz Slideshow Video
Year 9	Term 3	33/34	**B: 4 Health matters**	4.3	Exploring non-communicable diseases	• Identify risk factors for cancer. • Explain the differences between types of tumours. • Explain the impact of non-communicable diseases	4.2.2.6; 4.2.2.7	Worksheet 4.3; Practical sheet 4.3; Technician's notes 4.3	Quick starter Homework worksheet Homework quiz
Year 9	Term 3	33/34	**C: 4 Chemical changes**	4.1	Metal oxides	• Identify that metals react with oxygen to form metal oxides. • Explain oxidation by gain of oxygen. • Identify metal oxides as bases.	5.4.1.1	Practical sheet 4.1.1; Worksheets 4.1.1, 4.1.2 and 4.1.3; Presentation 4.1.1	Quick starter Homework worksheet Homework quiz

			Collins AQA GCSE Biology / Chemistry / Physics						
Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
Year 9	Term 3	33/34	**C: 4 Chemical changes**	4.2	Reactivity series	• Describe the reactions, if any, of metals with water or dilute acids. • Deduce an order of reactivity of metals based on experimental results. • Explain how the reactivity is related to the tendency of the metal to form its positive ion.	5.4.1.2	Practical sheet 4.2.1; Worksheet 4.2.1; Technician's notes 4.2.1; Presentations 4.2.1 and 4.2.2	Quick starter Homework worksheet Homework quiz Homework quiz – higher Slideshow
Year 9	Term 3	33/34	**C: 4 Chemical changes**	4.3	Extraction of metals	• Identify substances reduced by loss of oxygen. • Explain how extraction methods depend on metal reactivity. • Interpret or evaluate information on specific metal extraction processes.	5.4.1.3	Practical sheet 4.3.1; Worksheet 4.3.1; Technician's notes 4.3.1; Presentation 4.3.1	Quick starter Homework worksheet Homework quiz Homework quiz – higher Slideshow
Year 9	Term 3	33/34	**P: 3 Particle model of matter**	End of chapter test Student Book End of chapter test Collins *Connect*		Assessment			End of chapter test
Year 9	Term 3	33/34	**P: 4 Atomic structure**	4.1	Atomic structure	• Describe the structure of the atom. • Use symbols to represent particles. • Describe ionisation.	6.4.1.1, 6.4.1.2	Worksheets 4.1.1, 4.1.2 and 4.1.3	Quick starter Homework worksheet Homework quiz
Year 9	Term 3	35/36	**B: 4 Health matters**	4.4	Analysing and evaluating data	• Translate information between graphical	4.2.2.5; 4.2.2.6	Worksheets 4.4.1, 4.4.2 and 4.4.3; Practical sheet 4.4; Technician's notes 4.4	Quick starter Homework worksheet

			Collins AQA GCSE Biology / Chemistry / Physics						
Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
						and numerical forms. • Use scatter diagrams to identify correlations. • Evaluate the strength of evidence.			Homework quiz
Year 9	Term 3	35/36	**B: 4 Health matters**	4.5	Studying pathogens	• Recall the definition of a pathogen. • Explain how communicable diseases can be controlled. • Distinguish between epidemics and pandemics.	4.3.1.1	Worksheets 4.5.1 and 4.5.2	Quick starter Homework worksheet Homework quiz Videos
Year 9	Term 3	35/36	**B: 4 Health matters**	4.6	Learning about viral diseases	• Describe the symptoms of some viral diseases. • Describe the transmission and control of some viral diseases. • Explain how some viral diseases are spread.	4.3.1.2	Worksheets 4.6.1, 4.6.2 and 4.6.3	Quick starter Homework worksheet Homework quiz Slideshow
Year 9	Term 3	35/36	**C: 4 Chemical changes**	4.4	Oxidation and reduction in terms of electrons (Higher tier only)	• Use experimental results of displacement reactions to confirm the reactivity series. • Write ionic equations for displacement reactions. • Identify in a half equation which species are oxidised	5.4.1.4	Practical sheet 4.4.1; Worksheet 4.4.1; Technician's notes 4.4.1; Presentations 4.4.1 and 4.4.2	Quick starter Homework worksheet Homework quiz Homework quiz – higher

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Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
						and which are reduced.			
Year 9	Term 3	35/36	**C: 4 Chemical changes**	4.5	Reaction of metals with acids	• Describe how to make salts from metals and acids. • Write full balanced symbol equations for making salts. • Use half equations to describe oxidation and reduction.	5.4.2.1	Practical sheet 4.5.1; Worksheets 4.5.1 and 4.5.2; Technician's notes 4.5.1; Presentations 4.5.1 and 4.5.2	Quick starter Homework worksheet Homework quiz Homework quiz – higher
Year 9	Term 3	35/36	**C: 4 Chemical changes**	4.6	Neutralisation of acids and salt production	• Describe ways that salts can be made. • Predict products from given reactants. • Deduce the formulae of salts from the formulae of common ions.	5.4.2.2	Practical sheet 4.6.1; Worksheets 4.6.1 and 4.6.2; Technician's notes 4.6.1	Quick starter Homework worksheet Homework quiz Homework quiz – higher Video
Year 9	Term 3	35/36	**P: 4 Atomic structure**	4.2	Radioactive decay	• Describe radioactive decay. • Describe the types of nuclear radiation. • Understand the processes of alpha decay and beta decay.	6.4.2.1	Worksheets 4.2.1, 4.2.2 and 4.2.3	Quick starter Homework worksheet Homework quiz Slideshow
Year 9	Term 3	35/36	**P: 4 Atomic structure**	4.3	Background radiation	• Describe how different types of radiation have different ionising power. • Justify the selection of sources for particular applications.	6.4.2.1	Worksheets 4.3.1, 4.3.2 and 4.3.3 (NB. Not all of these resources may be appropriate - Combined Science candidates do not need to know about background radiation, only the part of the lesson about penetrating power)	Quick starter Homework worksheet Homework quiz

			Collins AQA GCSE Biology / Chemistry / Physics						
Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
Year 10	Term 1	37/38	**B: 4 Health matters**	4.7	Studying bacterial diseases	• Describe the symptoms of some bacterial diseases. • Explain how some bacterial diseases can be controlled. • Compare and contrast bacterial and viral diseases.	4.3.1.3	Worksheets 4.7.1, 4.7.2 and 4.7.3	Quick starter Homework worksheet Homework quiz
Year 10	Term 1	37/38	**B: 4 Health matters**	4.8	Looking at fungal diseases	• Recall the name and symptoms of a fungal disease. • Describe the transmission and treatment of rose black spot. • Explain how rose black spot affects the growth of the plant.	4.3.1.4	Worksheet 4.8	Quick starter Homework worksheet Homework quiz Slideshow
Year 10	Term 1	37/38	**B: 4 Health matters**	4.9	Learning about malaria	• Recall that malaria is a protist disease. • Describe the lifecycle of the malarial vector.	4.3.1.5	Worksheets 4.9.1 and 4.9.2	Quick starter Homework worksheet Homework quiz
Year 10	Term 1	37/38	**C: 4 Chemical changes**	4.7	Soluble salts	• Describe how to make pure, dry samples of soluble salts. • Explain how to name a salt. • Derive a formula for a salt from its ions.	5.4.2.3	Practical sheet 4.7.1; Worksheets 4.7.1 and 4.7.2; Technician's notes 4.7.1; Presentations 4.7.1 and 4.7.2	Quick starter Homework worksheet Homework quiz Homework quiz – higher Video
Year 10	Term 1	37/38	**C: 4 Chemical changes**	4.8	Required practical: Preparing a pure, dry sample of a salt from an	• Describe a practical procedure for producing a salt from a solid and an acid.	5.4.2.3 Prac 8	Practical sheet 4.8.1; Technician's notes 4.8.1; Presentations 4.8.1 and 4.8.2	Quick starter Homework worksheet Homework quiz

			Collins AQA GCSE Biology / Chemistry / Physics						
Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
					insoluble oxide or carbonate	• Explain the apparatus, materials and techniques used for making the salt. • Describe how to safely manipulate apparatus and accurately measure melting points.			Homework quiz – higher
Year 10	Term 1	37/38	**C: 4 Chemical changes**	4.9	pH and neutralisation	• Describe the use of universal indicator to measure pH. • Use the pH scale to identify acidic or alkaline solutions. • Investigate pH changes when a strong acid neutralises a strong alkali.	5.4.2.4	Practical sheet 4.9.1; Worksheet 4.9.1; Technician's notes 4.9.1, 4.9.2 and 4.9.3; Presentation 4.9.1	Quick starter Homework worksheet Homework quiz
Year 10	Term 1	37/38	**P: 4 Atomic structure**	4.4	Nuclear equations	• Understand nuclear equations. • Write balanced nuclear equations.	6.4.2.2	Worksheets 4.4.1, 4.4.2 and 4.4.3	Quick starter Homework worksheet Homework quiz
Year 10	Term 1	37/38	**P: 4 Atomic structure**	4.5	Radioactive half-life	• Explain what is meant by radioactive half-life. • Calculate half-life. • Calculate the decline in activity after a number of half-lives	6.4.2.3	Worksheets 4.5.1, 4.5.2 and 4.5.3; Practical sheet 4.5; Technician's notes 4.5	Quick starter Homework worksheet Homework quiz
Year 10	Term 1	39/40	**B: 4 Health matters**	4.10	Protecting the body	• Describe how the body protects itself from pathogens. • Explain how the body protects itself from pathogens.	4.3.1.6	Worksheets 4.10.1, 4.10.2 and 4.10.3	Quick starter Homework worksheet Homework quiz

			Collins AQA GCSE Biology / Chemistry / Physics						
Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
						• Explain how communicable diseases can be spread.			
Year 10	Term 1	39/40	**B: 4 Health matters**	4.11	Exploring white blood cells	• Describe phagocytosis. • Explain how antibody production can lead to immunity. • Explain the specificity of immune system responses	4.3.1.6	Worksheets 4.11.1, 4.11.2 and 4.11.3	Quick starter Homework worksheet Homework quiz
Year 10	Term 1	39/40	**B: 4 Health matters**	4.12	Using antibiotics and painkillers	• Describe the uses of antibiotics and painkillers. • Explain how antibiotics and painkillers can be used to treat diseases. • Explain the limitations of antibiotics.	4.3.1.8	Worksheet 4.12; Practical sheet 4.12; Technician's notes 4.12	Quick starter Homework worksheet Homework quiz
Year 10	Term 1	39/40	**C: 4 Chemical changes**	4.11	Strong and weak acids (Higher tier only)	• Explain weak and strong acids by the degree of ionisation. • Describe neutralisation by the effect on hydrogen ions and pH. • Explain dilute and concentrated as amounts of substance.	5.4.2.5	Worksheet 4.11.1; Presentation 4.11.1	Quick starter Homework worksheet Homework quiz Video

			Collins AQA GCSE Biology / Chemistry / Physics						
Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
Year 10	Term 1	39/40	**C: 4 Chemical changes**	4.12	The process of electrolysis	• Identify reactions at electrodes during electrolysis. • Explain why a mixture is used and the anode needs constant replacement. • Write and balance half equations for the electrode reactions.	5.4.3.1	Practical sheet 4.12.1; Worksheet 4.12.1; Technician's notes 4.12.1; Presentation 4.12.1	Quick starter Homework worksheet Homework quiz Homework quiz – higher Slideshow Video
Year 10	Term 1	39/40	**C: 4 Chemical changes**	4.13	Electrolysis of molten ionic compounds	• Identify which ions migrate to the cathode and anode. • Explain how the ions of a molten electrolyte are discharged. • Predict the products of electrolysis of molten binary compounds.	5.4.3.2	Worksheet 4.13.1; Presentation 4.13.1	Quick starter Homework worksheet Homework quiz Homework quiz – higher
Year 10	Term 1	39/40	**P: 4 Atomic structure**	4.6	Hazards and uses of radiation	• Describe radioactive contamination.	6.4.2.4	Worksheets 4.6.1, 4.6.2 and 4.6.3 (NB. Not all of these resources may be appropriate – Combined Science candidates only have to know about hazards, i.e. contamination, not uses as tracers)	Quick starter Homework worksheet Homework quiz
Year 10	Term 1	39/40	**P: 4 Atomic structure**	4.7	Irradiation	• Explain what is meant by irradiation. • Understand the distinction between contamination and irradiation. • Appreciate the importance of	6.4.2.4	Worksheets 4.7.1, 4.7.2 and 4.7.3	Quick starter Homework worksheet Homework quiz

			Collins AQA GCSE Biology / Chemistry / Physics						
Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
						communication between scientists.			
Year 10	Term 1	39/40	**P: 4 Atomic structure**	4.12	Key concept: Developing ideas for the structure of the atom	• Understand how ideas about the structure of the atom have changed. • How evidence is used to test and improve models.	6.4.1.3	Worksheet 4.12.1, 4.12.2, 4.12.3 and 4.12.4	Quick starter Homework worksheet Homework quiz Slideshow
Year 10	Term 1	41/42	**B: 4 Health matters**	4.13	Building immunity	• Recall how vaccinations prevent infection. • Explain how mass vaccination programmes reduce the spread of a disease. • Evaluate the global use of vaccination.	4.3.1.7	Worksheets 4.13.1, 4.13.2 and 4.13.3	Quick starter Homework worksheet Homework quiz Slideshow Video
Year 10	Term 1	41/42	**B: 4 Health matters**	4.14	Making new drugs	• Recall some traditional drugs and their origins. • Describe how new drugs are developed. • Explain why ‘double-blind’ trials are conducted.	4.3.1.9	Worksheets 4.14.1 and 4.14.2; Practical sheet 4.14; Technician’s notes 4.14	Quick starter Homework worksheet Homework quiz Slideshow Video
Year 10	Term 1	41/42	**B: 4 Health matters**	4.18	Maths skills: Sampling and scientific data	• Understand why sampling is used in science. • Be able to explain different sampling techniques. • Be able to extract and interpret information from graphs.	4.2.2.5	Worksheet 4.18; Practical sheet 4.18; Technician’s notes 4.18	Quick starter Homework worksheet Homework quiz Slideshow Video

			Collins AQA GCSE Biology / Chemistry / Physics						
Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
Year 10	Term 1	41/42	**B: 4 Health matters**	End of chapter test Student Book End of chapter test Collins *Connect* End of teaching block test Collins *Connect*		Assessment			End of chapter test End of teaching block test
Year 10	Term 1	41/42	**C: 4 Chemical changes**	4.14	Using electrolysis to extract metals	• Explain the process of the electrolysis of aluminium oxide. • Explain why a mixture is used and the anode needs constant replacement. • Write half equations for the reactions at the electrodes.	5.4.3.3	Worksheet 4.14.1; Presentations 4.14.1 and 4.14.2	Quick starter Homework worksheet Homework quiz Homework quiz – higher Slideshow
Year 10	Term 1	41/42	**C: 4 Chemical changes**	4.15	Electrolysis of aqueous solutions	• Explain the electrolysis of copper sulfate using inert electrodes. • Predict the products of the electrolysis of aqueous solutions. • Represent reactions at electrodes by half equations.	5.4.3.4, 5.4.3.5	Practical sheet 4.15; Technician's notes 4.15.1; Presentation 4.15.1	Quick starter Homework worksheet Homework quiz
Year 10	Term 1	41/42	**C: 4 Chemical changes**	4.16	Required practical: Investigating what happens when aqueous solutions are electrolysed using inert electrodes	• Use scientific theories and explanations to develop hypotheses. • Plan experiments to make observations and test hypotheses. • Apply a knowledge of the apparatus needed	5.4.3.4 Prac 9	Practical sheet 4.16.1; Technician's notes 4.16.1; Presentations 4.16.1 and 4.16.2	Quick starter Homework worksheet Homework quiz Homework quiz – higher

			Collins AQA GCSE Biology / Chemistry / Physics						
Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
						for electrolysis including use of inert electrodes and varying electrolytes. • Make and record observations.			
Year 10	Term 1	41/42	**P: 4 Atomic structure**	4.13	Maths skills: Using ratios and proportional reasoning	• Calculate radioactive half-life from a curve of best fit. • Calculate the net decline in radioactivity.	6.4.2.3	Worksheets 4.13.1 and 4.13.2	Quick starter Homework worksheet Homework quiz Slideshow
Year 10	Term 1	41/42	**P: 4 Atomic structure**	End of chapter test Student Book End of chapter test Collins *Connect* End of teaching block test *Collins Connect*		Assessment			End of chapter test End of teaching block test
Year 10	Term 1	43/44	**B: 4 Health matters**	5.1	Homeostasis	• Explain the importance of homeostasis in regulating internal conditions in the body. • Recall that these control systems involve nervous or chemical responses. • Describe how control systems involve receptors, coordination centres and effectors.	4.5.1	Worksheets 5.1.1 and 5.1.2; PowerPoint presentation	Quick starter Homework worksheet Homework quiz

			Collins AQA GCSE Biology / Chemistry / Physics						
Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
Year 10	Term 1	43/44	**B: 5 Coordination and control**	5.2	The nervous system	• Describe the structure and function of the nervous system. • Explain how the nervous system is adapted to its functions. • Describe the structure of sensory, motor and relay neurones.	4.5.2	Worksheets 5.2.1 and 5.2.2; PowerPoint presentation (NB. May not all be suitable – Combined students don't need to know about transmission of nerve impulses)	Quick starter Homework worksheet Homework quiz
Year 10	Term 1	43/44	**B: 5 Coordination and control**	5.3	Reflex actions	• Explain the importance of reflex actions. • Describe the path of a reflex arc. • Explain how the structures in the reflex arc relate to their function.	4.5.2	Worksheets 5.3.1, 5.3.2 and 5.3.3; Practical sheet 5.3; Technician's notes 5.3; PowerPoint presentation	Quick starter Homework worksheet Homework quiz Slideshow
Year 10	Term 1	43/44	**C: 4 Chemical changes**	4.17	Key concept: Electron transfer, oxidation and reduction	• Explain why atoms lose or gain electrons. • Explain oxidation and reduction by electron transfer. • Relate ease of losing electrons to reactivity.	5.2.1.2, 5.4.3.5	Worksheet 4.17.1; Presentation 4.17.1	Quick starter Homework worksheet Homework quiz Video
Year 10	Term 1	43/44	**C: 4 Chemical changes**	4.18	Maths skills: Make order of magnitude calculations	• Explore the factors Use graphs and diagrams to apply the pH scale to acid rain distribution. • Calculate the concentration of acids.	5.4.2	Practical sheet 4.18.1; Technician's notes 4.18.1; Presentation 4.18.1	

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						• Calculate the effect of hydrogen ion concentration on the numerical value of pH.			
Year 10	Term 1	43/44	**C: 4 Chemical changes**	End of chapter test Student Book End of chapter test Collins *Connect* End of teaching block test Collins *Connect*		Assessment			End of chapter test End of teaching block test
Year 10	Term 1	43/44	**P: 5 Forces**	5.1	Forces	• Describe a force. • Recognise the difference between contact and non-contact forces. • State examples of scalar and vector quantities.	6.5.1.1 6.5.1.2 6.5.4.1.3	Worksheet 5.1.1, 5.1.2 and 5.1.3	Quick starter Homework worksheet Homework quiz
Year 10	Term 1	43/44	**P: 5 Forces**	5.2	Speed	• Calculate speed using distance travelled divided by time taken. • Calculate speed from a distance–time graph. • Measure the gradient of a distance–time graph at any point.	6.5.4.1.1 6.5.4.1.2 6.5.4.1.4	Worksheet 5.2.1, 5.2.2 and 5.2.3; Practical sheet 5.2; Technician's notes 5.2	Quick starter Homework worksheet Homework quiz Slideshow
Year 10	Term 1	45/46	**B: 5 Coordination and control**	5.5	Required practical: Investigating reaction time	• Select appropriate apparatus and techniques for the measurement of biological processes.	4.5.2 Prac 6	Worksheets 5.5.1,5.5.2 and 5.5.3; Practical sheet 5.5; Technician's notes 5.5	Quick starter Homework worksheet Homework quiz Slideshow

			Collins AQA GCSE Biology / Chemistry / Physics						
Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
						• Carry out physiological experiments safely. • Use appropriate techniques in problem-solving contexts.			
Year 10	Term 1	45/46	**B: 5 Coordination and control**	5.10	The endocrine system	• Recall that the endocrine system is made up of glands that secrete hormones into the blood. • Know the location of the major endocrine glands. • Understand why the pituitary gland is the 'master gland'.	4.5.3.1	Worksheets 5.10.1 and 5.10.2	Quick starter Homework worksheet Homework quiz
Year 10	Term 1	45/46	**B: 5 Coordination and control**	5.11	Controlling blood glucose	• Recall that blood glucose is monitored and controlled by the pancreas. • Understand how insulin controls blood glucose levels. • Understand how insulin works with another hormone – glucagon – to control blood sugar levels.	4.5.3.2	Worksheets 5.11.1, 5.11.2 and 5.11.3	Quick starter Homework worksheet Homework quiz Video
Year 10	Term 1	45/46	**C: 5 Energy changes**	5.1	Key concept: Endothermic and exothermic reactions	• Identify exothermic and endothermic reactions from temperature changes.	5.5.1.1, 5.5.1.2, 5.5.1.3	Practical sheet 5.1.1; Worksheet 5.1.1; Technician's notes 5.1.1; Graph plotters 5.1.1, 5.1.2, 5.1.3 and 5.1.4	Quick starter Homework worksheet Homework quiz

			Collins AQA GCSE Biology / Chemistry / Physics						
Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
						• Evaluate the energy transfer of a fuel. • Investigate the variables that affect temperature changes in reacting solutions.			Slideshow
Year 10	Term 1	45/46	**C: 5 Energy changes**	5.2	Required practical: Investigate the variables that affect temperature changes in reacting solutions, such as acid plus metals, acid plus carbonates, neutralisations, displacement of metals	• Use scientific theories and explanations to develop hypotheses. • Plan experiments to make observations and test hypotheses. • Evaluate methods to suggest possible improvements and further investigations.	5.5.1.1 Prac 10	Practical sheet 5.2.1; Technician's notes 5.2.1; Presentation 5.2.1	Quick starter Homework worksheet Homework quiz Homework quiz – higher
Year 10	Term 1	45/46	**C: 5 Energy changes**	5.3	Reaction profiles	• Draw simple reaction profiles (energy level diagrams). • Use reaction profiles to identify reactions as exothermic or endothermic. • Explain the energy needed for a reaction to occur and calculate energy changes.	5.5.1.2	Worksheets 5.3.1 and 5.3.2; Technician's notes 5.3.1; Presentation 5.3.1	Quick starter Homework worksheet Homework quiz Homework quiz – higher Video
Year 10	Term 1	45/46	**P: 5 Forces**	5.3	Acceleration	• Describe acceleration. • Calculate acceleration. • Explain motion in a circle.	6.5.4.1.3 6.5.4.1.5	Worksheets 5.3.1, 5.3.2 and 5.3.3	Quick starter Homework worksheet Homework quiz

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Year 10	Term 1	45/46	**P: 5 Forces**	5.4	Velocity–time graphs	• Draw velocity–time graphs. • Calculate acceleration using a velocity–time graph. • Calculate displacement using a velocity–time graph.	6.5.4.1.1 6.5.4.1.3 6.5.4.1.5	Worksheets 5.4.1, 5.4.2 and 5.4.3; Practical sheet 5.4; Technician's notes 5.4	Quick starter Homework worksheet Homework quiz Slideshow
Year 10	Term 1	47/48	**B: 5 Coordination and control**	5.12	Diabetes	• Understand the causes of Type 1 and Type 2 diabetes. • Compare Type 1 and Type 2 diabetes. • Evaluate information on the relationship between obesity and diabetes, and make appropriate recommendations.	4.5.3.2; 4.5.3.6	Worksheets 5.12.1 and 5.12.2; PowerPoint presentation	Quick starter Homework worksheet Homework quiz Video
Year 10	Term 1	47/48	**B: 5 Coordination and control**	5.13	Diabetes recommendations	• Understand the causes of Type 1 and Type 2 diabetes. • Compare Type 1 and Type 2 diabetes. • Evaluate information on the relationship between obesity and diabetes, and make appropriate recommendations.	4.5.3.2; 4.5.3.6	Worksheet 5.13	Quick starter Homework worksheet Homework quiz Slideshow

			Collins AQA GCSE Biology / Chemistry / Physics						
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Year 10	Term 1	47/48	**B: 5 Coordination and control**	5.16	Negative feedback (Higher tier only)	• Explain the role of thyroxine in the body. • Understand the principles of negative feedback, as applied to thyroxine.	4.5.3.6	Worksheet 5.16; PowerPoint presentation	Quick starter Homework worksheet Homework quiz
Year 10	Term 1	47/48	**C: 5 Energy changes**	5.4	Energy change of reactions (Higher tier only)	• Describe the energy changes in bond breaking and bond making. • Explain how a reaction is endothermic or exothermic overall. • Calculate the energy transferred in chemical reactions using bond energies.	5.5.1.3	Worksheets 5.4.1 and 5.4.2; Technician's notes 5.4.1; Presentation 5.4.1	Quick starter Homework worksheet Homework quiz
Year 10	Term 1	47/48	**C: 5 Energy changes**	5.7	Maths skills: Recognise and use expressions in decimal form	• Read scales in integers and using decimals. • Calculate the energy change during a reaction. • Calculate energy transferred for comparison.	5.5.1	Practical sheet 5.7.1; Worksheet 5.7.1; Technician's notes 5.7.1; Presentation 5.7.1	Quick starter Homework worksheet Homework quiz
Year 10	Term 1	47/48	**C: 5 Energy changes**	End of chapter test Student Book End of chapter test Collins *Connect*		Assessment			End of chapter test
Year 10	Term 1	47/48	**P: 5 Forces**	5.5	Calculations of motion	• Describe uniform motion. • Use an equation for uniform motion.	6.5.4.1.5	Worksheets 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5 and 5.5.6	Quick starter Homework worksheet Homework quiz

			Collins AQA GCSE Biology / Chemistry / Physics						
Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
						• Apply this equation to vertical motion.			
Year 10	Term 1	47/48	**P: 5 Forces**	5.6	Heavy or massive?	• Identify the correct units for mass and weight. • Explain the difference between mass and weight. • Understand how weight is an effect of gravitational fields.	6.5.1.3	Worksheet 5.6.1	Quick starter Homework worksheet Homework quiz
Year 10	Term 2	49/50	**B: 5 Coordination and control**	5.19	Human reproduction	• Describe the roles of hormones in sexual reproduction. • Explain how hormones interact in the menstrual cycle.	4.5.3.3	Worksheets 5.19.1 and 5.19.2	Quick starter Homework worksheet Homework quiz
Year 10	Term 2	49/50	**B: 5 Coordination and control**	5.20	IVF (Higher tier only)	• Explain the use of hormones in technologies to treat infertility. • Describe the technique of *in-vitro* fertilisation. • Evaluate the scientific, emotional, social and ethical issues of *in-vitro* fertilisation.	4.5.3.5	Worksheet 5.20; PowerPoint presentation	Quick starter Homework worksheet Homework quiz
Year 10	Term 2	49/50	**B: 5 Coordination and control**	5.21	IVF evaluation (Higher tier only)	• Evaluate data regarding *in-vitro* fertilisation and use this to draw conclusions.	4.5.3.5	Worksheet 5.21	Quick starter Homework worksheet Homework quiz

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						• Evaluate the scientific, emotional, social and ethical issues of *in-vitro* fertilisation.			
Year 10	Term 2	49/50	**C: 6 The rate and extent of chemical change**	6.1	Measuring rates	• Explain how to measure the amount of gas given off in a reaction. • Explain how to measure the rate of a reaction. • Read data from graphs to interpret stages of a reaction.	5.6.1.1	Practical sheet 6.1.1; Worksheet 6.1.1; Technician's notes 6.1.1; Presentations 6.1.1 and 6.1.2; Graph plotter 6.1.1	Quick starter Homework worksheet Homework quiz Homework quiz – higher
Year 10	Term 2	49/50	**C: 6 The rate and extent of chemical change**	6.2	Key concept: Limiting reactants and molar masses (Higher tier only)	• Identify which reactant is in excess. • Explain the effect of a limiting quantity of a reactant on the amount of products. • Calculate amount of products in moles or masses in grams.	5.3.2.4	Practical sheet 6.2.1; Worksheets 6.2.1 and 6.2.2; Technician's notes 6.2.1; Presentation 6.2.1	Quick starter Homework worksheet Homework quiz Slideshow Video
Year 10	Term 2	49/50	**C: 6 The rate and extent of chemical change**	6.3	Calculating rates	• Calculate the mean rate of a reaction. • Draw and interpret graphs of reaction times. • Draw tangents to the curves as a measure of the rate of reaction.	5.6.1.1	Practical sheet 6.3.1; Worksheet 6.3.1; Technician's notes 6.3.1; Presentations 6.3.1 and 6.3.2	Quick starter Homework worksheet Homework quiz Homework quiz – higher

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Year 10	Term 2	49/50	**P: 5 Forces**	5.7	Forces and motion	• Understand what a force does. • Explain what happens to an object if all the forces acting on it cancel each other out. • Analyse how this applies to everyday situations.	6.5.4.1.5 6.5.4.2.1	Worksheet 5.7.1, 5.7.2 and 5.7.3; Practical sheet 5.7; Technician's notes 5.7	Quick starter Homework worksheet Homework quiz
Year 10	Term 2	49/50	**P: 5 Forces**	5.8	Resultant forces	• Calculate the resultant of a number of forces. • Draw free-body diagrams to find resultant forces. • Understand that a force can be resolved into two components acting at right angles to each other.	6.5.1.3 (centre of mass) 6.5.1.4	Worksheets 5.8.1, 5.8.2 and 5.8.3	Quick starter Homework worksheet Homework quiz
Year 10	Term 2	51/52	**B: 5 Coordination and control**	5.22	Systems working together (Higher tier only)	• Describe the effects of adrenaline. • Understand that automatic control systems may involve nervous responses and chemical responses. • Understand that combinations of hormones work to produce a response.	4.5.3.6	Worksheet 5.22	Quick starter Homework worksheet Homework quiz
Year 10	Term 2	51/52	**B: 5 Coordination and control**	5.23	Contraception	• Define the purpose of contraception.	4.5.3.4	Worksheets 5.23.1 and 5.23.2	Quick starter

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						• Describe hormonal methods and non-hormonal methods of contraception. • Explain how these methods are effective at preventing pregnancy.			Homework worksheet Homework quiz
Year 10	Term 2	51/52	**B: 5 Coordination and control**	5.24	Which contraceptive?	• Understand that fertility can be controlled by different hormonal and non-hormonal methods of contraception. • Evaluate the different methods of contraception.	4.5.3.4	Worksheet 5.24	Quick starter Homework worksheet Homework quiz
Year 10	Term 2	51/52	**C: 6 The rate and extent of chemical change**	6.4	Factors affecting rates	• Identify which factors affect the rate of reactions. • Explain how changes of surface area affect rates. • Explain how rates are affected by different factors.	5.6.1.2	Practical sheet 6.4.1; Worksheets 6.4.1 and 6.4.2; Technician's notes 6.4.1; Presentation 6.4.1; Graph plotter 6.4.1	Quick starter Homework worksheet Homework quiz Homework quiz – higher Video
Year 10	Term 2	51/52	**C: 6 The rate and extent of chemical change**	6.5	Required practical: Investigate how changes in concentration affect the rates of reactions by a method involving the production of a gas and a	• Use scientific theories and explanations to develop a hypothesis. • Plan experiments to test the hypothesis and check data. • Make and record measurements using gas syringes.	5.6.1.2 Prac 11	Practical sheets 6.5.1 and 6.5.2; Worksheet 6.5.1; Technician's notes 6.5.1; Presentations 6.5.1 and 6.5.2; Graph plotters 6.5.1 and 6.5.2	Quick starter Homework worksheet Homework quiz Homework quiz – higher

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					method involving a colour change	• Evaluate methods and suggest improvements and further investigations.			
Year 10	Term 2	51/52	**C: 6 The rate and extent of chemical change**	6.6	Factors increasing the rate	• Analyse experimental data on rates of reaction. • Predict the effects of changing conditions on rates of reactions. • Use ideas about proportionality to explain the effect of a factor.	5.6.1.1, 5.6.1.2	Practical sheet 6.6.1; Worksheet 6.6.1; Technician's notes 6.6.1; Presentation 6.6.1	Quick starter Homework worksheet Homework quiz Homework quiz – higher Slideshow
Year 10	Term 2	51/52	**P: 5 Forces**	5.9	Forces and acceleration	• Explain what happens to the motion of an object when the resultant force is not zero. • Analyse situations in which a non-zero resultant force is acting. • Explain what inertia is.	6.5.4.2.1 (inertia) 6.5.4.2.2	Practical sheets 5.9.1, 5.9.2 and 5.9.3; Technician's notes 5.9	Quick starter Homework worksheet Homework quiz
Year 10	Term 2	51/52	**P: 5 Forces**	5.10	Required practical: Investigating the acceleration of an object	• Plan an investigation to explore an idea. • Analysing results to identify patterns and draw conclusions. • Compare results with scientific theory.	6.5.4.2.2 Prac 19	Worksheets 5.10.1, 5.10.2 and 5.10.3	Quick starter Homework worksheet Homework quiz
Year 10	Term 2	53/54	**B: 5 Coordination and control**	5.29	Maths skills: The spread of scientific data	• Be able to calculate means and ranges of data.		Worksheets 5.29.1, 5.29.2 and 5.29.3	Quick starter Homework worksheet

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						• Understand how to estimate uncertainty from a set of measurements.			Homework quiz Slideshow Video
Year 10	Term 2	53/54	**B: 5 Coordination and control**	End of chapter test Student Book End of chapter test Collins *Connect*		Assessment			End of chapter test
Year 10	Term 2	53/54	**C: 6 The rate and extent of chemical change**	6.7	Collision theory	• Describe a reaction in terms of particles colliding. • Explain the effect of changes of factors on rates of reaction using collision theory. • Describe activation energy.	5.6.1.3	Worksheets 6.7.1 and 6.7.2; Presentations 6.7.1 and 6.7.2	Quick starter Homework worksheet Homework quiz Homework quiz – higher
Year 10	Term 2	53/54	**C: 6 The rate and extent of chemical change**	6.8	Catalysts	• Investigate catalysts in reactions. • Explain catalytic action. • Explain activation energy.	5.6.1.4	Practical sheet 6.8.1; Worksheet 6.8.1; Technician's notes 6.8.1	Quick starter Homework worksheet Homework quiz Homework quiz – higher Video
Year 10	Term 2	53/54	**C: 6 The rate and extent of chemical change**	6.9	Reversible reactions and energy changes	• Identify a reversible reaction. • Explain how energy changes occur in reversible reactions. • Consider changing the conditions of a reversible reaction.	5.6.2.1, 5.6.2.2	Practical sheet 6.9.1; Worksheet 6.9.1; Technician's notes 6.9.1; Presentation 6.9.1	Quick starter Homework worksheet Homework quiz Homework quiz – higher
Year 10	Term 2	53/54	**P: 5 Forces**	5.11	Newton's third law	• Identify force pairs. • Understand and be able to apply Newton's third law.	6.5.4.2.3	Worksheets 5.11.1, 5.11.2 and 5.11.3	Quick starter Homework worksheet Homework quiz

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Year 10	Term 2	53/54	**P: 5 Forces**	5.12	Momentum (Higher tier only)	• Explain what is meant by momentum. • Know that total momentum is always conserved in a collision.	6.5.5.1, 6.5.5.2	Worksheets 5.12.1, 5.12.2 and 5.12.3 (NB. Not all the resources may be suitable. Combined students don't need to calculate or apply ideas about rate of change of momentum, nor do they need to do calculations involving conservation of momentum)	Quick starter Homework worksheet Homework quiz
Year 10	Term 2	55/56	**B: 6 Genetics**	6.1	DNA and genes	• Describe the structure of DNA. • Describe a gene as a small section of DNA that codes for a protein.	4.6.1.3	Worksheet 6.1; Practical sheet 6.1; Technician's notes 6.1 (NB. May not all be suitable – combined students do not need to know all content eg mitochondrial DNA)	Quick starter Homework worksheet Homework quiz Slideshow Video
Year 10	Term 2	55/56	**B: 6 Genetics**	6.2	The human genome	• Describe a gene as a small section of DNA that codes for a protein. • Explain the importance of understanding the human genome.	4.6.1.3	Worksheet 6.2	Quick starter Homework worksheet Homework quiz
Year 10	Term 2	55/56	**B: 6 Genetics**	6.3	Tracing human migration	• Explain the importance of understanding the human genome. • Discuss the use of the human genome in understanding human migration patterns.	4.6.1.3	Worksheets 6.3.1 and 6.3.2	Quick starter Homework worksheet Homework quiz
Year 10	Term 2	55/56	**C: 6 The rate and extent of chemical change**	6.10	Equilibrium	• Describe how equilibrium is reached. • Explain what happens to the	5.6.2.3	Worksheet 6.10.1; Technician's notes 6.10.1; Presentation 6.10.1	Quick starter Homework worksheet Homework quiz

			Collins AQA GCSE Biology / Chemistry / Physics						
Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
						forward and reverse reactions. • Predict the effects of changes on systems at equilibrium.			
Year 10	Term 2	55/56	**C: 6 The rate and extent of chemical change**	6.11	Changing concentration and equilibrium (Higher tier only)	• Identify reactants and products in a reversible reaction. • Explain how changing concentrations changes the position of equilibrium. • Interpret data to predict the effect of a change in concentration.	5.6.2.4, 5.6.2.5	Worksheet 6.11.1; Technician's notes 6.11.1; Presentation 6.11.1	Quick starter Homework worksheet Homework quiz
Year 10	Term 2	55/56	**C: 6 The rate and extent of chemical change**	6.12	Changing temperature and equilibrium (Higher tier only)	• Explain how exothermic reactions behave • Explain how endothermic reactions behave. • Apply Le Chatelier's principle to reactions in equilibrium.	5.6.2.6	Worksheets 6.12.1 and 6.12.2; Technician's 6.12.1; Presentation 6.12.1	Quick starter Homework worksheet Homework quiz
Year 10	Term 2	55/56	**P: 5 Forces**	5.13	Keeping safe on the road	• Explain the factors that affect stopping distance. • Explain the dangers caused by large deceleration. • Estimate the forces involved in the deceleration of a road vehicle.	6.5.4.3.1 6.5.4.3.2 6.5.4.3.3 6.5.4.3.4	Worksheets 5.13.1, 5.13.2 and 5.13.3 (Not all may be suitable – combined students do not need to apply the idea of rate of change of momentum to explain safety features.)	Quick starter Homework worksheet Homework quiz
Year 10	Term 2	55/56	**P: 5 Forces**	5.18	Forces and energy in springs	• Explain why you need two forces to stretch a spring.	6.5.3	Worksheets 5.18.1, 5.18.2 and 5.18.3; Practical sheet 5.18; Technician's notes 5.18	Quick starter Homework worksheet

			Collins AQA GCSE Biology / Chemistry / Physics						
Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
						• Describe the difference between elastic and inelastic deformation. • Calculate extension, compression and elastic potential energy.			Homework quiz Slideshow
Year 10	Term 2	57/58	**B: 6 Genetics**	6.7	Meiosis	• Explain how meiosis halves the number of chromosomes for gamete production. • Explain how fertilisation restores the chromosome number. • Understand that the four gametes produced by meiosis are genetically different.	4.6.1.1; 4.6.1.2; 4.6.1.6	Worksheets 6.7.1 and 6.7.2	Quick starter Homework worksheet Homework quiz Video
Year 10	Term 2	57/58	**B: 6 Genetics**	6.8	Asexual and sexual reproduction	• Understand that asexual reproduction involves just one parent and produces genetically identical offspring. • Understand that sexual reproduction leads to variety in the offspring.	4.6.1.1	Worksheets 6.8.1 and 6.8.2	Quick starter Homework worksheet Homework quiz Slideshow
Year 10	Term 2	57/58	**B: 6 Genetics**	6.9	Genetics	• Understand and be able to use genetics terms,	4.6.1.4; 4.6.1.5	Worksheets 6.9.1 and 6.9.2	Quick starter Homework worksheet

			Collins AQA GCSE Biology / Chemistry / Physics						
Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
						such as dominant, recessive, genotype, phenotype, homozygous and heterozygous. • Know that some human conditions are caused by a recessive allele.			Homework quiz Video
Year 10	Term 2	57/58	**C: 6 The rate and extent of chemical**	6.13	Changing pressure and equilibrium (Higher tier only)	• Predict the effects of changes in pressure. • Explain why these effects occur. • Interpret data to predict the effect of a change in pressure.	5.6.2.7	Worksheet 6.13.1; Presentation 6.13.1 ‘	Quick starter Homework worksheet Homework quiz
Year 10	Term 2	57/58	**C: 6 The rate and extent of chemical**	6.14	Maths skills: Use the slope of a tangent as a measure of rate of change	• Draw graphs from numeric data. • Draw tangents to the curve to observe how the slope changes. • Calculate the slope of the tangent to identify the rate of reaction.	5.6.1	Worksheets 6.14.1 and 6.14.2; Presentations 6.14.1 and 6.14.2	Video
Year 10	Term 2	57/58	**C: 6 The rate and extent of chemical**	End of chapter test Student Book End of chapter test Collins *Connect* End of teaching block test Collins *Connect*		Assessment			End of chapter test End of teaching block test
Year 10	Term 2	57/58	**P: 5 Forces**	5.19	Required practical: Investigate the relationship between force	• Interpret readings to show patterns and trends. • Interpret graphs to form conclusions.	6.5.3 Prac 18	Worksheets 5.19.1, 5.19.2 and 5.19.3	Quick starter Homework worksheet Homework quiz

			Collins AQA GCSE Biology / Chemistry / Physics						
Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
					and the extension of a spring	• Apply the equation for a straight line to the graph.			
Year 10	Term 2	57/58	**P: 5 Forces**	5.20	Key concept: Forces and acceleration	• Recognise examples of balanced and unbalanced forces. • Apply ideas about speed and acceleration to explain sensations of movement. • Apply ideas about inertia and circular motion to explain braking and cornering.	6.5	Worksheets 5.20.1, 5.20.2 and 5.20.3	Quick starter Homework worksheet Homework quiz Slideshow
Year 10	Term 2	59/60	**B: 6 Genetics**	6.10	Genetic crosses	• Use the terms dominant, recessive, genotype, phenotype, homozygous and heterozygous. • Know that some human conditions, such as cystic fibrosis, are caused by a recessive allele. • Complete or construct a Punnett square to predict the outcome of a genetic cross.	4.6.1.4; 4.6.1.5	Worksheets 6.10.1, 6.10.2 and 6.10.3	Quick starter Homework worksheet Homework quiz Video
Year 10	Term 2	59/60	**B: 6 Genetics**	6.11	Tracking gene disorders	• Understand the use of a family tree to show the	4.6.1.4; 4.6.1.5	Worksheets 6.11.1 and 6.11.2	Quick starter Homework worksheet Homework quiz

			Collins AQA GCSE Biology / Chemistry / Physics						
Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
						inheritance of a characteristic. • Explain economic, social and ethical issues concerned with embryo screening.			Video
Year 10	Term 2	59/60	**B: 6 Genetics**	6.13	Key concept: Genetics is simple – or is it?	• Explain how certain characteristics are controlled by a single gene. • Understand that many characteristics are the result of multiple genes which interact. • Describe the search for genes that are linked to disease.	4.6.1.4; 4.6.1.5	Worksheet 6.12	Quick starter Homework worksheet Homework quiz Slideshow Video
Year 10	Term 2	59/60	**C: 7 Hydrocarbons**	7.1	Crude oil, hydrocarbons and alkanes	• Describe why crude oil is a finite resource. • Identify the hydrocarbons in the series of alkanes. • Explain the structure and formulae of the alkanes.	5.7.1.1	Worksheets 7.1.1 and 7.1.2	Quick starter Homework worksheet Homework quiz Video
Year 10	Term 2	59/60	**C: 7 Hydrocarbons**	7.2	Fractional distillation and petrochemicals	• Describe how crude oil is used to provide modern materials. • Explain how crude oil is separated by fractional distillation. • Explain why the boiling points of the fractions are different.	5.7.1.2	Practical sheet 7.2.1; Worksheets 7.2.1 and 7.2.2; Technician's notes 7.2.1	Quick starter Homework worksheet Homework quiz Homework quiz – higher Video

			Collins AQA GCSE Biology / Chemistry / Physics						
Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
Year 10	Term 2	59/60	**C: 7 Hydrocarbons**	7.3	Properties of hydrocarbons	• Describe how different hydrocarbon fuels have different properties. • Identify the properties that influence the use of fuels. • Explain how the properties are related to the size of the molecules.	5.7.1.3	Worksheets 7.3.1 and 7.3.2	Quick starter Homework worksheet Homework quiz Video
Year 10	Term 2	59/60	**P: 5 Forces**	5.21	Maths skills: Making estimates of calculations	• Estimate the results of simple calculations. • Round numbers to make an estimate. • Calculate order of magnitude.	6.5	Worksheets 5.21.1 and 5.21.2	Quick starter Homework worksheet Homework quiz
Year 10	Term 2	59/60	**P: 5 Forces**	End of chapter test Student Book End of chapter test Collins *Connect*		Assessment			End of chapter test
Year 10	Term 3	61/62	**B: 6 Genetics**	6.14	Maths skills: Fractions, ratio, proportion and probability	• Understand and use fractions and percentages. • Understand and use ratio and proportion. • Understand and use probability when predicting the outcomes of genetic crosses.	4.6.1.4	Practical sheet 6.13; Technician's notes 6.13	Quick starter Homework worksheet Homework quiz Slideshow Video
Year 10	Term 3	61/62	**B: 6 Genetics**	End of chapter test Student Book		Assessment			End of chapter test

			Collins AQA GCSE Biology / Chemistry / Physics						
Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
				End of chapter test Collins *Connect* End of teaching block test Collins *Connect*					End of teaching block test
Year 10	Term 3	61/62	**B: 7 Variation and evolution**	7.1	Variation	• Recall that differences in the characteristics of individuals in a population is called variation. • Understand the genetic and environmental differences leading to variation.	4.6.2.1	Worksheets 7.1.1, 7.1.2 and 7.1.3; Practical sheet 7.1; Technician's notes 7.1; PowerPoint presentation	Quick starter Homework worksheet Homework quiz
Year 10	Term 3	61/62	**C: 7 Hydrocarbons**	7.4	Combustion	• Describe the process of complete combustion. • Balance equations showing the combustion of hydrocarbons. • Explain the consequences of incomplete combustion.	5.7.1.3	Practical sheet 7.4.1; Worksheet 7.4.1; Technician's notes 7.4.1	Quick starter Homework worksheet Homework quiz
Year 10	Term 3	61/62	**C: 7 Hydrocarbons**	7.5	Cracking and alkenes	• Describe the usefulness of cracking. • Balance chemical equations as examples of cracking. • Explain why modern life depends on the uses of hydrocarbons.	5.7.1.4	Practical sheet 7.5.1; Worksheet 7.5.1; Technician's notes 7.5.1	Quick starter Homework worksheet Homework quiz

			Collins AQA GCSE Biology / Chemistry / Physics						
Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
Year 10	Term 2	61/62	**P: 6 Waves and light**	6.1	Describing waves	• Describe wave motion. • Define wavelength and frequency. • Apply the relationship between wavelength, frequency and wave velocity.	6.6.1.2	Worksheets 6.6.1, 6.6.2, 6.6.3, 6.6.4, 6.6.5 and 6.6.6	Quick starter Homework worksheet Homework quiz
Year 10	Term 2	61/62	**P: 6 Waves and light**	6.2	Transverse and longitudinal waves	• Compare the motion of transverse and longitudinal waves. • Explain why water waves are transverse waves. • Explain why sound waves are longitudinal waves.	6.6.1.1 6.6.1.2	Worksheets 6.2.1, 6.2.2 and 6.2.3; PowerPoint presentation	Quick starter Homework worksheet Homework quiz
Year 10	Term 2	61/62	**P: 6 Waves and light**	6.3	Key concept: Transferring energy or information by waves	• Understand that all waves have common properties • Understand how waves can be used to carry information • Understand various applications of energy transfer by different types of electromagnetic waves	6.6	Worksheets 6.3.1, 6.3.2 and 6.3.3	Quick starter Homework worksheet Homework quiz
Year 10	Term 3	63/64	**B: 7 Variation and evolution**	7.2	The theory of evolution	• Recall that all species of living things have evolved from simple life forms. • Explain how evolution occurs	4.6.2.1, 4.6.2.2	Worksheets 7.2.1, 7.2.2 and 7.2.3; PowerPoint presentation (NB. Not all may be suitable – Combined students do not need to know about the development of the theory of evolution)	Quick starter Homework worksheet Homework quiz Slideshow

			Collins AQA GCSE Biology / Chemistry / Physics						
Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
						through natural selection			
Year 10	Term 3	63/64	**B: 7 Variation and evolution**	7.3	The origin of species by natural selection	• Explain the evidence that led Darwin to propose the theory of evolution by natural selection. • Describe the process of natural selection.	4.6.3.1	Worksheets 7.3.1 and 7.3.2; Practical sheet 7.3; Technician's notes 7.3; PowerPoint presentation	Quick starter Homework worksheet Homework quiz Video
Year 10	Term 3	63/64	**B: 7 Variation and evolution**	7.4	Fossil evidence	• Understand how, and the situations in which, fossils are formed. • Understand how fossils are used as evidence for evolution of species from simpler life forms.	4.6.3.1, 4.6.3.2	Worksheets 7.4.1 and 7.4.2 ; PowerPoint presentation	Quick starter Homework worksheet Homework quiz
Year 10	Term 3	63/64	**C: 7 Hydrocarbons**	7.14	Key concept: Intermolecular forces	• Recognise the strong covalent bonds within molecules. • Recognise the weak intermolecular forces between molecules. • Describe the effects of weak intermolecular forces on properties of substances.	5.2.2.5, 5.7.1.4	Worksheets 7.14.1 and 7.14.2	Quick starter Homework worksheet Homework quiz Video
Year 10	Term 3	63/64	**C: 7 Hydrocarbons**	7.15	Maths skills: Visualise and represent 3D models	• Use three-dimensional (3D) models to represent: ○ alkanes ○ alkenes ○ polymers.	5.2.1, 5.7.1	Worksheets 7.15.1 and 7.15.2	

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Year 10	Term 3	63/64	**C: 7 Hydrocarbons**	End of chapter test Student Book End of chapter test Collins *Connect*		Assessment			End of chapter test
Year 10	Term 3	63/64	**P: 6 Waves and light**	6.4	Measuring wave speeds	• Explain how the speed of sound in air can be measured. • Explain how the speed of water ripples can be measured.	6.6.1.2	Worksheets 6.4.1, 6.4.2 and 6.4.3; Practical sheet 6.4; Technician's notes 6.4	Quick starter Homework worksheet Homework quiz Slideshow
Year 10	Term 3	63/64	**P: 6 Waves and light**	6.5	Required practical: Measuring the wavelength, frequency and speed of waves in a ripple tank and waves in a solid	• Develop techniques for making observations of waves. • Select suitable apparatus to measure frequency and wavelength. • Use data to answer questions.	6.6.1.2 Prac 20	Worksheets 6.5.1, 6.5.2 and 6.5.3	Quick starter Homework worksheet Homework quiz
Year 10	Term 3	65/66	**B: 7 Variation and evolution**	7.5	How much have organisms changed?	• Understand why the fossil record is incomplete. • Use the fossil record to understand how much, or how little, organisms have changed as life developed on Earth.	4.6.3.2	Worksheets 7.5.1, 7.5.2 and 7.5.3; PowerPoint presentation	Quick starter Homework worksheet Homework quiz
Year 10	Term 3	65/66	**B: 7 Variation and evolution**	7.8	Evidence of natural selection and evolution?	• Understand how scientific theories develop over time.	4.6.2.2, 4.6.3.1	Worksheet 7.8; Practical sheets 7.8.1 and 7.8.2	Quick starter Homework worksheet Homework quiz

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						• Plan experiments to test hypotheses			Slideshow
Year 10	Term 3	65/66	**B: 7 Variation and evolution**	7.10	Antimicrobial resistance	• Recall that bacteria develop that are resistant to antibiotics, which is evidence of evolution. • Understand the mechanism by which antibiotic resistance develops. • Understand the effects of the development of antibiotic resistance on the treatment of disease.	4.6.3.4	Worksheets 7.10.1, 7.10.2 and 7.10.3; PowerPoint presentation	Quick starter Homework worksheet Homework quiz
Year 10	Term 3	65/66	**C: 8 Chemical analysis**	8.1	Key concept: Pure substances	• Describe, explain and exemplify processes of separation. • Suggest separation and purification techniques for mixtures. • Distinguish pure and impure substances using melting point and boiling point data.	5.1.1.2, 5.8.1.1	Practical sheets 8.1.1 and 8.1.2; Worksheets 8.1.1 and 8.1.2; Technician's notes 8.1.1 and 8.1.2	Quick starter Homework worksheet Homework quiz
Year 10	Term 3	65/66	**C: 8 Chemical analysis**	8.2	Formulations	• Identify formulations given appropriate information. • Explain the particular purpose of each chemical in a mixture.	5.8.1.2	Worksheets 8.2.1 and 8.2.2	Quick starter Homework worksheet Homework quiz

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						• Explain how quantities are carefully measured for formulation.			
Year 10	Term 3	65/66	**C: 8 Chemical analysis**	8.3	Chromatography	• Explain how to set up chromatography paper. • Distinguish pure from impure substances. • Interpret chromatograms and calculate R_f values.	5.8.1.3	Practical sheet 8.3.1, Worksheet 8.3.1, Technician's notes 8.3.1	Quick starter Homework worksheet Homework quiz Homework quiz – higher Video
Year 10	Term 3	65/66	**P: 6 Waves and light**	6.11	The electromagnetic spectrum	• Recall the similarities and differences between transverse and longitudinal waves. • Recognise that electromagnetic waves are transverse waves. • Describe the main groupings and wavelength ranges of the electromagnetic spectrum.	6.6.2.1	Worksheets 6.11.1, 6.11.2 and 6.11.3	Quick starter Homework worksheet Homework quiz

			Collins AQA GCSE Biology / Chemistry / Physics						
Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
Year 10	Term 3	65/66	**P: 6 Waves and light**	6.6	Reflection and refraction of waves	• Describe reflection, transmission, refraction and absorption of waves. • Construct ray diagrams to illustrate refraction.	6.6.2.2	Worksheets 6.6.1, 6.6.2 and 6.6.3; Practical sheets 6.6.1, 6.6.2 and 6.6.3; Technician's notes 6.6.1, 6.6.2 and 6.6.3 (NB. Not all of these will be suitable as Combined students don't need to apply the topic to sound waves or water waves (only to electromagnetic waves), nor do they need to draw ray diagrams for reflection (only for refraction)	Quick starter Homework worksheet Homework quiz
Year 10	Term 3	67/68	**B: 7 Variation and evolution**	7.11	Combatting antimicrobial resistance	• Describe how to reduce the rate of development of antibiotic resistance. • Understand the requirement for, and the impact of, new antibiotics. • Recognise the difficulties associated with developing new antibiotics.	4.6.3.4	Worksheets 7.11.1 and 7.11.2	Quick starter Homework worksheet Homework quiz
Year 10	Term 3	67/68	**B: 7 Variation and evolution**	7.12	Selective breeding	• Describe the process of selective breeding. • Recall how selective breeding enables humans to choose desirable characteristics in animals and plants. • Explain how selective breeding can lead to inbreeding.	4.6.2.3	Worksheets 7.12.1 and 7.12.2; PowerPoint presentation	Quick starter Homework worksheet Homework quiz Slideshow

			Collins AQA GCSE Biology / Chemistry / Physics						
Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
Year 10	Term 3	67/68	**B: 7 Variation and evolution**	7.13	Producing new plant varieties	• Describe the process of selective breeding. • Recall how selective breeding enables humans to choose desirable characteristics in plants. • Evaluate the benefits and risks of selective breeding in plants.	4.6.2.3	Worksheets 7.13.1 and 7.13.2; PowerPoint presentation	Quick starter Homework worksheet Homework quiz
Year 10	Term 3	67/68	**C: 8 Chemical analysis**	8.4	Required practical: Investigate how paper chromatography can be used in forensic science to identify an ink mixture used in a forgery	• Describe the safe and correct manipulation of chromatography apparatus and how accurate measurements are achieved. • Make and record measurements used in paper chromatography. • Calculate R_f values.	5.8.1.3 Prac 12	Practical sheets 8.4.1 and 8.4.2; Technician's notes 8.4.1	Quick starter Homework worksheet Homework quiz
Year 10	Term 3	67/68	**C: 8 Chemical analysis**	8.5	Test for gases	• Recall the tests for four common gases. • Identify the four common gases using these tests. • Explain why limewater can be used for testing CO_2.	5.8.2.1, 5.8.2.2, 5.8.2.3, 5.8.2.4	Practical sheet 8.5.1; Technician's notes 8.5.1	Quick starter Homework worksheet Homework quiz
Year 10	Term 3	67/68	**C: 8 Chemical analysis**	8.12	Maths skills: Use an appropriate number of significant figures	• Measure distances on chromatograms • Calculate R_f values	5.8.1.3	Presentation 8.12.1	Quick starter Homework worksheet Homework quiz

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Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
						• Record R_f values to an appropriate number of significant figures			
Year 10	Term 3	67/68	**P: 6 Waves and light**	6.12	Reflection, refraction and wave fronts	• Explain refraction and how this may vary with wavelength. • Construct ray diagrams to illustrate refraction. • Use wave front diagrams to explain refraction in terms of the difference in velocity of the waves in different substances.	6.6.2.2	Worksheets 6.12.1, 6.12.2, 6.12.3; Practical sheet 6.12.1; Technician's notes 6.12.1	Quick starter Homework worksheet Homework quiz
Year 10	Term 3	67/68	**P: 6 Waves and light**	6.13	Gamma rays and X-rays	• List the properties of gamma rays and X-rays. • Compare gamma rays and X-rays.	6.6.2.1, 6.6.2.2, 6.6.2.3, 6.6.2.4	Worksheets 6.13.1, 6.14.2 and 6.13.3	Quick starter Homework worksheet Homework quiz
Year 10	Term 3	67/68	**P: 6 Waves and light**	6.23	Maths skills: Using and rearranging equations	• Select and apply the equations $T = 1/f$ and $v = f \lambda$ • Substitute numerical values into equations using appropriate units. • Change the subject of an equation.	6.6.1.2	Worksheet 6.23	Quick starter Homework worksheet Homework quiz
Year 10	Term 3	69/70	**B: 7 Variation and evolution**	7.14	Genetic engineering	• Explain what is meant by the term genetic engineering. • Give examples of how plant crops	4.6.2.4	Worksheets 7.14.1 and 7.14.2; PowerPoint presentation	Quick starter Homework worksheet Homework quiz Video

			Collins AQA GCSE Biology / Chemistry / Physics						
Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
						have been genetically engineered to improve products. • Describe how fungus cells are engineered to produce human insulin			
Year 10	Term 3	69/70	**B: 7 Variation and evolution**	7.15	Genetically modified crops: the science	• Explain the benefits of genetic modification in a range of crops. • Explain the concerns about genetic modification. • Explain the ethical concerns about genetic engineering.	4.6.2.4	Worksheet 7.15	Quick starter Homework worksheet Homework quiz
Year 10	Term 3	69/70	**B: 7 Variation and evolution**	7.16	Is genetic modification safe?	• Explore the benefits of genetic modification in medicine. • Explain the concerns that people have about genetic modification. • Explain the possible safety issues of genetic engineering in agriculture and medicine.	4.6.2.4	Worksheets 7.16.1 and 7.16.2; PowerPoint presentation	Quick starter Homework worksheet Homework quiz
Year 10	Term 3	69/70	**B: 7 Variation and evolution**	7.17	Ethically wrong, or essential?	• Explain the benefits of, and concerns	4.6.2.4	Worksheets 7.17.1, 7.17.2 and 7.17.3; PowerPoint presentation	Quick starter Homework worksheet

			Collins AQA GCSE Biology / Chemistry / Physics						
Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
						about, genetic modification. • Explain the ethical issues of genetic engineering in agriculture and medicine.			Homework quiz Slideshow
Year 10	Term 3	69/70	**C: 8 Chemical analysis**	End of chapter test Student Book End of chapter test Collins *Connect*		Assessment			End of chapter test
Year 10	Term 3	69/70	**C: 9 The atmosphere**	9.1	Proportions of gases in the atmosphere	• Identify the gases of the atmosphere. • Recall the proportions of the gases. • Explain how the balance of the gases is maintained.	5.9.1.1	Worksheets 9.1.1 and 9.1.2; Technician's notes 9.1.1	Quick starter Homework worksheet Homework quiz Homework quiz – higher
Year 10	Term 3	69/70	**C: 9 The atmosphere**	9.2	The Earth's early atmosphere	• Describe ideas about the Earth's early atmosphere. • Interpret evidence about the Earth's early atmosphere. • Evaluate different theories about the Earth's early atmosphere.	5.9.1.2	Worksheet 9.2.1	Quick starter Homework worksheet Homework quiz Homework quiz – higher Video
Year 10	Term 3	69/70	**P: 6 Waves and light**	6.14	Ultraviolet and infrared radiation	• Describe the properties of ultraviolet and infrared radiation. • Describe some uses and hazards of ultraviolet radiation.	6.6.2.1, 6.6.2.2, 6.6.2.3, 6.6.2.4	Worksheet 6.14; Practical sheet 6.14; Technician's notes 6.14	Quick starter Homework worksheet Homework quiz Slideshow

			Collins AQA GCSE Biology / Chemistry / Physics						
Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
						• Describe some uses of infrared radiation.			
Year 10	Term 3	69/70	**P: 6 Waves and light**	6.15	Required practical: Investigate how the amount of infrared radiation absorbed or radiated by a surface depends on the nature of that surface	• Explain reasons for the equipment used to carry out an investigation. • Explain the rationale for carrying out an investigation. • Apply ideas from an investigation to a range of practical contexts.	6.6.2.2 Prac 21	Worksheet 6.15; Practical sheet 6.15; Technician's notes 6.15	Quick starter Homework worksheet Homework quiz Slideshow
Year 10	Term 3	71/72	**B: 7 Variation and evolution**	7.19	The tree of life	• Describe how living things have been classified into groups using a system devised by Linnaeus. • Describe how new models of classification have developed.	4.6.4	Worksheets 7.19.1, 7.19.2 and 7.19.3	Quick starter Homework worksheet Homework quiz Video
Year 10	Term 3	71/72	**B: 7 Variation and evolution**	7.20	Extinction…or survival?	• List the causes of extinction. • Explain how new predators, competitors and diseases can lead to extinctions.	4.6.3.3	Worksheets 7.20.1, 7.20.2 and 7.20.3; PowerPoint presentation	Quick starter Homework worksheet Homework quiz Slideshow Video
Year 10	Term 3	71/72	**B: 7 Variation and evolution**	7.21	Maths skills: Using charts and graphs to display data	• Understand when and how to use bar charts. • Understand how to show sub-groups on bar charts.		Worksheets 7.21.1 and 7.21.2	Quick starter Homework worksheet Homework quiz Slideshow Video

			Collins AQA GCSE Biology / Chemistry / Physics						
Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
						• Understand how to plot histograms.			
Year 10	Term 3	71/72	**B: 7 Variation and evolution**	End of chapter test Student Book End of chapter test Collins *Connect*		Assessment			End of chapter test
Year 10	Term 3	71/72	**C: 9 The atmosphere**	9.3	How oxygen increased	• Identify the processes allowing oxygen levels to increase. • Explain the role of algae in the composition of the atmosphere. • Recall the equation for photosynthesis.	5.9.1.3	Worksheet 9.3.1; Presentation 9.3.1	Quick starter Homework worksheet Homework quiz Homework quiz – higher Slideshow
Year 10	Term 3	71/72	**C: 9 The atmosphere**	9.4	How carbon dioxide decreased	• Describe the main changes in the atmosphere over time. • Describe some of the likely causes of these changes. • Explain how the deposits of limestone, coal, crude oil and gas were formed.	5.9.1.4	Worksheet 9.4.1; Technician's notes 9.4.1; Presentations 9.4.1 and 9.4.2	Quick starter Homework worksheet Homework quiz
Year 10	Term 3	71/72	**C: 9 The atmosphere**	9.5	Key: concept: Greenhouse gases	• Describe the greenhouse gases. • Explain the greenhouse effect. • Explain these processes as interaction of short and long wavelength radiation with matter.	5.9.2.1	Worksheet 9.5.1; Presentation 9.5.1	Quick starter Homework worksheet Homework quiz Homework quiz – higher

			Collins AQA GCSE Biology / Chemistry / Physics						
Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
Year 10	Term 3	71/72	**P: 6 Waves and light**	6.16	Microwaves	• List some properties of microwaves. • Describe how microwaves are used for communications.	6.6.2.1, 6.6.2.2, 6.6.2.4	Worksheet 6.16	Quick starter Homework worksheet Homework quiz
Year 10	Term 3	71/72	**P: 6 Waves and light**	6.17	Radio and microwave communication	• Describe how radio waves are used for television and radio communications. • Describe how microwaves are used in satellite communications. • Describe the reflection and refraction of radio waves.	6.6.2.1, 6.6.2.2, 6.6.2.3, 6.6.2.4	Worksheets 6.17.1, 6.17.2 and 6.17.3	Quick starter Homework worksheet Homework quiz
Year 10	Term 3	71/72	**P: 6 Waves and light**	End of chapter test Student Book End of chapter test Collins *Connect* End of teaching block test Collins *Connect*		Assessment			End of chapter test End of teaching block test
Year 11	Term 1	73/74	**B: 8 Ecology in action**	8.1	Key concept: Learning about ecosystems	• Describe what an ecosystem is. • Explain the importance of high biodiversity. • Explain what is meant by a self-supporting ecosystem	4.7.1.1; 4.7.1.3; 4.7.3.1	Worksheets 8.1.1, 8.1.2 and 8.1.3	Quick starter Homework worksheet Homework quiz Slideshow Video
Year 11	Term 1	73/74	**B: 8 Ecology in action**	8.2	Changing abiotic factors	• Identify abiotic factors that affect ecosystems.	4.7.1.1; 4.7.1.2; 4.7.1.3	Worksheets 8.2.1, 8.2.2 and 8.2.3; Practical sheets 8.2.1	Quick starter Homework worksheet

			Collins AQA GCSE Biology / Chemistry / Physics						
Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
						• Explain changes in the distribution of species in an ecosystem. • Describe stable and unstable populations.		and 8.2.2; Technician's notes 8.2	Homework quiz Slideshow
Year 11	Term 1	73/74	**B: 8 Ecology in action**	8.3	Investigating predator–prey relationships	• Describe how changes in one population affect another. • Explain interdependent relationships. • Explain how predator–prey population cycles have cyclical changes.	4.7.2.1	Worksheets 8.3.1 and 8.3.2; Practical sheet 8.3; Technician's notes 8.3	Quick starter Homework worksheet Homework quiz
Year 11	Term 1	73/74	**C: 9 The atmosphere**	9.6	Human activities	• Describe two activities that increase the amounts of carbon dioxide and methane. • Evaluate the quality of evidence in a report about global climate change. • Recognise the importance of peer review of results and of communicating results to a wide range of audiences.	5.9.2.2	Worksheet 9.6.1; Presentations 9.6.1 and Presentation 9.6.2	Quick starter Homework worksheet Homework quiz Homework quiz – higher Video
Year 11	Term 1	73/74	**C: 9 The atmosphere**	9.7	Global climate change	• Describe four potential effects of global climate change.	5.9.2.3	Worksheet 9.7.1; Presentation 9.7.1	Quick starter Homework worksheet Homework quiz Slideshow

			Collins AQA GCSE Biology / Chemistry / Physics						
Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
						• Discuss the scale and risk of global climate change. • Discuss the environmental implications of climate change.			
Year 11	Term 1	73/74	**C: 9 The atmosphere**	9.8	Carbon footprint and its reduction	• Explain that the carbon footprint can be reduced by reducing emissions of carbon dioxide and methane. • Describe how emissions of carbon dioxide can be reduced. • Describe how emissions of methane can be reduced.	5.9.2.4	Worksheet 9.8.1; Presentation 9.8.1	Quick starter Homework worksheet Homework quiz Video
Year 11	Term 1	73/74	**P: 7 Electromagnetism**	7.1	Magnetism and magnetic forces	• Explain what is meant by the poles of a magnet. • Plot the magnetic field around a bar magnet. • Describe magnetic materials and induced magnetism.	6.7.1.1 6.7.1.2	Worksheet 7.1; Practical sheet 7.1; Technician's notes 7.1; PowerPoint presentation	Quick starter Homework worksheet Homework quiz
Year 11	Term 1	73/74	**P: 7 Electromagnetism**	7.2	Compasses and magnetic fields	• Describe the Earth's magnetic field. • Describe the magnetic effect of a current.	6.7.1.2 6.7.2.1	Worksheet 7.2; Practical sheet 7.2; Technician's notes 7.2; PowerPoint presentation	Quick starter Homework worksheet Homework quiz Slideshow

			Collins AQA GCSE Biology / Chemistry / Physics						
Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
Year 11	Term 1	75/76	**B: 8 Ecology in action**	8.6	Competing for resources	• Describe how competition impacts on populations. • Explain why animals in the same habitat are in competition. • Explain interspecific and intraspecific competition.	4.7.1.1	Worksheets 8.6.1, 8.6.2 and 8.6.3	Quick starter Homework worksheet Homework quiz Slideshow
Year 11	Term 1	75/76	**B: 8 Ecology in action**	8.7	Required practical: Measure the population size of a common species in a habitat	• Use scientific ideas to develop a hypothesis. • Plan experiments to test a hypothesis. • Explain the apparatus and techniques used to sample a population. • Explain how a representative sample was taken. • Develop a reasoned explanation for some data.	4.7.2.1 Prac 7	Worksheet 8.7; Practical sheet 8.7; Technician's notes 8.7	Quick starter Homework worksheet Homework quiz Slideshow
Year 11	Term 1	75/76	**B: 8 Ecology in action**	8.8	Adapting for survival in animals	• Recall why animals have adaptations. • Explain some adaptations. • Use surface-area-to-volume ratios to explain some adaptations.	4.7.1.4	Worksheets 8.8.1; 8.8.2 and 8.8.3; Practical sheet 8.8; Technician's notes 8.8	Quick starter Homework worksheet Homework quiz Slideshow
Year 11	Term 1	75/76	**C: 9 The atmosphere**	9.9	Limitations on carbon footprint reduction	• Give reasons why actions to reduce levels of carbon	5.9.2.4	Worksheets 9.9.1 and 9.9.2; Presentation 9.9.1	Quick starter Homework worksheet Homework quiz

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Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
						dioxide and methane may be limited. • Give reasons why methane is difficult to reduce.			
Year 11	Term 1	75/76	**C: 9 The atmosphere**	9.10	Atmospheric pollutants from fuels	• Describe how carbon monoxide, soot, sulfur dioxide and oxides of nitrogen are produced by burning fuels. • Predict the products of combustion of a fuel knowing the composition of the fuel. • Predict the products of combustion of a fuel knowing the conditions in which it is used.	5.9.3.1	Worksheets 9.10.1, 9.10.2, 9.10.3 and 9.10.4; Technician's notes 9.10.1; Presentation 9.10.1	Quick starter Homework worksheet Homework quiz Homework quiz – higher Slideshow
Year 11	Term 1	75/76	**C: 9 The atmosphere**	9.11	Properties and effects of atmospheric pollutants	• Describe and explain the problems caused by increased amounts of oxides of carbon, sulfur and nitrogen as pollutants in the air. • Describe and explain the effects of acid rain. • Evaluate the role of particulates in damaging human health.	5.9.3.2	Worksheets 9.11.1 and 9.11.2; Presentations 9.11.1 and Presentation 9.11.2, Graph plotters 9.1.1 and 9.1.2	Quick starter Homework worksheet Homework quiz Homework quiz – higher
Year 11	Term 1	75/76	**P: 7 Electromagnetism**	7.3	The magnetic effect of a solenoid	• Draw the magnetic field around a	6.7.2.1 6.7.2.2	Worksheets 7.3.1 and 7.3.2; Practical sheet 7.3;	Quick starter Homework worksheet

			Collins AQA GCSE Biology / Chemistry / Physics						
Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
						conducting wire and a solenoid. • Describe the force on a wire in a magnetic field.		Technician's notes 7.3; PowerPoint presentation;	Homework quiz Slideshow
Year 11	Term 1	75/76	**P: 7 Electromagnetism**	7.4	Electromagnets in action	• Describe a simple electromagnet.	6.7.2.1	Worksheets 7.4.1, 7.4.2 and 7.4.3; Practical sheet 7.4; Technician's notes 7.4; PowerPoint presentation	Quick starter Homework worksheet Homework quiz Slideshow
Year 11	Term 1	77/78	**B: 8 Ecology in action**	8.9	Adapting for survival in plants	• Identify some adaptations of plants and bacteria. • Explain the importance of plant adaptations. • Explain a range of plant adaptations.	4.7.1.4	Worksheets 8.9.1, 8.9.2 and 8.9.3; Practical sheet 8.9; Technician's notes 8.9	Quick starter Homework worksheet Homework quiz
Year 11	Term 1	77/78	**B: 8 Ecology in action**	8.10	Cycling materials	• Recall that many materials are recycled in nature. • Explain the stages in the water cycle. • Explain the importance of recycling materials.	4.7.2.2	Worksheets 8.10.1 and 8.10.2; Practical sheet 8.10 (demonstration); Technician's notes 8.10	Quick starter Homework worksheet Homework quiz Video
Year 11	Term 1	77/78	**B: 8 Ecology in action**	8.11	Cycling carbon	• Recall that plants take in carbon as carbon dioxide. • Explain how carbon is recycled. • Interpret a diagram of the carbon cycle.	4.7.2.2	Worksheets 8.11.1 and 8.11.2; Practical sheet 8.11; Technician's notes 8.11	Quick starter Homework worksheet Homework quiz Video
Year 11	Term 1	77/78	**C: 9 The atmosphere**	9.12	Maths skills: Use ratios, fractions and percentages	• Use fractions and percentages to describe the composition of mixtures.		Worksheet 9.12.1 and 9.12.2; Technician's notes 9.12.1; Presentation 9.12.1	Video

			Collins AQA GCSE Biology / Chemistry / Physics						
Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
						• Use ratios to determine the mass of products expected.			
Year 11	Term 1	77/78	**C: 9 The atmosphere**	End of chapter test Student Book End of chapter test Collins *Connect*		Assessment			End of chapter test
Year 11	Term 1	77/78	**C: 10 Sustainable development**	10.1	Key concept: Using the Earth's resources and sustainable development	• Give examples of natural products replaced by synthetics. • Give examples of products replaced by agricultural products. • Distinguish between finite and renewable resources.	5.10.1.1	Worksheets 10.1.1 and 10.1.2	Quick starter Homework worksheet Homework quiz Videos
Year 11	Term 1	77/78	**P: 7 Electromagnetism**	7.5	Calculating the force on a conductor (Higher tier only)	• Explain the meaning of magnetic flux density, *B*. • Calculate the force on a current-carrying conductor in a magnetic field.	6.7.2.2	Worksheets 7.5.1 and 7.5.2; Technician's notes 7.5; PowerPoint presentation	Quick starter Homework worksheet Homework quiz Slideshow
Year 11	Term 1	77/78	**P: 7 Electromagnetism**	7.6	Electric motors (Higher tier only)	• List equipment that uses motors. • Describe how motors work. • Describe how to change the speed and direction of rotation of a motor.	6.7.2.3	Worksheets 7.6.1 and 7.6.2; Practical sheet 7.6; Technician's notes 7.6; PowerPoint presentation	Quick starter Homework worksheet Homework quiz
Year 11	Term 1	79/80	**B: 8 Ecology in action**	8.15	Learning about land use	• Identify why land use has changed.	4.7.3.3	Worksheets 8.15.1 and 8.15.2	Quick starter Homework worksheet

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Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
						• Describe the effects of changing land use. • Evaluate a change in land use.			Homework quiz Video
Year 11	Term 1	79/80	**B: 8 Ecology in action**	8.16	Changing the landscape	• Identify the reasons for deforestation. • Describe the impact of peat bog destruction and deforestation. • Evaluate the destruction of peat bogs and forests.	4.7.3.3; 4.7.3.4	Worksheets 8.16.1 and 8.16.2	Quick starter Homework worksheet Homework quiz
Year 11	Term 1	79/80	**B: 8 Ecology in action**	8.17	Thinking about global warming	• Recall what global warming is. • Describe the causes of global warming. • Explain how global warming impacts on biodiversity.	4.7.3.5	Worksheet 8.17	Quick starter Homework worksheet Homework quiz Slideshow Videos
Year 11	Term 1	79/80	**C: 10 Sustainable development**	10.2	Potable water	• Distinguish between potable water and pure water. • Describe the differences in treatment of groundwater and salty water. • Give reasons for the steps used to produce potable water.	5.10.1.2	Worksheets 10.2.1, 10.2.2 and 10.2.3; Technician's notes 10.2.1	Quick starter Homework worksheet Homework quiz Video
Year 11	Term 1	79/80	**C: 10 Sustainable development**	10.3	Required practical: Analysis and purification of water samples	• Describe how safety is managed, apparatus is used and accurate	5.10.1.2 Prac 13	Practical sheets 10.3.1 and 10.3.2; Worksheet 10.34.1; Technician's notes 10.3.1	Quick starter Homework worksheet Homework quiz

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					from different sources, including pH, dissolved solids and distillation	measurements are made. • Recognise when sampling techniques need to be used and made representative. • Evaluate methods and suggest possible improvements and further investigations.			
Year 11	Term 1	79/80	**C: 10 Sustainable development**	10.4	Waste water treatment	• Explain how waste water is treated. • Describe how sewage is treated. • Compare the ease of treating waste, ground and salt water.	5.10.1.3	Worksheets 10.4.1, 10.4.2 and 10.4.3	Quick starter Homework worksheet Homework quiz Video
Year 11	Term 1	79/80	**P: 7 Electromagnetism**	7.9	Key concept: The link between electricity and magnetism	• Explore how electricity and magnetism are connected.	6.7	Worksheets 7.9.1 and 7.9.2; Practical sheets 7.9.1, 7.9.2, 7.9.3 and 7.9.4; Technician's notes 7.9; PowerPoint presentation	Quick starter Homework worksheet Homework quiz Slideshow
Year 11	Term 1	79/80	**P: 7 Electromagnetism**	7.12	Maths skills: Rearranging equations	• Change the subject of an equation.	6.7.2.2	Worksheets 7.12.1 and 7.12.2; PowerPoint presentation; cards for $F = BIL$, cards for transformers (NB. Not all resources suitable – Combined students don't need to use the transformer equation)	Quick starter Homework worksheet Homework quiz
Year 11	Term 1	81/82	**B: 8 Ecology in action**	8.18	Looking at waste management	• Describe how waste production is linked to human population growth. • Describe the impact of waste on ecosystems.	4.7.3.2	Worksheet 8.18	Quick starter Homework worksheet Homework quiz Video

			Collins AQA GCSE Biology / Chemistry / Physics						
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						• Explain how waste impacts on biodiversity.			
Year 11	Term 1	81/82	**B: 8 Ecology in action**	8.19	Investigating pollution	• Identify pollution levels using indicator species. • Explain how indicator species measure pollution. • Compare different methods of measuring pollution.	4.7.3.2	Worksheets 8.19.1 and 8.19.2; Practical sheet 8.19; Technician's notes 8.19	Quick starter Homework worksheet Homework quiz
Year 11	Term 1	81/82	**B: 8 Ecology in action**	8.20	Maintaining biodiversity	• Describe some conservation measures. • Describe the impact of breeding programmes. • Explain how habitats are regenerated.	4.7.3.6	Worksheets 8.20.1, 8.20.2 and 8.20.3	Quick starter Homework worksheet Homework quiz Videos
Year 11	Term 1	81/82	**C: 10 Sustainable development**	10.5 (Higher tier only)	Alternative methods of metal extraction	• Describe the process of phytomining. • Describe the process of bioleaching. • Evaluate alternative biological methods of metal extraction.	5.10.1.4	Practical sheet 10.5.1; Worksheets 10.5.1 and 10.5.2; Technician's notes 10.5.1	Quick starter Homework worksheet Homework quiz
Year 11	Term 1	81/82	**C: 10 Sustainable development**	10.6	Life cycle assessment and recycling	• Describe the components of a life cycle assessment (LCA). • Interpret LCAs of materials or products from information.	5.10.2.1	Worksheets 10.6.1 and 10.6.2	Quick starter Homework worksheet Homework quiz

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Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
						• Carry out a simple comparative LCA for shopping bags.			
Year 11	Term 1	81/82	**C: 10 Sustainable development**	10.7	Ways of reducing the use of resources	• Describe ways of recycling and reusing materials. • Explain why recycling, reusing and reducing are needed. • Evaluate ways of reducing the use of limited resources.	5.10.2.2	Worksheets 10.7.1 and 10.7.2	Quick starter Homework worksheet Homework quiz Video
Year 11	Term 1	81/82	**P: 7 Electromagnetism**	End of chapter test Student Book End of chapter test Collins *Connect* End of teaching block test Collins *Connect* End of course test Collins *Connect*		Assessment			End of chapter test End of teaching block test End of course test
Year 11	Term 1	83/84	**B: 8 Ecology in action**	8.24	Maths skills: Using graphs to show relationships	• Recognise direct proportionality in a graph. • Use the gradient of a graph to calculate the rate.		Worksheet 8.24	Quick starter Homework worksheet Homework quiz Slideshow Video
Year 11	Term 1	83/84	**B: 8 Ecology in action**	End of chapter test Student Book End of chapter test Collins *Connect* End of teaching block test Collins *Connect*		Assessment			End of chapter test End of teaching block test End of course test

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Year	**Term**	**Week**	**Chapter**	**Lesson number**	**Lesson title**	**Lesson objectives**	**AQA GCSE Combined Science specification reference**	**Lesson resources on Collins AQA GCSE Biology / Chemistry / Physics CD-ROM**	**Collins *Connect* resources**
				End of course test Collins *Connect*					
Year 11	Term 1	83/84	**C: 10 Sustainable development**	10.13	Maths skills: Translate information between graphical and numerical form	• Represent information from pie charts numerically. • Represent information from graphs numerically. • Represent information from numeric form graphically.		Worksheets 10.13.1and 10.13.2	Quick starter Homework worksheet Homework quiz Video
Year 11	Term 1	83/84	**C: 10 Sustainable development**	End of chapter test Student Book End of chapter test Collins *Connect* End of teaching block test Collins *Connect* End of course test Collins *Connect*		Assessment			End of chapter test End of teaching block test End of course test