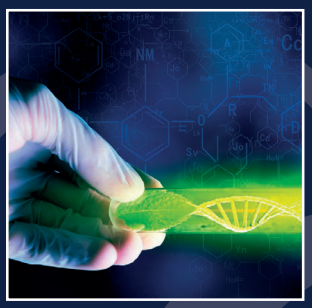
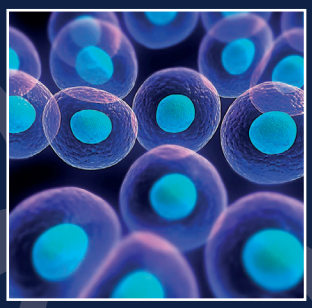
THE LADY ELIZABETH SCHOOL

Biology @ Lady Elizabeth

Exploring Life





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Part of the International Schools Partnership Group

THE LADY ELIZABETH SCHOOL

IGCE BIOLOGY (INTERNATIONAL ADVANCED LEVEL)

WHAT DO I NEED TO KNOW, OR BE ABLE TO DO, BEFORE TAKING THIS COURSE?

The qualification builds on the knowledge, understanding and practical skills that you gained in GCSE Science, GCSE Additional Science or GCSE Biology (Minimum Grade C). You should also have at least a C grade in GCSE Mathematics, as numerical and mathematical skills are important in Biology. GCSE Chemistry is also very useful but not a requirement. You will also need to be able to communicate effectively, be able to plan and carry out research and think critically about problems.

WHAT WILL I LEARN?

In Biology you will develop practical skills by planning experiments, collecting data, analysing experimental results and making conclusions. You will also learn how scientific models are developed, the applications and implications of science, the benefits and risks that science brings and the ways in which society uses science to make decisions.

UNIT 1: LIFESTYLE, TRANSPORT, GENES AND HEALTH

Heart disease is one of the UK's biggest killers — what makes it so common? You will learn more about the Circulatory System and the kinds of lifestyle choices, such as diet and exercise that put you more, or less, at risk of suffering from heart disease.
You will find out how some parts of the body work, for example, about the Lungs and how materials are transported around the body, and the role of Enzymes. You will also learn about Genetics and what can happen if errors occur during the replication of DNA, considering the social and ethical issues raised by Genetic Screening and Gene Therapy in the context of the genetic disease Cystic Fibrosis.

UNIT 2: DEVELOPMENT, PLANTS AND THE ENVIRONMENT

Do you know how you came to have your natural hair colour? You will learn that your physical characteristics have been determined by your genetic makeup and influenced by the environment. In doing so, you will learn some Cell Biology, about the two main types of cell division and the purpose of each type, and about sexual reproduction.

Have you also ever wondered how there came to be so many different types of organisms in the world, ranging from microscopic organisms such as viruses to huge mammals such as whales? This unit explains the term Biodiversity, and also the concept of Natural Selection and how it can lead to Adaptation which drives Evolution. In this unit you will also learn about Plants and their structure, and how the properties of some plants may be used to tackle issues such as Sustainability.

UNIT 4: THE NATURAL ENVIRONMENT AND SPECIES SURVIVAL

´Global Warming´ and ´Climate Change´ are buzzwords that appear in media headlines and have been the source of much controversy and political divide. So which side are you on and why? You will learn about the different types of evidence for global warming and the possible causes of it, and the effect it will have on animals and plants. You will also learn about Ecology, Photosynthesis and Speciation.
This unit covers the fascinating area of Immunology — the war that goes on between our immune system and pathogens. You will learn what defences the body has against invading pathogens and how some micro-organisms, such as Mycobacterium tuberculosis and the HIV virus, can get the better of us by attacking our defences.
You will have the opportunity to look into the world of the Forensic Scientist and appreciate the application of scientific knowledge in this context.

UNIT 5: ENERGY, EXERCISE AND COORDINATION

All mammals, including humans, have similar physiologies that facilitate movement. Why is it rare to find an athlete who is both a sprinter and a marathon runner? In this unit you will build on your knowledge about Joints and Movement, and learn more about the precise mechanism of Skeletal Muscle Contraction, Respiration and Homeostasis in the context of exercise.
The Brain is the most complicated and probably least understood organ in the body. It has the complex task of coordinating our bodily functions and movement, making sense of all the sensory information it receives, as well as storing our thoughts, emotions and memories. As the brain is such a complicated and vital organ, there is a lot of potential for it to go wrong which can have drastic effects on the health of the person. You will also look at the effects of disease and drugs on the brain and how these effects, in turn, affect the body and the mind.

HOW WILL I BE ASSESSED?

ASSESSMENT AT AS LEVEL

Units 1 and 2 are externally assessed written examination papers, each lasting 90 minutes. The papers will contain objective questions, short questions and longer questions. Unit 3 is externally assessed and is an exam that replaces the practical exam. These will all be sat in June of Year 12.

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ASSESSMENT AT A2 LEVEL

Units 4 and 5 are externally assessed written examination papers. Unit 4 lasts 90 minutes, Unit 5 lasts 105 minutes with time for reading the pre-release article. The papers will contain objective questions, short questions and longer questions. Unit 5 also includes a question on pre released material, consisting of a scientific article on a topical issue.

Unit 6 is externally assessed and is an exam that replaces the practical exam. This lasts 90 minutes

Unit 4 will be sat for the first time in January of Year 13. Units 5 & 6 are sat for the first time in June of Year 13. There is also the opportunity to re-sit Units 1 to 4 once during Year 13.

IS THIS THE RIGHT SUBJECT FOR ME?

AS AND A LEVEL BIOLOGY IS SUITABLE IF YOU:

- have an interest in, and enjoy Biology and want to find out about how things work in the biological world by application of imaginative, logical thinking
- want to use Biology to progress onto further studies in Higher Education or support other qualifications or enter Biology-based employment
- are taking A levels in the other sciences and/or mathematics or other relevant courses such as Physical Education and want to take another course that will support those studies.

It also provides the opportunity to develop a wide range of transferable skills that can provide access to many different career areas.

WHAT CAN I DO AFTER I'VE COMPLETED THE COURSE?

Biology leads on to a wide range of courses and careers. This could include:

- an undergraduate degree in a life sciences, medicine, environmental science, forensic science and related courses or a BTEC Higher National (HNC and HND)
- employment - for example in the areas of biological testing, biotechnology, independent research and the food industry.

To find out more talk to your Biology teacher and visit your careers office or www.iob.org for further information on careers and courses in Biology. For the full specification check www.edexcel.org.uk.

For further information see: Mr P Holt or Miss G Cavallaro