



Course: 5° año H y E.  
Year: 2017  
Subject: Biology  
Teacher: Silvana M. Albano

### ARCHIVEMENT AIMS

It is expected that students show conceptual knowledge and understanding of the three assessment objectives that Cambridge IGCSE Biology expects. These refer to:

- A: Knowledge with understanding
- B: Handling information and problem solving
- C: Experimental skills and investigations

#### **A: Knowledge with understanding**

Candidates should be able to demonstrate knowledge and understanding of:

1. scientific phenomena, facts, laws, definitions, concepts, theories
2. scientific vocabulary, terminology, conventions (including symbols, quantities and units)
3. scientific instruments and apparatus, including techniques of operation and aspects of safety
4. scientific quantities and their determination
5. scientific and technological applications with their social, economic and environmental implications.

Syllabus content defines the factual material that candidates may be required to recall and explain.

Candidates will also be asked questions which require them to apply this material to unfamiliar contexts and to apply knowledge from one area of the syllabus to knowledge of a different syllabus area.



Questions testing these objectives will often begin with one of the following words: *define, state, describe, explain (using your knowledge and understanding) or outline.*

## **B: Handling information and problem solving**

Candidates should be able, using oral, written, symbolic, graphical and numerical forms of presentation, to:

1. locate, select, organise and present information from a variety of sources
2. translate information from one form to another
3. manipulate numerical and other data
4. use information to identify patterns, report trends and draw inferences
5. present reasoned explanations of phenomena, patterns and relationships
6. make predictions and propose hypotheses
7. solve problems, including some of a quantitative nature.

Questions testing these skills may be based on information that is unfamiliar to candidates, requiring them to apply the principles and concepts from the syllabus to a new situation, in a logical, reasoned or deductive way.

Questions testing these objectives will often begin with one of the following words: *discuss, predict, suggest, calculate, explain or determine.*

## **C: Experimental skills and investigations**

Candidates should be able to:

1. know how to use techniques, apparatus, and materials (including the following of a sequence of instructions, where appropriate)
2. make and record observations and measurements
3. interpret and evaluate experimental observations and data
4. plan investigations, evaluate methods and suggest possible improvements (including the selection of techniques, apparatus and materials).



## **D: Practice and Booklet**

Candidates are expected to practice on past Biology papers, and to hand them in when asked. All of them must be completed before their IGCSE examinations. Completing their past Paper booklet will be taken into account

## **EXAM SYLLABUS**

### **Unit 0: Revision**

- a) Nutrition in animals.
- b) Transport in animals.
- c) Aerobic and anaerobic respiration.
- d) Gaseous exchange and ventilation.
- e) Plant structure, nutrition and transport.
- f) Excretory system.
- g) Homeostasis. Temperature and glucose regulation.

### **Unit 1: Coordination and response**

- a) Hormones. Glands.
- b) Tropic and taxic responses. (Phototropism and geotropism – auxins)
- c) Nervous control in humans. CNS. PNS. Neurones. Reflex arc. Effectors. Antagonistic muscles.
- d) Sense organs. The Eye. Accommodation. Pupil reflex. Rods and cones: function and distribution.
- e) Drugs: Effects, dangers of misuse and personal and social problems arising from the use of alcohol and heroin.

### **Unit 2: Reproduction- revision**

- a) Sexual and asexual reproduction.
- b) Sexual reproduction in plants. Flower structure. Pollination. Fruit and seed formation. Fruit dispersal.
- c) Sexual reproduction in humans. Sex hormones. Menstrual cycle. Sexual intercourse. Fertilisation. Implantation. Development of foetus. Labour. Birth.
- d) Methods of Birth Control.
- e) Sexually transmissible diseases. Gonorrhoea. AIDS.



### **Unit 3: Genetics and Inheritance**

- a) Inheritance. Chromosomes. (alleles. Haploid. Diploid. Gene)
- b) Mitosis.
- c) Meiosis.
- d) Monohybrid inheritance. Genotype. Phenotype. Homozygous. Heterozygous. Dominant. Recessive. Codominance.
- e) Continuous and discontinuous variation. Mutation.

### **Unit 4: Biotechnology and Genetic engineering**

- a) Use of bacteria in biotechnology
- b) Biotechnology
- c) Genetic engineering

### **Assessment and evaluation criteria:**

Throughout the course, students should be able to answer appropriately multiple choice questions, short answer and structured questions, and questions to test familiarity with laboratory based procedures based on the contents listed for this course.

There will be a booklet with past papers, which students should complete. The booklet completion will be evaluated and a mark for it given per term.

### **Bibliography:**

#### BOOKS

- Mackean, D G IGCSE Biology 3<sup>rd</sup> edition. Hodder Murray  
<http://www.hoddermurray.co.uk>

#### BOOKLET

INTERNET: you tube videos on topics studied. 'Bozeman Science' or 'Biology BBC Bitesize' are good internet sites.