

# **Edexcel Advanced Subsidiary [AS] GCE in Biology from September 2008**

## **Unit 1: Lifestyle, Transport, Genes and Health**

### **Unit Topics**

Structure and function of carbohydrates, lipids and proteins; enzyme action  
Structure and properties of cell membranes; passive and active transport  
Structure and role of DNA and RNA  
Replication; protein synthesis  
Monohybrid inheritance  
Gene mutations  
Principles of gene therapy and the social, ethical issues

### **Unit Assessment**

This unit is assessed by means of a written examination paper, which lasts 1 hour 15 minutes and will include: objective questions, structured questions  
short answer questions and will also cover how science works and practical related questions.

## **Unit 2: Development, Plants and the Environment**

### **Unit Topics**

Cell structure and ultrastructure of eukaryote and prokaryote cells: cell specialisation  
The role of meiosis  
Genotype and environmental influence  
Stem cell research and its implications  
Biodiversity, adaptations and natural selection  
Principles of taxonomy  
Plant cell structure  
Transport of water in plants  
Uses of plant products

### **Unit Assessment**

This unit is assessed by means of a written examination paper, which lasts 1 hour 15 minutes and will include: objective questions, structured questions  
short answer questions and will also cover how science works and practical related questions.

## **Unit 3: Practical Biology and Research Skills**

### **Unit Topics**

Students will submit a written report of between 1500 and 2000 words. The report may be either a record of a visit to a site of biological interest or a report of research into a biological topic. During the course students will carry out practical work.

### **Unit Assessment**

Teachers will mark the written report and assess students' ability to:

Use apparatus skilfully and safely to carry out manipulative techniques in an appropriate manner.

Produce and record valid and reliable measurements and observations with precision.

Present and analyse data using appropriate methods and identify trends, patterns and/or observations.

## **Edexcel Advanced [A2] GCE in Biology from September 2009**

### **Unit 4: The Natural Environment and Species Survival**

#### **Unit Topics**

Photosynthesis; energy transfer within ecosystems

Evidence for global warming

Evolution through natural selection and speciation

Nutrient recycling

DNA profiling and PCR

Structure of bacteria and viruses

Infectious diseases (e.g. AIDS and TB) and immunology

#### **Unit Assessment**

This unit is assessed by means of a written examination paper, which lasts 1 hour 15 minutes and will include: objective questions, structured questions short answer questions and will also cover how science works and practical related questions.

## **Unit 5: Energy, Exercise and Coordination**

### **Unit Topic**

ATP, glycolysis, anaerobic/aerobic respiration  
Control and functioning of heart; ventilation and cardiac output  
Homeostasis  
The nervous system  
Impact of exercise on body, and improving performance  
Hormonal coordination  
Brain structure and development  
Imbalances in brain chemicals  
Human Genome Project

### **Unit Assessment**

This unit is assessed by means of a written examination paper, which lasts 1 hour 15 minutes and will include: objective questions, structured questions short answer questions and will also cover how science works and practical related questions.

A third of the marks are related to specified pre-released reading.

## **Unit 6: Practical Biology and Investigative Skills**

### **Unit Topic**

Students will complete an individual investigation and prepare a written report.

### **Unit Assessment**

This piece of work will be marked by the teacher using the following criteria:  
Research and rationale  
Planning  
Implementing  
Observing and recording  
Interpreting and evaluation  
Communicating