Biology Curriculum Overview - Year 10 - Combined Higher

	Unit	Details
	Communicable disease	Pupils will study the concept of health (as a state of physical and mental well-being) is affected by infectious diseases. They will look at the different pathogens that can cause communicable disease, including bacteria, viruses, and protists, and how these can be spread between organisms. Pupils will also describe the symptoms and treatments of a range of different animal and plant diseases, and the different defence mechanisms of the human body.
	Preventing and treating disease	Pupils will study the prevention of disease by vaccination and how it works, the concept of herd and long-term immunity. They will study the treatment of disease by drugs including painkillers and antibiotics. They should be aware that antibiotics are drugs used to cure bacterial infections. They should be aware of how drugs are made today to be effective and safe, and be able to outline the processes of clinical trials including double blind trials and using placebos.
	Non-communicable disease	Pupils should understand what is meant by risk factors for a disease, looking at cause/effect and correlation via the interpretation of graphs. Pupils will study cancer and the different types of tumour, along with the general causes and treatment of cancer. Pupils should be aware of the risks of diseases from smoking, obesity and alcohol. Pupils should also be aware of ionising radiation.
	Respiration and photosynthesis	Pupils should be able to describe the process of aerobic and anaerobic respiration and write the appropriate equations. They will also study the response of humans to exercise, including changes in heart rate, breathing rate, and breakdown of glycogen. They will link anaerobic respiration in mammalian muscles to the oxygen debt, alongside the process of fermentation. Pupils will study photosynthesis in both plants and algae. They will study factors that affect the rate and understand the concept of limiting factors. All pupils should be aware how glucose is used in respiration, and also how it can be assimilated into starch and cellulose. Finally pupils will consider the use of greenhouses and how conditions can be monitored and manipulated.
	Human nervous system	Pupils have studied the principles of homeostasis, and should be able to give some examples and outline the control system involved. They should be able to describe a reflex arc, with detail of synaptic transmission. Pupils should appreciate that receptors detect a change in a stimulus and not the stimulus itself. They should be able to describe an electrical impulse accurately.
	Hormonal coordination	Pupils identify the main parts of the endocrine system and recall the hormones they produce. Pupils should recall how blood-glucose concentration is controlled, including the role of insulin and glucagon. They should understand the process of negative feedback, particularly as applied to the hormones adrenaline and thyroxine. They should recall the action of hormones in bringing about puberty, alongside an understanding of how hormones interact via the menstrual cycle. Pupils should understand how hormones are used in the control of fertility (both decreasing via contraception, and increasing via infertility treatments).