Year 10 GCSE Biology Outline Scheme of Work: (*AQA Science A, Route 2* course of study)
To earn their GCSE Science A Qualification pupils sit two written module exams each covering topics in Biology, Chemistry and Physics in a single paper. The SCA1 exam is worth 35% of their science GCSE. The SCA2 exam is worth 40% of their science GCSE.
In addition pupils will sit practical exams during normal lesson times. The mark submitted for the practical exam will make up 25% of their overall GCSE grade in science.
The topics covered in their Biology lessons are set out below.

Timings	Topics
Term 1	**B1.1 Keeping healthy** In this unit pupils learn about the fundamental relationship between diet and health. They will develop their skills in analysing data and evaluating claims such as those made by slimming products. Most importantly they will develop an understanding of how lifestyle affects the development of disease. Pupils also learn how our bodies defend themselves against infectious diseases.
	B1.2 Nerves and hormones In the first section of this unit pupils learn about the nervous system and its role in coordination and control of the human body.
Term 2	**B1.2 Nerves and hormones (continued)** Pupils continue studying control in the human body with the study of hormones, particularly in the menstrual cycle. Additionally they study how hormones play a role in the growth of plants.
	B1.3 The use and abuse of drugs In this unit pupils learn about the use and abuse of drugs. They will evaluate claims made about the effect of prescribed and non-prescribed drugs on health, and consider the ethical issues surrounding the use of certain drugs (e.g. performance enhancing drugs in sport). Additionally they will develop an understanding of how sceintific method is applied in the development and testing of medicines.
Term 3	**B1.4 Interdependence and adaptation** Pupils investigate the effects of environmental change on the population and distribution of living things. They explore the astounding diversity of habitats and life on earth.
Term 4	**B1.5 Energy and biomass in food chains** Pupils investigate the efficiency of food production methods gaining and understanding of how energy is transferred through food chains.
	B1.6 Waste materials from plants and animals Pupils gain an understanding of how decomposition and decay are vital to life on earth.
Term 5	**B1.7 Genetic variation and its control** Pupils will learn about the role of DNA in inheritance. Pupils will also explore the topic of biotechnology and consider the economic, social and ethical issues concerning cloning and genetic engineering, including genetically modified (GM) crops.
	B1.8 Evolution There are different theories of evolution with Darwin's theory being the most widely accepted among scientists. In this unit Pupils are given the opportunity to interpret scientific evidence relating to evolutionary theory and to consider the key differences between Darwin's theory and other theories of evolution.
Term 6	**AQA GCSE Core Science exams SCA1 and SCA2** **N.B. Pupils begin their year 11 course of study following their exam in term 6.**

Year 11 GCSE Biology Outline Scheme of Work: (*AQA Science A, Route 2* course of study)
To earn their GCSE Additional Science Qualification pupils sit two written module exams each covering topics in Biology, Chemistry and Physics in a single paper. The AS1 exam is worth 35% of their science GCSE. The AS2 exam is worth 40% of their science GCSE.
In addition pupils will sit practical exams during normal lesson times. The mark submitted for the practical exam will make up 25% of their overall GCSE grade in science. The topics covered in their Biology lessons are set out below.

Timings	Topics
Term 1	**2.1 What are animals and plants built from?** In this topic students will learn that cells are the building blocks of plants and animals. They will learn about the parts (organelles) of a typical cell and compare the various types of animal and plant cells, relating structure to function. They will develop their skills in microscopy and observation.
	2.2 How do dissolved substances get into and out of cells? In this topic pupils learn about the movement of molecules by diffusion, osmosis and active transport in and out of cells in animals and plants. They observe the effects of changes in solution concentration on living plant tissue and develop their biological drawing skills.
Term 2	**2.3 How do plants obtain the food they need to live and grow?** In this topic students learn about producers (plants) and how they transform light energy into chemical energy through photosynthesis. Students recreate some of the experimental evidence that first led scientists to hypothesise that photosynthesis was occurring in plants, interpret data showing how factors affect the rate of photosynthesis and evaluate the benefits of artificially manipulating the environment in which plants are grown.
	2.4 What happens to energy and biomass at each stage in a food chain? Pupils learn that the energy captured by plants through photosynthesis is stored in the substances which make up the cells of plants. Pupils will learn to interpret construct pyramids of biomass representing the flow of biomass and energy through food chains. They evaluate the positive and negative effects of managing food production and distribution and discuss the competing priorities of food producers, consumers and the impact of human food production on the environment.
Term 3	**2.5 What happens to the waste material produced by plants and animals?** Animals and plants primarily consist of molecules made of Carbon, Hydrogen, Oxygen and Nitrogen. In a stable community of living things, the processes which incorporate these materials into living tissue are balanced by processes which return materials to the environment. In this topic students learn about the processes that cause the carbon cycle. Through this topic they develop an appreciation for the need to recycle waste responsibly and the benefits of composting. They also become aware of the causes of and conditions required for efficient decay.
	2.6 What are enzymes and what are some of their functions? In this topic students further develop practical skills, conducting a range of investigations into the activity of enzymes under different conditions. Students learn about the role of enzymes in living processes including cellular respiration and digestion. They also learn how enzymes are used and evaluate the advantages and disadvantages of using enzymes in home and industry.
Term 4	**2.7 How do our bodies keep internal conditions constant?** The Human body functions within a relatively narrow range of internal conditions which are controlled by the nervous and endocrine systems. Examples of this control (homeostasis) include the water content of the body, the ion content of the body, temperature and blood sugar levels. Students learn about these systems of homeostasis in some detail and evaluate the data from the experiments by Banting and Best which led to the discovery of insulin. They also evaluate modern methods of treating diabetes.
	2.8 Which human characteristics show a simple pattern of inheritance? Pupils develop an understanding of inheritance. Students learn about the work of Gregor Mendel and interpret genetic diagrams to explain the inheritance of certain genetic disorders, such as Cystic Fibrosis. Additionally they study the use of stem cells and make informed judgements about the social and ethical issues concerning the use of stem cells from embryos in medical research and treatments. They also study the issue of embryo screening.
Term 5	**AQA GCSE Additional Science exams AS1 and AS2**