



BIOLOGY

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5 ° E-H

SYLLABUS



ACHIEVEMENT 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 practise 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



CONTENTS

UNIT 0: Revision

PERIOD: 2 weeks

- 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 (UNIT 14 -15 from IGCSE Syllabus)

PERIOD: 2 months

- a. Nervous control in Humans
- b. Sense Organs
- c. Hormones in Humans
- d. Homeostasis
- e. Tropic responses
- f. Drugs



UNIT 2: Reproduction- revision (UNIT 16 from IGCSE Syllabus)

PERIOD: 1 month and a half

- 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 transmitted Infections (STIs). Gonorrhoea. AIDS.

UNIT 3: Genetics and Inheritance (UNIT 17 from IGCSE Syllabus)

PERIOD: 1 month and a half

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

UNIT 4: Variation and Selection (Unit 18 from IGCSE Syllabus)

PERIOD: 2 weeks

- a) Variation
- b) Adaptive features
- c) Selection

UNIT 5: Biotechnology and Genetic engineering (Unit 20 from IGCSE syllabus)

PERIOD: 1 month

- a) Use of bacteria in biotechnology and genetic engineering
- 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.



MATERIALS

- Book
- White, Squared and lined pages
- Pencil box with: pencil, pen, eraser, sharpener, ruler, calculator.
- Spanish -English dictionary



BIBLIOGRAPHY

BOOKS

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

BOOKLET: contains past papers and valuable information on exams

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