Queen Elizabeth's Girls' School

Founded in 1888

Educating Women of the Future

Biology Key Stage 4 Curriculum

	Topic/Big Question	Focus
Year 10	**Ecosystems: Ecosystems recycle resources**	**Photosynthesis** Students will learn about photosynthesis, the rate of photosynthesis, how plants use glucose and making the most of photosynthesis.
	Ecosystems: Ecosystems recycle resources	**Respiration** Students will learn about aerobic respiration, the response to exercise, anaerobic respiration and metabolism and the liver.
	Ecosystems: Organisms are interdependent	**Communicable Diseases** Students will learn about health and disease, pathogens and disease, growing bacteria in the lab, preventing bacteria growth, preventing infections, viral diseases, bacterial diseases, diseases caused by fungi and protists, human defence responses, plant diseases and plant defence responses.
	Ecosystems: Organisms are interdependent	**Preventing and treating disease** Students will learn about vaccination, antibiotics and painkillers, discovering drugs, developing drugs, making monoclonal antibodies and the uses of monoclonal antibodies.
	Organisms: Cells are Alive	**Cell division** Students will learn the three overall stages of the cell cycle, mitosis, cell differentiation, stem cells and stem cell dilemmas.
	Organisms: Bodys are systems	**The Human Nervous System** Students will learn about the principles of homeostasis, the structure and function of the human nervous system, reflex actions, The brain, the eye and common problems with the eye.
	Ecosystems: Ecosystems recycle resources	**Biodiversity and Ecosystems** Students will learn about the human population explosion, land and water pollution, air pollution, deforestation and peat destruction, global warming, the impact of change, maintaining biodiversity, trophic levels and biomass, biomass transfers, factors affecting food security, making food production efficient and sustainable food production.

	Topic/Big Question	Focus
Year 11	**Organisms: Bodys are systems**	**Hormonal Coordination** Students will learn the principles of hormonal control, the control of blood glucose levels, treating diabetes, the role of negative feedback, human reproduction, hormones and the menstrual cycle, the artificial control of fertility, infertility treatments, plant hormones and responses and the use of plant hormones.
	Organisms: Bodys are systems	**Homeostasis in Action** Students will learn about controlling body temperature, removing waste products, the human kidney, dialysis and kidney transplants.
	Genes: Characteristics are inherited	**Reproduction** Students will learn about the types of reproduction, cell division in sexual reproduction, organisms which can reproduce sexually and asexually, DNA and the genome, DNA structure and protein synthesis, gene expression and mutation, inheritance, genetics, inherited disorders and screening for genetic disorders.
	Genes: Species show variation	**Variation and Evolution** Students will learn about variation, evolution by natural selection, selective breeding, genetic engineering, cloning, adult cell cloning and the ethics of genetic technologies.
	Genes: Species show variation	**Genetics and Evolution** Students will learn about the history of genetics, theories of evolution, accepting Darwin's ideas, evolution and speciation, evidence for evolution, fossils and extinction, antibiotic-resistant bacteria, classification and new systems of classification.
	Genes: Species show variation	**Adaptations, Interdependence and Competition** Students will learn about the importance of communities, organisms and their environment, distribution and abundance, competition in animals, competition in plants, adapt and survive, adaptations in animals and adaptations in plants.
	Ecosystems: Organisms are interdependent	**Organisation of an ecosystem** Students will learn about feeding relationships, materials cycling, the carbon cycle and rates of decomposition.
	Ecosystems: Ecosystems recycle resources	**Biodiversity and Ecosystems recap** Students will learn about the human population explosion, land and water pollution, air pollution, deforestation and peat destruction, global warming, the impact of change, maintaining biodiversity, trophic levels and biomass, biomass transfers, factors affecting food security, making food production efficient and sustainable food production.