



Scheme of work – Cambridge IGCSE® Biology (0610)

Overview

The aim of this scheme of work is to set out a progression through the syllabus content, and to give ideas for activities, together with references to relevant internet sites.

The scheme of work follows the 0610 syllabus, but has been sub-divided into ten units, each covering a theme.

The scheme of work is intended to give ideas to teachers upon which they can build. It is certainly not intended that teachers undertake all of the activities shown in the various units but rather to offer choices which could depend on local conditions.

The progression through these themes has been designed to build on students' own experiences, and to ensure that students have sufficient basic knowledge and understanding to tackle the more challenging issues.

Outline

The units within this scheme of work are:

- Unit 1: Cells and cell processes**
- Unit 2: Animal nutrition**
- Unit 3: Plant nutrition and transport**
- Unit 4: Respiration and the human transport system**
- Unit 5: Coordination, response and homeostasis**
- Unit 6: Reproduction in plants**
- Unit 7: Human reproduction**
- Unit 8: Inheritance and evolution**
- Unit 9: Organisms and environment**
- Unit 10: Human influences on the environment**

Details of unit structure

Unit 1: Cells and cell processes

- 1.1 Characteristics of living organisms
- 1.2 Concept and use of a classificatory system
- 1.3 Adaptations of organisms to their environment
- 1.4 Simple keys
- 1.5 Cell structure and organisation
- 1.6 Levels of organisation
- 1.7 Size of specimens
- 1.8 Diffusion
- 1.9 Active Transport
- 1.10 Osmosis
- 1.11 Enzymes

Syllabus reference – Section I: 1, 2, 3 Section II: 1, 2, 3, 4, 5

Unit 2: Animal nutrition

- 2.1 Nutrition
- 2.2 Nutrients
- 2.3 Diet
- 2.4 Food supply
- 2.5 Human alimentary canal
- 2.6 Mechanical and physical digestion
- 2.7 Chemical digestion
- 2.8 Absorption
- 2.9 Assimilation

Syllabus reference – Section II: 6.1, 6.3

Unit 3: Plant nutrition and transport

- 3.1 Photosynthesis
- 3.2 Leaf structure
- 3.3 Mineral requirements
- 3.4 Transport in plants
- 3.5 Water uptake

- 3.6 Transpiration
- 3.7 Translocation

Syllabus reference – Section II: 6.2, 7.1

Unit 4: Respiration and the human transport system

- 4.1 Respiration
- 4.2 Aerobic respiration
- 4.3 Anaerobic respiration
- 4.4 Gas exchange
- 4.5 Transport in humans
- 4.6 Heart
- 4.7 Arteries, veins and capillaries
- 4.8 Blood

Syllabus reference – Section II: 7.2, 8

Unit 5: Coordination, response and homeostasis

- 5.1 Nervous control in humans
- 5.2 Hormones
- 5.3 Tropic responses
- 5.4 Homeostasis
- 5.5 Drugs
- 5.6 Excretion in humans

Syllabus reference – Section II: 10, 9

Unit 6: Reproduction in plants

- 6.1 Asexual reproduction
- 6.2 Mitosis
- 6.3 Sexual reproduction
- 6.4 Meiosis
- 6.5 Sexual reproduction in plants
- 6.6 Growth and development

Syllabus reference – Section III: 1.1, 1.2, 2, 3.2, 3.3

Unit 7: Human reproduction

- 7.1 Sexual reproduction in humans
- 7.2 Sex hormones
- 7.3 Methods of birth control
- 7.4 Sexually transmissible diseases

Syllabus reference – Section III: 1.2.2, 1.3, 1.4, 1.5

Unit 8: Inheritance and evolution

- 8.1 Inheritance
- 8.2 Chromosomes
- 8.3 Monohybrid inheritance
- 8.4 Variation
- 8.5 Selection
- 8.6 Genetic Engineering

Syllabus reference – Section III: 3.1, 3.4, 3.5, 3.6, 3.7

Unit 9: Organisms and environment

- 9.1 Energy flow
- 9.2 Food chains and food webs
- 9.3 Nutrient cycles

Syllabus reference – Section IV: 1, 2, 3

Unit 10: Human influences on the environment

- 10.1 Population size
- 10.2 Human influences on the ecosystem
- 10.3 Agriculture
- 10.4 Pollution
- 10.5 Conservation

Syllabus reference – Section IV: 4, 5

Teacher support

The up-to-date resource list for this syllabus can be found on the University of Cambridge International Examinations website www.cie.org.uk. In addition, the password-protected Teacher Support website at <http://teachers.cie.org.uk> provides access to specimen and past question papers, mark schemes and other support materials. We offer online and face-to-face training; details of forthcoming training opportunities are posted on the website.

Resources

Cambridge IGCSE Biology webpage

www.cie.org.uk/qualifications/academic/middlesec/igcse/subject?assdef_id=837

Cambridge Students – University of Cambridge International Examinations

www.cambridgestudents.org.uk/subjectpages/biology/

Biology for IGCSE, Williams, G., Fosbery, R. and Adams, J. Nelson Thornes 2009.
ISBN: 9781408500170

An Atlas of Histology, Freeman and Bracegirdle. Heinemann Educational.
ISBN: 9780435603113

Cambridge IGCSE Biology Coursebook with CD-ROM, Jones, M. and Jones, G. Cambridge University Press, 2009.
ISBN: 9780521147798

Cambridge IGCSE Biology Teacher's Resource CD-ROM, Jones, M. and Jones, G. Cambridge University Press, 2010.
CD-ROM ISBN: 9780521176170

Cambridge IGCSE Biology Workbook, Jones, M. and Jones, G. Cambridge University Press, 2010.
ISBN: 9780521124430

Complete Biology for Cambridge IGCSE, Ron Pickering. Oxford University Press, 2011.
ISBN: 9780199138760

Complete Biology for Cambridge IGCSE Teacher's Resource Kit (with CD-ROM), Ron Pickering. Oxford University Press, 2011.
ISBN: 9780199138791

Experiment Simulator CD-ROM: Experiments for IGCSE, GCSE and A Level. Cambridge Assessment. Cambridge Hitachi, 2005.
ISBN: 9781845651404

IGCSE Biology, Mackean, D G. Hodder Education, 2009.
ISBN: 9780340981863

IGCSE Biology, Jones, M. Heinemann, 2009.

ISBN: 9780435966805

IGCSE Biology for CIE, Clegg, J. and Smith, M. Collins Educational, 2006.
ISBN: 9780007755424

IGCSE Biology Revision Guide, Pickering, R. Oxford University Press, 2009.
ISBN: 978019915265-0

IGCSE Biology Study Guide, Hayward, Dave. Hodder Education, 2005.
ISBN: 9780719579042

IGCSE Bitesize Biology – BBC
www.bbc.co.uk/schools/gcsebitesize/biology/

SAPS (Science and Plants for Schools) www.saps.org.uk/

Practical Biology www.practicalbiology.org/

Society of Biology www.societyofbiology.org/home

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