

AQA GCSE (9-1) Biology Combined Three Year Scheme of Work

<p>This 3-Year Scheme of Work offers a flexible approach for KS4. It is based on three science lessons per fortnight (assuming a two week timetable of two lessons one week and one lesson in the other). Lessons are designed to be flexible and 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. Please note that some of these lessons only require partial coverage or are shorter than others and therefore sometimes there are more than three lessons in a fortnight.</p>								
Year	Term	Week	Lesson number	Lesson title	Lesson objectives	AQA specification reference	Lesson resources (on CD ROM)	Collins Connect resources
Chapter 1: Cell biology								
Year 9	Term 1	1/2	1.1	Looking at cells	<ul style="list-style-type: none"> 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	1.2	The light microscope	<ul style="list-style-type: none"> Describe how to use a 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	1.3	Required practical: Using a light microscope to observe and record animal and plant cells	<ul style="list-style-type: none"> Apply knowledge to select techniques, instruments, apparatus and materials to observe cells. Make and record observations and measurements. Present 	4.1.1.2	Range of materials to look through the microscope, e.g. human hair, newspaper, string, prepared range of animal and plant cells. Worksheets 1.3.1 and 1.3.2; Practical sheets 1.3.1 and 1.3.2; Technician's notes 1.3; PowerPoint presentation	Quick starter Homework worksheet Homework quiz Video

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Year	Term	Week	Lesson number	Lesson title	Lesson objectives	AQA specification reference	Lesson resources (on CD ROM)	Collins Connect resources
					observations and other data using appropriate methods.			
Year 9	Term 1	3/4	1.4	Looking at cells in more detail	<ul style="list-style-type: none"> 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 understanding of sub-cellular structures. 	4.1.1.5	Worksheet 1.4	Quick starter Homework worksheet Homework quiz
Year 9	Term 1	3/4	1.5	Primitive cells	<ul style="list-style-type: none"> Describe and explain the differences between prokaryotic cells and eukaryotic cells. Explain how prokaryotic and eukaryotic cells evolved over time. 	4.1.1.1; 4.1.1.2	Worksheet 1.5; PowerPoint presentation	Quick starter Homework worksheet Homework quiz

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Year	Term	Week	Lesson number	Lesson title	Lesson objectives	AQA specification reference	Lesson resources (on CD ROM)	Collins Connect resources
Year 9	Term 1	3/4	1.6	Cell division	<ul style="list-style-type: none"> 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	5/6	1.7	Cell differentiation	<ul style="list-style-type: none"> Explain the importance of cell differentiation. Understand size and scale in relation to cells, tissues, organs and body systems. Describe how cells, tissues, organs and organ systems are organised to make up an organism. 	4.1.1.3; 4.1.1.4	Worksheet 1.7; PowerPoint presentation	Quick starter Homework worksheet Homework quiz
Year 9	Term 1	5/6	1.8	Cancer	<ul style="list-style-type: none"> Describe cancer as a condition resulting from changes in cells that lead to their uncontrolled growth, division and 	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

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					<ul style="list-style-type: none"> spread. Understand some of the risk factors that trigger cells to become cancerous. Use data to analyse and evaluate the impact of cancer. 			
Year 9	Term 1	5/6	1.9	Stem cells	<ul style="list-style-type: none"> Identify cells as being differentiated, or as stem cells. Describe the function of stem cells in embryonic and adult animals. Explain how stem cells can be useful. 	4.2.1.3	Plants that have been grown from cuttings; or a plant from which cuttings may be taken, rooting hormone; Worksheets 1.9.1 and 1.9.2; PowerPoint presentation	Quick starter Homework worksheet Homework quiz
Year 9	Term 1	7/8	1.10	Stem cell banks	<ul style="list-style-type: none"> Explore the use of stem cells in medicine. Identify the risks in using stem cells. Evaluate the benefits and disadvantages of using stem cells. 	4.1.2.3	Worksheet 1.10; PowerPoint presentation	Quick starter Homework worksheet Homework quiz Video
Year 9	Term 1	7/8	1.11	Key concept: Cell development	<ul style="list-style-type: none"> Revise ideas about cell structure, cell division and stem cells. 	4.1.2.3	Worksheets 1.11.1 and 1.11.2; PowerPoint presentation	Quick starter Homework worksheet Homework quiz Slideshow

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Year	Term	Week	Lesson number	Lesson title	Lesson objectives	AQA specification reference	Lesson resources (on CD ROM)	Collins Connect resources
					<ul style="list-style-type: none"> Apply ideas about cells to unfamiliar contexts. Describe how plant meristems can be used in cloning. 			Video
Year 9	Term 1	7/8	1.12	Cells at work	<ul style="list-style-type: none"> Recognise that all organisms respire. Explain respiration as the process of making energy. Describe aerobic respiration as an exothermic reaction. 	4.2.2.1	Worksheet 1.12; Practical sheet 1.12; Technician's notes 1.12; PowerPoint presentation	Quick starter Homework worksheet Homework quiz
Year 9	Term 1	9/10	1.13	Living without oxygen	<ul style="list-style-type: none"> Describe the process of anaerobic respiration. Explain when anaerobic processes occur. Compare the processes of aerobic and anaerobic respiration. 	4.2.2.1	Worksheet 1.13; PowerPoint presentation	Quick starter Homework worksheet Homework quiz Slideshow Video
			1.14	Growing microorganisms	<ul style="list-style-type: none"> Describe the techniques used to produce uncontaminated cultures of 	4.1.1.6	Worksheet 1.14; Practical sheet 1.14; Technician's notes 1.14; PowerPoint presentation	Quick starter Homework worksheet Homework quiz

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					microorganisms. <ul style="list-style-type: none"> Describe how bacteria reproduce by binary fission. Calculate the number of bacteria in a population. 			
			1.15	Testing new antibiotics	<ul style="list-style-type: none"> Use appropriate apparatus to investigate the effect of antibiotics on bacterial growth. Use microorganisms safely. Apply sampling techniques to ensure that samples are representative. 	4.3.1.8; 4.3.1.9	Video 'Antibiotics – the beginning or the end?'; Worksheets 1.15.1, 1.15.2 and 1.15.3	Quick starter Homework worksheet Homework quiz
			1.16	Required practical: Investigating disinfectants	<ul style="list-style-type: none"> Carry out experiments with due regard to health and safety. Present and process data, identifying anomalous results. Evaluate methods and suggest further investigations. 	4.1.1.6	Worksheet 1.16; Practical sheet 1.16; Technician's notes 1.16	Quick starter Homework worksheet Homework quiz Slideshow
Year	Term	9/10	1.17	Maths skills: Size and number	<ul style="list-style-type: none"> To make estimates of the results of 		Worksheets 1.17.1 and 1.17.2	Quick starter Homework worksheet

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9	1				simple calculations, without using a calculator. <ul style="list-style-type: none"> To use ratio and proportion to calibrate a microscope. To recognise and use numbers in decimal and standard form. 			Homework quiz Slideshow Video
Year 9	Term 1	9/10	Assessments		End of chapter test Student Book End of chapter test Collins Connect			
Chapter 2: Photosynthesis								
Year 9	Term 1	11/12	2.1	Explaining photosynthesis	<ul style="list-style-type: none"> Identify the raw materials and products of photosynthesis. Describe photosynthesis by an equation. Explain gas exchange in leaves. 	4.4.1.1	Images of unusual plants; Sort cards for photosynthesis equations. 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	2.2	Looking at photosynthesis	<ul style="list-style-type: none"> Explain the importance of photosynthesis. Explain how plants use the glucose they produce. 	4.4.1.1; 4.2.3.2	Time-lapse photography of growing plants; Sort cards for photosynthesis equations. Image of a woodland in autumn. Worksheet 2.2; Technician's notes 2.2	Quick starter Homework worksheet Homework quiz

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Year 9	Term 1	11/12	2.3	Investigating leaves	<ul style="list-style-type: none"> Identify the internal structures of a leaf. Explain how the structure of a leaf is adapted for photosynthesis. Recall that chlorophyll pigments in chloroplasts absorb light energy for photosynthesis. 	4.2.3.1	Videos showing leaf structure using an electron microscope. Worksheets 2.3.1, 2.3.2 and Technician's notes 2.3	Quick starter Homework worksheet Homework quiz Slideshow
Year 9	Term 2	13/14	2.4	Required practical: Investigate the effect of light intensity on the rate of photosynthesis using an aquatic organism such as pondweed	<ul style="list-style-type: none"> Identify and manage variables. Process data and identify outliers. Evaluate an experimental process. 	4.4.1.2	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	2.5	Increasing photosynthesis	<ul style="list-style-type: none"> 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

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Year 9	Term 2	13/14	2.6	Increasing food production	<ul style="list-style-type: none"> 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	Images showing how cold it is in the area by having snow on the ground and if possible evidence of geothermal activity. Worksheet 2.6; Technician's notes 2.6	Quick starter Homework worksheet Homework quiz Slideshow Video
Year 9	Term 2	15/16	2.7	Key concept: Diffusion in living systems	<ul style="list-style-type: none"> 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	2.8	Looking at stomata	<ul style="list-style-type: none"> Describe transpiration in plants. Explain the structure and function of stomata. Explain the relationship between transpiration and 	4.2.3.1; 4.2.3.2	Celery that has been sitting in a beaker of red dye for 2 days; image of a water lily; Worksheet 2.8; Practical sheet 2.8; Technician's notes 2.8	Quick starter Homework worksheet Homework quiz Video

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					leaf structure.			
Year 9	Term 2	15/16	2.9	Moving water	<ul style="list-style-type: none"> 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. Explain how wilting occurs. 	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
Year 9	Term 2	17/18	2.10	Investigating transpiration	<ul style="list-style-type: none"> Describe how transpiration is affected by different factors. Explain the movement of water in the xylem. 	4.2.3.2	Images of plants that are living in hostile environments. 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	2.11	Moving sugar	<ul style="list-style-type: none"> 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 	4.2.3.2	Scanning electron microscope image of a greenfly feeding. Worksheet 2.11; Technician's notes 2.11	Quick starter Homework worksheet Homework quiz

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					movement of sugars around the plant.			
Year 9	Term 2	17/18	2.12	Maths skills: Surface area to volume ratio	<ul style="list-style-type: none"> 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. 	4.2.3.2	Pieces of paper shaped like leaves or rectangles, material blocks, supply of 30 cm rulers and squared paper. Worksheet 2.12	Quick starter Homework worksheet Homework quiz Slideshow Video
Year 9	Term 2	19/20	Assessments		End of chapter test Student Book End of chapter test Collins Connect End of teaching block test Collins Connect			
Chapter 3: Moving and changing materials								
Year 9	Term 2	19/20	3.1	Explaining water movement	<ul style="list-style-type: none"> Describe how water moves by osmosis in living tissues. Identify factors that affect the rate of osmosis. Explain what the term 'partially permeable membrane' means. 	4.1.3.2	Worksheet 3.1; Practical sheet 3.1; Technician's notes 3.1	Quick starter Homework worksheet Homework quiz Slideshow
Year 9	Term 2	19/20	3.2	Required practical: Investigate the effect of a range of concentrations of salt or sugar	<ul style="list-style-type: none"> Use scientific ideas to develop a hypothesis. Plan experiments to test a hypothesis. 	4.1.3.2	Worksheet 3.2; Practical sheets 3.2.1 and 3.2.2; Technician's notes 3.2	Quick starter Homework worksheet Homework quiz Slideshow

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Year	Term	Week	Lesson number	Lesson title	Lesson objectives	AQA specification reference	Lesson resources (on CD ROM)	Collins Connect resources
				solutions on the mass of plant tissue	<ul style="list-style-type: none"> • Draw conclusions from data and compare these with hypotheses made. 			
Year 9	Term 2	21/22	3.3	Learning about active transport	<ul style="list-style-type: none"> • Describe active transport. • Explain how active transport is different from diffusion and osmosis. • Explain why active transport is important. 	4.1.3.3	Ball and a slope – the slope could just be a textbook leaning against other books; Worksheet 3.3; Technician’s notes 3.3	Quick starter Homework worksheet Homework quiz
Year 9	Term 2	21/22	3.4	Key concept: Investigating the need for transport systems	<ul style="list-style-type: none"> • Describe the need for transport systems. Describe how the effectiveness of an exchange surface can be increased. Explain in terms of surface-area-to-volume ratios the need for transport systems 	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	23/24	3.5	Explaining enzymes	<ul style="list-style-type: none"> • Describe what enzymes are and how they work. • Explain the lock-and-key theory. 	4.2.2.1	Worksheet 3.5; Practical sheet 3.5; Technician’s notes 3.5	Quick starter Homework worksheet Homework quiz Slideshow

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					<ul style="list-style-type: none"> Use the collision theory to explain enzyme action. 			
Year 9	Term 2	23/24	3.6	Required practical: Investigate the effect of pH on the rate of reaction of amylase enzyme	<ul style="list-style-type: none"> Describe how safety is managed, apparatus is used and accurate measurements are made. Explain how representative samples are taken. Make and record accurate observations. Draw and interpret a graph from secondary data using knowledge and observations. 	4.2.2.1	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
Year 9	Term 2	23/24	3.7	Learning about the digestive system	<ul style="list-style-type: none"> 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 	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

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					small intestine is an efficient exchange surface.			
Year 9	Term 3	25/26	3.8	Explaining digestion	<ul style="list-style-type: none"> 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	Internet access; materials for making posters. Worksheet 3.8	Quick starter Homework worksheet Homework quiz
Year 9	Term 3	25/26	3.9	Required practical: Use qualitative reagents to test for a range of carbohydrates, lipids and proteins	<ul style="list-style-type: none"> 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	Image of some food. 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	3.10	Looking at more exchange surfaces	<ul style="list-style-type: none"> Identify the structures responsible for gas 	4.1.3.1	Internet access, materials for making posters. Worksheets 3.10.1, 3.10.2 and 3.10.3	Quick starter Homework worksheet Homework quiz

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Year	Term	Week	Lesson number	Lesson title	Lesson objectives	AQA specification reference	Lesson resources (on CD ROM)	Collins Connect resources
					exchange in fish, amphibians and insects. <ul style="list-style-type: none"> Describe the adaptations of different gas exchange surfaces. Explain the gas exchange surfaces in amphibians. 			Video
Year 9	Term 3	27/28	3.11	Learning about plants and minerals	<ul style="list-style-type: none"> 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
Year 9	Term 3	27/28	3.12	Investigating how plants use minerals	<ul style="list-style-type: none"> Describe why plants need different mineral ions. Explain the effects of mineral deficiencies on plant growth. Explain the 	4.1.3.3	Internet access. Worksheet 3.12; Practical sheet 3.12; Technician's notes 3.12	Quick starter Homework worksheet Homework quiz Video

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					importance of fertilisers.			
Year 9	Term 3	27/28	3.13	Learning about the circulatory system	<ul style="list-style-type: none"> 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	29/30	3.14	Exploring the heart	<ul style="list-style-type: none"> 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	Images or video clips of blood passing through the heart; access to the Internet. 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	3.15	Studying blood	<ul style="list-style-type: none"> Identify the parts of the blood and their functions. Explain the 	4.2.2.3	Animation showing blood moving through vessels, microscopic image of blood cells showing red and white blood	Quick starter Homework worksheet Homework quiz Video

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Year	Term	Week	Lesson number	Lesson title	Lesson objectives	AQA specification reference	Lesson resources (on CD ROM)	Collins Connect resources
					adaptations of red blood cells. <ul style="list-style-type: none"> Explain how red blood cells and haemoglobin transport oxygen efficiently. 		cells, platelets and plasma; access to the Internet. Worksheets 3.15.1 and 3.15.2	
Year 9	Term 3	29/30	3.16	Investigating gas exchange	<ul style="list-style-type: none"> 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	31/32	3.17	Learning about coronary heart disease	<ul style="list-style-type: none"> Identify the causes and symptoms of coronary heart disease and heart failure. Describe possible treatments of coronary heart disease and heart failure. Evaluate the 	4.2.2.4	Animation of coronary heart disease, video clip of blood moving through a heart valve. Worksheets 3.17.1, 3.17.2 and 3.17.3	Quick starter Homework worksheet Homework quiz

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Year	Term	Week	Lesson number	Lesson title	Lesson objectives	AQA specification reference	Lesson resources (on CD ROM)	Collins Connect resources
					possible treatments of coronary heart disease and heart failure.			
Year 9	Term 3	31/32	3.18	Maths skills: Extracting and interpreting information	<ul style="list-style-type: none"> To 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	Assessments		End of chapter test Student Book End of chapter test Collins Connect			
Chapter 4: Health matters								
Year 9	Term 3	33/34	4.1	Learning about health	<ul style="list-style-type: none"> Recall the difference between health and disease. Explain how some diseases interact. Evaluate data about lifestyle and health. 	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	4.2	Key concept: Looking at risk factors	<ul style="list-style-type: none"> Recall the causes of some non-communicable diseases. Describe the impact of lifestyle on non-communicable diseases. Explain the impact of lifestyle on non- 	4.2.2.6	Internet access; poster material. Worksheets 4.2.1 and 4.2.2	Quick starter Homework worksheet Homework quiz Slideshow Video

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Year	Term	Week	Lesson number	Lesson title	Lesson objectives	AQA specification reference	Lesson resources (on CD ROM)	Collins Connect resources
					communicable diseases.			
Year 9	Term 3	33/34	4.3	Exploring non-communicable diseases	<ul style="list-style-type: none"> 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	Internet access. Worksheet 4.3; Practical sheet 4.3; Technician's notes 4.3	Quick starter Homework worksheet Homework quiz
Year 9	Term 3	35/36	4.4	Analysing and evaluating data	<ul style="list-style-type: none"> Translate information between graphical and numerical forms. Use scatter diagrams to identify correlations. Evaluate the strength of evidence. 	4.2.2.5; 4.2.2.6	Graph paper; Worksheets 4.4.1, 4.4.2 and 4.4.3; Practical sheet 4.4; Technician's notes 4.4	Quick starter Homework worksheet Homework quiz
Year 9	Term 3	35/36	4.5	Studying pathogens	<ul style="list-style-type: none"> Recall the definition of a pathogen. Explain how communicable diseases can be controlled. Distinguish between epidemics and pandemics. 	4.3.1.1	Poster material; Internet access. Worksheets 4.5.1 and 4.5.2	Quick starter Homework worksheet Homework quiz Videos

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Year	Term	Week	Lesson number	Lesson title	Lesson objectives	AQA specification reference	Lesson resources (on CD ROM)	Collins Connect resources
Year 9	Term 3	35/36	4.6	Learning about viral diseases	<ul style="list-style-type: none"> 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	Images of viruses including HIV; poster material; access to Internet. Worksheets 4.6.1, 4.6.2 and 4.6.3	Quick starter Homework worksheet Homework quiz Slideshow
Year 10	Term 1	37/38	4.7	Studying bacterial diseases	<ul style="list-style-type: none"> 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	Video of bacteria reproducing without the sound on; poster material; access to the Internet. Worksheets 4.7.1, 4.7.2 and 4.7.3	Quick starter Homework worksheet Homework quiz
Year 10	Term 1	37/38	4.8	Looking at fungal diseases	<ul style="list-style-type: none"> 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	Video about black spot; Worksheet 4.8	Quick starter Homework worksheet Homework quiz Slideshow

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Year	Term	Week	Lesson number	Lesson title	Lesson objectives	AQA specification reference	Lesson resources (on CD ROM)	Collins Connect resources
Year 10	Term 1	37/38	4.9	Learning about malaria	<ul style="list-style-type: none"> Recall that malaria is a protist disease. Describe the lifecycle of the malarial vector. Evaluate control methods for the spread of malaria. 	4.3.1.5	Videos about malaria; Internet access or a fact sheet on malaria. Worksheets 4.9.1 and 4.9.2	Quick starter Homework worksheet Homework quiz
Year 10	Term 1	39/40	4.10	Protecting the body	<ul style="list-style-type: none"> Describe how the body protects itself from pathogens. Explain how the body protects itself from pathogens. Explain how communicable diseases can be spread. 	4.3.1.6	A video clip about how the blood clots; Internet access or factsheet printed from the NHS website. Worksheets 4.10.1, 4.10.2 and 4.10.3	Quick starter Homework worksheet Homework quiz
Year 10	Term 1	39/40	4.11	Exploring white blood cells	<ul style="list-style-type: none"> Describe phagocytosis. Explain how antibody production can lead to immunity. Explain the specificity of immune system responses 	4.3.1.6	A video of white blood cells in action without the sound; a video clip about the production of antibodies; image of a graph that shows primary and secondary infection. Worksheet 4.11	Quick starter Homework worksheet Homework quiz
Year	Term	39/40	4.12	Using antibiotics and painkillers	<ul style="list-style-type: none"> Describe the uses of antibiotics and 	4.3.1.8	Worksheet 4.12; Practical sheet 4.12; Technician's notes 4.12	Quick starter Homework worksheet

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Year	Term	Week	Lesson number	Lesson title	Lesson objectives	AQA specification reference	Lesson resources (on CD ROM)	Collins Connect resources
10	1				<p>painkillers.</p> <ul style="list-style-type: none"> • Explain how antibiotics and painkillers can be used to treat diseases. • Explain the limitations of antibiotics. 			Homework quiz
Year 10	Term 1	41/42	4.13	Building immunity	<ul style="list-style-type: none"> • 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	Videos about the first vaccinations and the polio eradication programme; timeline for smallpox; 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	4.14	Making new drugs	<ul style="list-style-type: none"> • Recall some traditional drugs and their origins. • Describe how new drugs are developed. • Explain why 'double-blind' trials are conducted. 	4.3.1.9	A video of drugs being manufactured using a tablet press. 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
			4.15	Investigating monoclonal	<ul style="list-style-type: none"> • Describe uses of monoclonal 	4.3.2.1; 4.3.2.2	A video that illustrates how monoclonal antibodies are	Quick starter Homework worksheet

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Year	Term	Week	Lesson number	Lesson title	Lesson objectives	AQA specification reference	Lesson resources (on CD ROM)	Collins Connect resources
				antibodies (high demand only)	<ul style="list-style-type: none"> antibodies. Explain how monoclonal antibodies are produced. Evaluate the use of monoclonal antibodies. 		made; poster material; access to the Internet. Worksheet 4.15	Homework quiz
			4.16	Looking at plant diseases	<ul style="list-style-type: none"> Recall the causes of plant diseases. Describe the symptoms and identification methods of some plant diseases. Explain the use of monoclonal antibodies in identifying plant pathogens. 	4.1.2.3; 4.3.3.1	Image of plant with rose black spot; image of a plant with tobacco mosaic virus; video of aphids feeding; poster material; access to Internet. Worksheets 4.16.1, 4.16.2 and 4.16.3	Quick starter Homework worksheet Homework quiz
			4.17	Learning about plant defences	<ul style="list-style-type: none"> Recall some physical plant defence responses. Explain how mechanical plant defence systems help them survive. Explain how chemical plant defence systems 	4.3.3.2	Poster material, access to Internet, <i>Mimosa pudica</i> plant or a video showing the plant folding its leaves; image of leaf structure; a video about the uses of witch hazel; Worksheet 4.17	Quick starter Homework worksheet Homework quiz

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Year	Term	Week	Lesson number	Lesson title	Lesson objectives	AQA specification reference	Lesson resources (on CD ROM)	Collins Connect resources
					help them survive.			
Year 10	Term 1	41/42	4.18	Maths skills: Sampling and scientific data	<ul style="list-style-type: none"> Understand why sampling is used in science. Be able to explain different sampling techniques. 		Worksheet 4.18; Practical sheet 4.18; Technician's notes 4.18	Quick starter Homework worksheet Homework quiz Slideshow Video
Year 10	Term 1	43/44	Assessments		End of chapter test Student Book End of chapter test Collins Connect End of teaching block test Collins Connect End of year test Collins Connect			
Chapter 5: Coordination and control								
			5.1	Homeostasis	<ul style="list-style-type: none"> 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
Year 10	Term 1	43/44	5.2	The nervous system	<ul style="list-style-type: none"> Describe the structure and function of the 	4.5.2.1	List of head injury symptoms; video of what happens at the synapse; materials for making	Quick starter Homework worksheet Homework quiz

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Year	Term	Week	Lesson number	Lesson title	Lesson objectives	AQA specification reference	Lesson resources (on CD ROM)	Collins Connect resources
					<ul style="list-style-type: none"> nervous system. Explain how the nervous system is adapted to its functions. Describe the structure of sensory, motor and relay neurones. 		models of neurones, e.g. cardboard, rubber tubing, cling film, jelly, string, sticky tape, modelling clay. Worksheets 5.2.1 and 5.2.2; PowerPoint presentation	
Year 10	Term 1	43/44	5.3	Reflex actions	<ul style="list-style-type: none"> 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. 	4.5.2.1	Simulation from www.sumanasinc.com . 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
			5.4	The brain	<ul style="list-style-type: none"> Recall that the brain controls complex behaviour using billions of interconnected neurones. Identify the three main regions of the brain and describe their functions. Describe how the regions of the brain 	4.5.2.2	Videos about brain wiring and brain surgery; Internet access. Worksheets 5.4.1 and 5.4.2	Quick starter Homework worksheet Homework quiz Video

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Year	Term	Week	Lesson number	Lesson title	Lesson objectives	AQA specification reference	Lesson resources (on CD ROM)	Collins Connect resources
					are mapped.			
Year 10	Term 1	45/46	5.5	Required practical: Investigating reaction time	<ul style="list-style-type: none"> Select appropriate apparatus and techniques for the measurement of biological processes. Carry out physiological experiments safely. Use appropriate techniques in problem-solving contexts. 	4.5.2.1	Video 'How synapses work' from BBC Bitesize; information about caffeine from www.sciencemuseum.org.uk . 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
			5.6	The eye	<ul style="list-style-type: none"> Relate the structures of the eye to their functions. Explain how the eye is adapted to seeing in colour and in dim light. 	4.5.2.3	Internet access; websites with optical illusions for students to test; video on how the eye works; strong elastic bands, sticky tape, card, scissors, string. Worksheets 5.6.1, 5.6.2 and 5.6.3; Practical sheet 5.6; PowerPoint presentation	Quick starter Homework worksheet Homework quiz
			5.7	Seeing in focus	<ul style="list-style-type: none"> Relate the structures of the eye to their functions. Understand how the eye is able to focus on near or distant objects. 	4.5.2.3	Simulation 'Lens Accommodation in the Human Eye'; string, elastic bands, balloon, ray box, fat convex lens, thin convex lens and screen. Worksheets 5.7.1, 5.7.2 and 5.7.3; PowerPoint presentation	Quick starter Homework worksheet Homework quiz Video

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Year	Term	Week	Lesson number	Lesson title	Lesson objectives	AQA specification reference	Lesson resources (on CD ROM)	Collins Connect resources
			5.8	Eye defects	<ul style="list-style-type: none"> Describe and understand why short-sightedness (myopia) occurs. Describe and understand why long-sightedness (hyperopia) occurs. Demonstrate how techniques are used to correct eye defects. 	4.5.2.3	Vision simulations. Worksheets 5.8.1, 5.8.2 and 5.8.3; Practical sheet 5.8	Quick starter Homework worksheet Homework quiz Slideshow
			5.9	Controlling body temperature	<ul style="list-style-type: none"> Describe the mechanisms by which body temperature is controlled when too hot or cold. Explain how body temperature can be controlled in a specific context. 	4.5.2.4	Video clip of vasodilation. Worksheet 5.9; Practical sheet 5.9; Technician's notes 5.9; PowerPoint presentation	Quick starter Homework worksheet Homework quiz Slideshow
Year 10	Term 1	45/46	5.10	The endocrine system	<ul style="list-style-type: none"> Recall that the endocrine system is made up of glands that secrete hormones into the blood. Know the location of the major endocrine 	4.5.3.1	Video of endocrine glands; Internet access. Worksheets 5.10.1 and 5.10.2	Quick starter Homework worksheet Homework quiz

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Year	Term	Week	Lesson number	Lesson title	Lesson objectives	AQA specification reference	Lesson resources (on CD ROM)	Collins Connect resources
					glands. <ul style="list-style-type: none"> Understand why the pituitary gland is the 'master gland'. 			
Year 10	Term 1	45/46	5.11	Controlling blood glucose	<ul style="list-style-type: none"> 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; 4.5.3.7	Simulation 'What happens when you have diabetes'; coloured card, scissors, pens, rulers. Worksheets 5.11.1, 5.11.2 and 5.11.3	Quick starter Homework worksheet Homework quiz Video
Year 10	Term 1	47/48	5.12	Diabetes	<ul style="list-style-type: none"> 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 	4.5.3.2; 4.5.3.7	Videos 'What happens when you have diabetes' and 'Type 2 diabetes'; props for role play – coloured card and scissors. Worksheets 5.12.1 and 5.12.2; PowerPoint presentation	Quick starter Homework worksheet Homework quiz Video

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Year	Term	Week	Lesson number	Lesson title	Lesson objectives	AQA specification reference	Lesson resources (on CD ROM)	Collins Connect resources
					recommendations.			
Year 10	Term 1	47/48	5.13	Diabetes recommendations	<ul style="list-style-type: none"> 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; 4.5.3.7	Worksheet 5.13	Quick starter Homework worksheet Homework quiz Slideshow
			5.14	Water balance	<ul style="list-style-type: none"> Recall the ways in which the body loses water. Explain why cells do not function efficiently if they lose or gain too much water. Explain how excess protein is converted to urea for excretion. 	4.5.3.3; 4.5.3.7	Small mirror, a piece of cobalt chloride paper. Worksheets 5.14.1, 5.14.2 and 5.14.3; PowerPoint presentation	Quick starter Homework worksheet Homework quiz
			5.15	The kidneys	<ul style="list-style-type: none"> Recall that excess water, ions and urea are removed from the body by the kidneys in urine. 	4.5.3.3	A real kidney; paper, coloured card, pipe cleaners to make a filter, sticky tape, cardboard boxes, rubber tubing and glue. Worksheets 5.15.1 and 4.15.2;	Quick starter Homework worksheet Homework quiz Video

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Year	Term	Week	Lesson number	Lesson title	Lesson objectives	AQA specification reference	Lesson resources (on CD ROM)	Collins Connect resources
					<ul style="list-style-type: none"> Describe how the kidneys produce urine. Explain how the hormone ADH regulates the amount of water in the urine, and therefore, in the body. 		PowerPoint presentation	
Year 10	Term 1	47/48	5.16	Negative feedback (Higher tier only)	<ul style="list-style-type: none"> Explain the role of thyroxine in the body. Understand the principles of negative feedback, as applied to thyroxine. 	4.5.3.7	Internet access; website about thyroxine; Worksheet 5.16; PowerPoint presentation	Quick starter Homework worksheet Homework quiz
			5.17	Kidney failure	<ul style="list-style-type: none"> Recall that people who suffer from kidney failure can be treated by dialysis or kidney transplant. Understand the principles of dialysis. Evaluate the advantages and disadvantages of treating organ failure using a mechanical 	4.5.3.3	Materials to make dialysis models – tubing, plastic box with holes at either end for tubing to pass through, fluid. Worksheet 5.17	Quick starter Homework worksheet Homework quiz Slideshow

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Year	Term	Week	Lesson number	Lesson title	Lesson objectives	AQA specification reference	Lesson resources (on CD ROM)	Collins Connect resources
			5.18	Dialysis or transplant?	<ul style="list-style-type: none"> Describe different forms of dialysis. Use data to draw conclusions. Use data to evaluate the advantages and disadvantages of dialysis and kidney donation. 	4.5.3.3	Worksheets 5.18.1, 5.18.2 and 5.18.3	Quick starter Homework worksheet Homework quiz Video
Year 10	Term 2	49/50	5.19	Human reproduction	<ul style="list-style-type: none"> Describe the roles of hormones in sexual reproduction. Explain how hormones interact in the menstrual cycle. 	4.5.3.4	Videos of the menstrual cycle and hormone levels; large sheet of paper to draw a timeline of the menstrual cycle – poster paper and four different colours. Worksheets 5.19.1 and 5.19.2	Quick starter Homework worksheet Homework quiz
Year 10	Term 2	49/50	5.20	IVF (Higher tier only)	<ul style="list-style-type: none"> 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. 	4.5.3.6	Worksheet 5.20; PowerPoint presentation	Quick starter Homework worksheet Homework quiz
Year	Term	49/50	5.21	IVF evaluation (Higher tier only)	<ul style="list-style-type: none"> Evaluate data regarding in-vitro 	4.5.3.6	Article from BBC News Magazine 'I wish IVF had never	Quick starter Homework worksheet

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Year	Term	Week	Lesson number	Lesson title	Lesson objectives	AQA specification reference	Lesson resources (on CD ROM)	Collins Connect resources
10	2				fertilisation and use this to draw conclusions. <ul style="list-style-type: none"> Evaluate the scientific, emotional, social and ethical issues of in-vitro fertilisation. 		been invented' (www.bbc.co.uk). Worksheet 5.21	Homework quiz
Year 10	Term 2	51/52	5.22	Systems working together (Higher tier only)	<ul style="list-style-type: none"> 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. 	4.5.3.7	Animation 'More hormones – adrenaline and ADH' from www.abpschools.org.uk . Worksheet 5.22	Quick starter Homework worksheet Homework quiz
Year 10	Term 2	51/52	5.23	Contraception	<ul style="list-style-type: none"> Define the purpose of contraception. Describe hormonal methods and non-hormonal methods of contraception. Explain how these methods are effective at preventing 	4.5.3.5	Worksheets 5.23.1 and 5.23.2	Quick starter Homework worksheet Homework quiz

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Year	Term	Week	Lesson number	Lesson title	Lesson objectives	AQA specification reference	Lesson resources (on CD ROM)	Collins Connect resources
					pregnancy.			
Year 10	Term 2	51/52	5.24	Which contraceptive?	<ul style="list-style-type: none"> Describe the advantages and disadvantages of different contraceptive methods. Use data to evaluate the effectiveness of different contraceptive methods. 	4.5.3.5	Worksheet 5.24	Quick starter Homework worksheet Homework quiz
Year 10	Term 2	53/54	5.25	Auxins	<ul style="list-style-type: none"> Recall that plants produce hormones to coordinate and control growth, and responses to light and gravity. Describe how unequal distributions of auxins cause unequal growth rates in plant shoots and roots. 	4.5.4.1; 4.5.4.2	Plant which has been growing on its side for at least a week; normal plant; Venus fly trap; mimosa plant. Worksheets 5.25.1, 5.25.2 and 5.25.3; Practical sheet 5.25; Technician's notes 5.25	Quick starter Homework worksheet Homework quiz
			5.26	Applications of auxins	<ul style="list-style-type: none"> Explain how auxins coordinate and control responses to light and gravity. Explain that auxins act on 'stem cells' in 	4.5.4.2	Auxins animation. Worksheets 5.26.1, 5.26.2 and 5.26.3; Practical sheet 5.26; Technician's notes 5.26	Quick starter Homework worksheet Homework quiz

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Year	Term	Week	Lesson number	Lesson title	Lesson objectives	AQA specification reference	Lesson resources (on CD ROM)	Collins Connect resources
					plants called meristems. <ul style="list-style-type: none"> Describe some applications of auxins. 			
			5.27	Required practical: The effect of light and gravity on the growth of germinating seeds	<ul style="list-style-type: none"> Describe how an experiment is planned for a specific purpose. Make and record observations and translate data from one form to another. Interpret observations and other data, identifying patterns and trends, make inferences and draw conclusions. 	4.5.4.1	Recently germinating cress or radish or white mustard plants; one group of seedlings already prepared where the light intensity has been applied at three different distances the week before the lesson. Worksheet 5.27; Practical sheet 5.27; Technician's notes 5.27	Quick starter Homework worksheet Homework quiz Slideshow
			5.28	Other plant hormones (Higher tier only)	<ul style="list-style-type: none"> Recall that gibberellins are important in seed germination, and ethene in cell division and ripening of fruit. Explain the application of the plant hormones 	4.5.4.2	Some real plants, fruits, germinating seeds and larger fruits. Worksheet 5.28	Quick starter Homework worksheet Homework quiz

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					ethane and gibberellins.			
Year 10	Term 2	53/54	5.29	Maths skills: The spread of scientific data	<ul style="list-style-type: none"> Be able to use range bars on graphs. Understand how box and whisker plots can be used to show the spread of data. Understand how to use percentiles. 		Graph paper, calculators, pencils and rulers. Worksheets 5.29.1, 5.29.2 and 5.29.3	Quick starter Homework worksheet Homework quiz Slideshow Video
Year 10	Term 2	53/54	Assessments		End of chapter test Student Book End of chapter test Collins Connect			
Chapter 6: Genetics								
Year 10	Term 2	55/56	6.1	DNA and genes	<ul style="list-style-type: none"> Describe the structure of DNA. Describe a gene as a small section of DNA that codes for a protein. 	4.6.1.4; 4.6.1.5	Worksheet 6.1; Practical sheet 6.1; Technician's notes 6.1	Quick starter Homework worksheet Homework quiz Slideshow Video
Year 10	Term 2	55/56	6.2	The human genome	<ul style="list-style-type: none"> Describe a gene as a small section of DNA that codes for a protein. Explain the importance of understanding the human genome. 	4.6.1.4; 4.6.1.5	Videos about the Human Genome Project; poster-making equipment; Internet access. Worksheet 6.2	Quick starter Homework worksheet Homework quiz
Year	Term	55/56	6.3	Tracing human migration	<ul style="list-style-type: none"> Explain the importance of 	4.6.1.4; 4.6.1.5	Videos about the Genographic Project and 'The journey of your	Quick starter Homework worksheet

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Year	Term	Week	Lesson number	Lesson title	Lesson objectives	AQA specification reference	Lesson resources (on CD ROM)	Collins Connect resources
10	2				<p>understanding the human genome.</p> <ul style="list-style-type: none"> • Discuss the use of the human genome in understanding human migration patterns. 		past'; Internet access; poster-making equipment. Worksheets 6.3.1 and 6.3.2	Homework quiz
			6.4	The structure of DNA	<ul style="list-style-type: none"> • Describe the structure of DNA as repeating nucleotide units. • Identify the four bases in DNA. • Explain that the bases A and T, and C and G, are complementary. 	4.6.1.5	Video of DNA structure. Worksheets 6.4.1 and 6.4.2 Practical sheet 6.4; Technician's notes 6.4	Quick starter Homework worksheet Homework quiz
			6.5	Proteins	<ul style="list-style-type: none"> • Describe how proteins are synthesised according to the DNA template of a gene. • Explain that the genetic code of a gene specifies the protein to be made. 	4.6.1.5	Video of protein synthesis; poster material. Worksheets 6.5.1 and 6.5.2	Quick starter Homework worksheet Homework quiz Slideshow Video
			6.6	Mutations	<ul style="list-style-type: none"> • Model changes to the base sequences 	4.6.1.5	Images of mutations, such as sickle cells; images of sickle-cell	Quick starter Homework worksheet

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Year	Term	Week	Lesson number	Lesson title	Lesson objectives	AQA specification reference	Lesson resources (on CD ROM)	Collins Connect resources
					<p>of DNA to illustrate mutations.</p> <ul style="list-style-type: none"> Describe the negative and, sometimes, positive effects of mutations. Describe how mutations can affect protein function. 		haemoglobin. Worksheet 6.6	Homework quiz Slideshow Video
Year 10	Term 2	57/58	6.7	Meiosis	<ul style="list-style-type: none"> 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; 4.6.1.8	Video clip of sperm swimming to an egg; video or images of meiosis; string or wool. Worksheets 6.7.1 and 6.7.2	Quick starter Homework worksheet Homework quiz Video
Year 10	Term 2	57/58	6.8	Asexual and sexual reproduction	<ul style="list-style-type: none"> Understand that asexual reproduction involves just one parent and produces genetically identical offspring. Understand that 	4.6.1.1; 4.6.1.3	Video clip of aphids reproducing asexually and sexually. Worksheets 6.8.1 and 6.8.2	Quick starter Homework worksheet Homework quiz Slideshow

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Year	Term	Week	Lesson number	Lesson title	Lesson objectives	AQA specification reference	Lesson resources (on CD ROM)	Collins Connect resources
					sexual reproduction leads to variety in the offspring.			
Year 10	Term 2	57/58	6.9	Genetics	<ul style="list-style-type: none"> Understand and be able to use genetics terms, such as dominant, recessive, genotype, phenotype, homozygous and heterozygous. Know that some human conditions are caused by a recessive allele. 	4.6.1.6; 4.6.1.7	Image of mice of different colours; Internet access. Worksheets 6.9.1, 6.9.2 and 6.9.3	Quick starter Homework worksheet Homework quiz Video
Year 10	Term 2	59/60	6.10	Genetic crosses	<ul style="list-style-type: none"> 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 	4.6.1.6; 4.6.1.7	Worksheets 6.10.1, 6.10.2 and 6.10.3	Quick starter Homework worksheet Homework quiz Video

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Year	Term	Week	Lesson number	Lesson title	Lesson objectives	AQA specification reference	Lesson resources (on CD ROM)	Collins Connect resources
					outcome of a genetic cross.			
Year 10	Term 2	59/60	6.11	Tracking gene disorders	<ul style="list-style-type: none"> Understand the use of a family tree to show the inheritance of a characteristic. Explain economic, social and ethical issues concerned with embryo screening. 	4.6.1.6; 4.6.1.7	Worksheets 6.11.1 and 6.11.2	Quick starter Homework worksheet Homework quiz Video
			6.12	Gregor Mendel				
Year 10	Term 2	59/60	6.13	Key concept: Genetics is simple – or is it?	<ul style="list-style-type: none"> 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. 	4.6.1.6; 4.6.1.7	Ishihara cards; sheets of A3 paper, coloured pens. Worksheet 6.12	Quick starter Homework worksheet Homework quiz Slideshow Video
Year 10	Term 3	61/62	6.14	Maths skills: Fractions, ratio, proportion and probability	<ul style="list-style-type: none"> Understand and use fractions and percentages. Understand and use ratio and proportion. Understand and use 		Practical sheet 6.13; Technician's notes 6.13	Quick starter Homework worksheet Homework quiz Slideshow Video

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Year	Term	Week	Lesson number	Lesson title	Lesson objectives	AQA specification reference	Lesson resources (on CD ROM)	Collins Connect resources
					probability when predicting the outcomes of genetic crosses.			
Year 10	Term 3	61/62	Assessments		End of chapter test Student Book End of chapter test Collins Connect End of teaching block test Collins Connect			
Chapter 7: Variation and evolution								
Year 10	Term 3	61/62	7.1	Variation	<ul style="list-style-type: none"> 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	63/64	7.2	The theory of evolution	<ul style="list-style-type: none"> Recall that all species of living things have evolved from simple life forms. Explain how evolution occurs through natural selection, 	4.6.2.2	Worksheets 7.2.1, 7.2.2 and 7.2.3; PowerPoint presentation	Quick starter Homework worksheet Homework quiz Slideshow
Year	Term	63/64	7.3	The origin of species by natural	<ul style="list-style-type: none"> Explain the evidence that led Darwin to 	4.6.3.1	Animation from. Worksheets 7.3.1 and 7.3.2; Practical sheet	Quick starter Homework worksheet

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Year	Term	Week	Lesson number	Lesson title	Lesson objectives	AQA specification reference	Lesson resources (on CD ROM)	Collins Connect resources
10	3			selection	<p>propose the theory of evolution by natural selection.</p> <ul style="list-style-type: none"> Describe the process of natural selection. 		7.3; Technician's notes 7.3; PowerPoint presentation	Homework quiz Video
Year 10	Term 3	63/64	7.4	Fossil evidence	<ul style="list-style-type: none"> 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. 	4.3.6.4; 4.3.6.5	Video of how fossils are made. Worksheets 7.4.1 and 7.4.2 ; PowerPoint presentation	Quick starter Homework worksheet Homework quiz
Year 10	Term 3	65/66	7.5	How much have organisms changed?	<ul style="list-style-type: none"> 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. 	4.6.3.5	Useful websites with 'missing links'; Worksheets 7.5.1, 7.5.2 and 7.5.3; PowerPoint presentation	Quick starter Homework worksheet Homework quiz
			7.6	Darwin and Wallace	<ul style="list-style-type: none"> Recognise how Darwin and Wallace proposed, independently, the theory of evolution. 	4.6.3.2	Internet access. Worksheets 7.6.1, 7.6.2 and 7.6.3; PowerPoint presentation	Quick starter Homework worksheet Homework quiz

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Year	Term	Week	Lesson number	Lesson title	Lesson objectives	AQA specification reference	Lesson resources (on CD ROM)	Collins Connect resources
					<ul style="list-style-type: none"> Describe how Alfred Wallace gathered evidence for evolution, including warning coloration and mimicry. 			
			7.7	A new species	<ul style="list-style-type: none"> Understand that when natural selection operates differently on populations, a new species is produced. Understand that during evolution, new species are formed when populations become so different that they can no longer interbreed. 	4.6.3.2	Worksheets 7.7.1, 7.7.1 and 7.7.3; PowerPoint presentation	Quick starter Homework worksheet Homework quiz
Year 10	Term 3	65/66	7.8	Evidence of natural selection and evolution?	<ul style="list-style-type: none"> Understand how scientific theories develop over time. Plan experiments to test hypotheses 	4.6.3.4	Worksheet 7.8; Practical sheets 7.8.1 and 7.8.2	Quick starter Homework worksheet Homework quiz Slideshow
			7.9	Evolution: fitting the pieces of the jigsaw	<ul style="list-style-type: none"> Describe the work of Mendel, Darwin and Wallace. Explain how they contributed to the 	4.6.3.1; 4.6.3.2; 4.6.3.3	Videos on the life of Mendel; and the work of William Bateson. Worksheets 7.9.1, 7.9.2 and 7.9.3	Quick starter Homework worksheet Homework quiz

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Year	Term	Week	Lesson number	Lesson title	Lesson objectives	AQA specification reference	Lesson resources (on CD ROM)	Collins Connect resources
					<p>theory of evolution.</p> <ul style="list-style-type: none"> Appreciate that many scientists have contributed to the gene theory. 			
Year 10	Term 3	65/66	7.10	Antimicrobial resistance	<ul style="list-style-type: none"> 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. 	4.6.3.7	Modelling clay; poster paper; sticky notes for each pair. Video about the discovery of penicillin; two short clips: one from the Chief Medical Adviser and one about the threat from antibiotic-resistant bacteria. Worksheets 7.10.1, 7.10.2 and 7.10.3; PowerPoint presentation	Quick starter Homework worksheet Homework quiz
Year 10	Term 3	67/68	7.11	Combatting antimicrobial resistance	<ul style="list-style-type: none"> Describe how to reduce the rate of development of antibiotic resistance. Understand the requirement for, and the impact of, new antibiotics. Recognise the 	4.6.3.7	Internet access. Worksheets 7.11.1 and 7.11.2	Quick starter Homework worksheet Homework quiz

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Year	Term	Week	Lesson number	Lesson title	Lesson objectives	AQA specification reference	Lesson resources (on CD ROM)	Collins Connect resources
					difficulties associated with developing new antibiotics.			
Year 10	Term 3	67/68	7.12	Selective breeding	<ul style="list-style-type: none"> 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	Videos on selective breeding. Worksheets 7.12.1 and 7.12.2; PowerPoint presentation	Quick starter Homework worksheet Homework quiz Slideshow
Year 10	Term 3	67/68	7.13	Producing new plant varieties	<ul style="list-style-type: none"> 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	Selection of flowers, fruits and vegetables. Worksheets 7.13.1 and 7.13.2; PowerPoint presentation	Quick starter Homework worksheet Homework quiz

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Year	Term	Week	Lesson number	Lesson title	Lesson objectives	AQA specification reference	Lesson resources (on CD ROM)	Collins Connect resources
Year 10	Term 3	69/70	7.14	Genetic engineering	<ul style="list-style-type: none"> • Explain what is meant by the term genetic engineering. • Give examples of how plant crops have been genetically engineered to improve products. • Describe how fungus cells are engineered to produce human insulin 	4.6.2.4	Pipe cleaners of different colours, scissors, small boxes and tubs to represent cells. Worksheets 7.14.1 and 7.14.2; PowerPoint presentation	Quick starter Homework worksheet Homework quiz Video
Year 10	Term 3	69/70	7.15	Genetically modified crops: the science	<ul style="list-style-type: none"> • 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	Video on the development of genetically modified papaya plants. Worksheet 7.15	Quick starter Homework worksheet Homework quiz
Year 10	Term 3	69/70	7.16	Is genetic modification safe?	<ul style="list-style-type: none"> • Explore the benefits of genetic modification in medicine. • Explain the concerns that 	4.6.2.4	Worksheets 7.16.1 and 7.16.2; PowerPoint presentation	Quick starter Homework worksheet Homework quiz

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Year	Term	Week	Lesson number	Lesson title	Lesson objectives	AQA specification reference	Lesson resources (on CD ROM)	Collins Connect resources
					<p>people have about genetic modification.</p> <ul style="list-style-type: none"> • Explain the possible safety issues of genetic engineering in agriculture and medicine. 			
Year 10	Term 3	71/72	7.17	Ethically wrong, or essential?	<ul style="list-style-type: none"> • Explain the benefits of, and concerns about, genetic modification. • Explain the ethical issues of genetic engineering in agriculture and medicine. 	4.6.2.4	Infographic from http://us.naturespath.com ; video from http://news.discovery.com . Worksheets 7.17.1, 7.17.2 and 7.17.3; PowerPoint presentation	Quick starter Homework worksheet Homework quiz Slideshow
			7.18	Cloning	<ul style="list-style-type: none"> • Describe how cuttings and tissue culture are used to produce new plants. • Describe the use of embryo transplants and adult cell cloning in animals. 	4.6.2.5	Videos on how to clone a cauliflower and how jellyfish reproduce. Worksheets 7.18.1, 7.18.2 and 7.18.3; Practical sheet 7.18; Technician's notes 7.18; PowerPoint presentation	Quick starter Homework worksheet Homework quiz Video
Year 10	Term 3	71/72	7.19	The tree of life	<ul style="list-style-type: none"> • Describe how living things have been classified into groups using a system devised by Linnaeus. 	4.6.4	Videos of Linnaean classification and evolutionary tree. Worksheets 7.19.1, 7.19.2 and 7.19.3	Quick starter Homework worksheet Homework quiz Video

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Year	Term	Week	Lesson number	Lesson title	Lesson objectives	AQA specification reference	Lesson resources (on CD ROM)	Collins Connect resources
					<ul style="list-style-type: none"> Describe how new models of classification have developed. 			
Year 10	Term 3	71/72	7.20	Extinction...or survival?	<ul style="list-style-type: none"> List the causes of extinction. Explain how new predators, competitors and diseases can lead to extinctions. 	4.6.3.6	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	7.21	Maths skills: Using charts and graphs to display data	<ul style="list-style-type: none"> Understand when and how to use bar charts. Understand how to show sub-groups on bar charts. Understand how to plot histograms. 		Worksheets 7.21.1 and 7.21.2	Quick starter Homework worksheet Homework quiz Slideshow Video
Year 10	Term 3	71/72	Assessments		End of chapter test Student Book End of chapter test Collins Connect			
Chapter 8: Ecology in action								
Year 11	Term 1	73/74	8.1	Key concept: Learning about ecosystems	<ul style="list-style-type: none"> Describe what an ecosystem is. Explain the importance of high biodiversity. Explain what is meant by a self- 	4.7.1.1; 4.7.3.1	Video of an ecosystem. Worksheets 8.1.1, 8.1.2 and 8.1.3	Quick starter Homework worksheet Homework quiz Slideshow Video

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Year	Term	Week	Lesson number	Lesson title	Lesson objectives	AQA specification reference	Lesson resources (on CD ROM)	Collins Connect resources
					supporting ecosystem			
Year 11	Term 1	73/74	8.2	Changing abiotic factors	<ul style="list-style-type: none"> Identify abiotic factors that affect ecosystems. Explain changes in the distribution of species in an ecosystem. Describe stable and unstable populations. 	4.7.1.2; 4.7.2.4	Video of a rocky shore; image of a kite diagram from a rocky shore. Worksheets 8.2.1, 8.2.2 and 8.2.3; Practical sheets 8.2.1 and 8.2.2; Technician's notes 8.2	Quick starter Homework worksheet Homework quiz Slideshow
Year 11	Term 1	75/76	8.3	Investigating predator-prey relationships	<ul style="list-style-type: none"> Describe how changes in one population affect another. Explain interdependent relationships. Explain how predator-prey population cycles have cyclical changes. 	4.7.2.1	Image of a food web. 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	75/76	8.4	Looking at trophic levels	<ul style="list-style-type: none"> Explain trophic levels. Explain and construct pyramids of biomass. Explain the 	4.7.2.1; 4.7.4.1; 4.7.4.2	Video clip showing food chain in action. Worksheets 8.4.1, 8.4.2 and 8.4.3	Quick starter Homework worksheet Homework quiz

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Year	Term	Week	Lesson number	Lesson title	Lesson objectives	AQA specification reference	Lesson resources (on CD ROM)	Collins Connect resources
					difficulties in constructing pyramids.			
			8.5	Transferring biomass	<ul style="list-style-type: none"> Identify how biomass is lost. Calculate the efficiency of biomass transfers. Explain the impact of biomass loss on the numbers of organisms. 	4.7.4.3	Video of an ecosystem. Worksheets 8.5.1, 8.5.2 and 8.5.3	Quick starter Homework worksheet Homework quiz Video
Year 11	Term 1	75/76	8.6	Competing for resources	<ul style="list-style-type: none"> 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	Animals competing for a mate video. Worksheets 8.6.1, 8.6.2 and 8.6.3	Quick starter Homework worksheet Homework quiz Slideshow
Year 11	Term 1	77/78	8.7	Required practical: Measure the population size of a common species in a habitat	<ul style="list-style-type: none"> Describe a suitable method to investigate a population. Estimate the size of a population. Explain the effect of sample size. 	4.7.2.1	Worksheet 8.7; Practical sheet 8.7; Technician's notes 8.7	Quick starter Homework worksheet Homework quiz Slideshow

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Year	Term	Week	Lesson number	Lesson title	Lesson objectives	AQA specification reference	Lesson resources (on CD ROM)	Collins Connect resources
Year 11	Term 1	77/78	8.8	Adapting for survival in animals	<ul style="list-style-type: none"> Recall why animals have adaptations. Explain some adaptations. Use surface-area-to-volume ratios to explain some adaptations. 	4.7.1.4	A video clip of huddling penguins. 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	77/78	8.9	Adapting for survival in plants	<ul style="list-style-type: none"> Identify some adaptations of plants and bacteria. Explain the importance of plant adaptations. Explain a range of plant adaptations. 	4.7.1.4	Image of a cactus; image of a cross section of a marram grass leaf; video clip of bacteria living in deep sea vents; image of a pine tree in the snow. 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	79/80	8.10	Cycling materials	<ul style="list-style-type: none"> Recall that many materials are recycled in nature. Explain the stages in the water and decay cycles. Explain the importance of recycling materials. 	4.7.2.2; 4.7.4.1	Time-lapse photography of a decaying animal. 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	79/80	8.11	Cycling carbon	<ul style="list-style-type: none"> Recall that plants take in carbon as carbon dioxide. Explain how carbon is recycled. 	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

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Year	Term	Week	Lesson number	Lesson title	Lesson objectives	AQA specification reference	Lesson resources (on CD ROM)	Collins Connect resources
					<ul style="list-style-type: none"> Interpret a diagram of the carbon cycle. 			
			8.12	Investigating decay	<ul style="list-style-type: none"> Recall the factors needed for decay. Describe how different factors affect decay. Explain extracellular digestion. 	4.7.2.2	An image of Otzi the iceman or a frozen woolly mammoth; a video or pictures of worm compost bins. Worksheets 8.12.1, 8.12.2 and 8.12.3; Practical sheet 8.12; Technician's notes 8.12	Quick starter Homework worksheet Homework quiz
			8.13	Investigate the effect of temperature on the rate of decay of fresh milk by measuring pH change	<ul style="list-style-type: none"> Describe how safety is managed, apparatus is used and accurate measurements are made. Make and record observations and make accurate measurements. Evaluate methods and suggest possible improvements and further investigations. 	4.7.2.3	Milk and sour milk; Worksheets 8.13.1, 8.13.2 and 8.13.3; Practical sheet 8.13; Technician's notes 8.13	Quick starter Homework worksheet Homework quiz Slideshow
			8.14	Changing the environment	<ul style="list-style-type: none"> Recall causes of environmental change. Describe the impact of environmental 	4.7.2.4; 4.7.3.1; 4.7.3.2	Video of migrating animals, such as caribou. Worksheet 8.14	Quick starter Homework worksheet Homework quiz Videos

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Year	Term	Week	Lesson number	Lesson title	Lesson objectives	AQA specification reference	Lesson resources (on CD ROM)	Collins Connect resources
					<ul style="list-style-type: none"> change. Explain the impact of an environmental change. 			
Year 11	Term 1	79/80	8.15	Learning about land use	<ul style="list-style-type: none"> Identify why land use has changed. Describe the effects of changing land use. Evaluate a change in land use. 	4.7.3.3	A video news clip about building houses on greenbelt land; Internet access. Worksheets 8.15.1 and 8.15.2	Quick starter Homework worksheet Homework quiz Video
Year 11	Term 1	81/82	8.16	Changing the landscape	<ul style="list-style-type: none"> 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	A video clip showing deforestation; a video showing the effects of deforestation on orangutans or another species; Internet access; sheets of A3 plain paper. Worksheets 8.16.1 and 8.16.2	Quick starter Homework worksheet Homework quiz
Year 11	Term 1	81/82	8.17	Thinking about global warming	<ul style="list-style-type: none"> Recall what global warming is. Describe the causes of global warming. Explain how global warming impacts on biodiversity. 	4.7.3.5	Video clip about global warming; Internet access. Worksheet 8.17	Quick starter Homework worksheet Homework quiz Slideshow Videos
Year 11	Term 1	81/82	8.18	Looking at waste management	<ul style="list-style-type: none"> Describe how waste production is linked to human population 	4.7.3.2	Video clip about bioaccumulation; Internet access. Worksheet 8.18	Quick starter Homework worksheet Homework quiz

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Year	Term	Week	Lesson number	Lesson title	Lesson objectives	AQA specification reference	Lesson resources (on CD ROM)	Collins Connect resources
					<p>growth.</p> <ul style="list-style-type: none"> Describe the impact of waste on ecosystems. Explain how waste impacts on biodiversity. 			Video
Year 11	Term 1	83/84	8.19	Investigating pollution	<ul style="list-style-type: none"> Identify pollution levels using indicator species. Explain how indicator species measure pollution. Compare different methods of measuring pollution. 	4.7.3.2	Short video clip about indicator species. 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	83/84	8.20	Maintaining biodiversity	<ul style="list-style-type: none"> Describe some conservation measures. Describe the impact of breeding programmes. Explain how habitats are regenerated. 	4.7.3.6	Video clip about coral reefs; Internet access. Worksheets 8.20.1, 8.20.2 and 8.20.3	Quick starter Homework worksheet Homework quiz Videos
			8.21	Learning about food security	<ul style="list-style-type: none"> Identify factors affecting food security. Describe how different factors affect food security. 	4.7.5.1	Short video news clip about food shortages; news clip about food wastage; paper and pens for poster. Worksheets 8.21.1, 8.21.2 and 8.21.3	Quick starter Homework worksheet Homework quiz

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Year	Term	Week	Lesson number	Lesson title	Lesson objectives	AQA specification reference	Lesson resources (on CD ROM)	Collins Connect resources
					<ul style="list-style-type: none"> Interpret data to evaluate food security. 			
			8.22	Maintaining food security	<ul style="list-style-type: none"> Describe some intensive farming methods. Explain ethical issues related to intensive farming. Evaluate modern farming techniques. Describe methods to maintain sustainable fisheries. 	4.7.5.2	Images of battery chickens and free range chickens; video about one example of biological control. Worksheet 8.22	Quick starter Homework worksheet Homework quiz
			8.23	Using biotechnology	<ul style="list-style-type: none"> Describe some uses of biotechnology. Explain the advantages of some uses of biotechnology. Evaluate some uses of biotechnology. 	4.7.5.4	Images of unusual genetically engineered organisms and a fermentation vat. Worksheets 8.23.1 and 8.23.2	Quick starter Homework worksheet Homework quiz Videos
Year 11	Term 1	83/84	8.24	Maths skills: Using graphs to show relationships	<ul style="list-style-type: none"> To recognise direct proportionality in a graph. To calculate reaction rates in linear graphs. To use the gradient of a graph to 		Image of the World population growth curve. Worksheet 8.24	Quick starter Homework worksheet Homework quiz Slideshow Video

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Year	Term	Week	Lesson number	Lesson title	Lesson objectives	AQA specification reference	Lesson resources (on CD ROM)	Collins Connect resources
					calculate the rate.			
Year 11	Term 1	83/84	Assessments		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			