Salters-Nuffield Advanced Biology

2008 fact sheet

What is SNAB?

Salters-Nuffield Advanced Biology (SNAB) is a complete course with its own distinctive philosophy, and is supported by its own high quality teaching materials.

SNAB presents the key concepts in biology today, combined with a structured approach to learning the wider skills needed by the modern biologist.

SNAB is about turning A-level students into mature and effective biologists. A good biologist should not only be armed with a knowledge of biological principles, they should have the skills to use that knowledge in new situations.

A context-led approach

SNAB does not present content in traditional themes such as ‘cell structure’; instead the course adopts a context-led approach. Topics are based on a storyline or contemporary issue, such as risk and cardiovascular disease, with biological principles introduced when required to aid understanding of the context.

We present content and concepts via stimulating contexts where the relevance of learning is immediately obvious. Students find this motivating, and so exhibit greater enthusiasm and confidence. The context-led approach of the course also encourages students to recognise links between different areas of biology.

Building knowledge through the course

In SNAB there is not, for example, a topic labelled ‘biochemistry’ containing everything on carbohydrates, fats, proteins and nucleic acids. In SNAB the study of these large molecules is spread through the course.

In this way information is presented in manageable chunks and grafted onto existing knowledge, leading to better understanding.

Activities as an integral part of the learning process

SNAB students do not simply listen, watch, take notes, memorise and recall information. They are encouraged to engage in activities integrated throughout the course.

Activities incorporate, amongst other things, practical work, debates, discussions, research and role plays. Employing a wide range of teaching and learning styles, activities introduce content, skills, and experimental techniques.

Skills include data analysis, critical evaluation of information, communication and collaborative work. Developing these types of skills is an integral part of the SNAB course. Independent learning is an important ability which students will develop as a result of doing the activities.

This does not mean that students should be left to get on alone; instead they learn to work things out for themselves, make links between ideas, draw on existing knowledge, apply this knowledge to new situations, and take responsibility for their own learning. Collaboration is an important element in independent learning.

SNAB and ethical debate

Professional biologists and individual citizens are faced with increasingly difficult decisions. SNAB helps students to develop their ability to discuss and debate biological issues.

SNAB students learn to justify their decisions using ethical frameworks. There is rarely a right or wrong answer, rather arguments to defend or counter the issue being debated.

Further information

Publisher of 2008 materials: Edexcel
www.edexcel.com/gce2008

Awarding body: Edexcel
www.edexcel.org.uk/quals/gce/biology

SNAB team contacts
www.advancedbiology.org

Find out the latest on all of this via the SNAB public website www.advancedbiology.org. Resources on this site include a leaflet for students, a Powerpoint presentation about the new course, CPD units and sample lesson, and links to different parts of the Edexcel website.

2008 Topic summaries see next page.
SNAB Topic summaries for 2008

AS topics

AS Topic 1 Lifestyle, health and risk
• The concept of risks to health, how these can be assessed, and what affects our perceptions of risk.
• The heart and circulation, and understanding how these are affected by our diet and activity.
• The biochemistry of food and why this matters.

AS Topic 2 Genes and health
• How changes in DNA can cause genetic disease, using cystic fibrosis as an example.
• Cell membrane structure, how substances move across membranes, and how proteins are made.
• Treatments for genetic disease, and the ethical issues raised by today’s genetics.

AS Topic 3 Voice of the genome
• Gene structure and function.
• Stem cells, their potential in medicine, and the arguments for and against their use.
• Regulation of gene expression and the control of development in organisms.

Topic 4 Biodiversity & natural resources
• What is biodiversity? classification, adaptation and natural selection.
• Disappearing biodiversity.
• Plant anatomy and function.
• Human use of plants.

A2 topics

Topic 5 On the wild side
• Photosynthesis as the primary process underpinning the majority of ecosystems.
• How ecosystems work.
• Evidence for climate change, evolution and extinction.
• Scientific understanding and our responsibilities as stewards of the environment.

Topic 6 Infection, immunity and forensics
• Techniques used by forensic pathologists to determine the cause of death, and how long since death occurred.
• Evolutionary battles between invading pathogens and their hosts.
• The hosts’ barriers and internal mechanisms to combat infections.

Topic 7 Run for your life
• Physiological adaptations that enable strenuous exercise in humans and other animals.
• Biochemical requirements for respiration and the links between homeostasis, muscle physiology and performance.
• How medical technology enables more people to participate in sport.
• Can the use of performance-enhancing substances by athletes be justified?

Topic 8 Grey matter
• Sight and the nervous system.
• Brain structure and functioning, the response to stimuli and the development of vision and learning.
• Genetics and the use of animal models in understanding brain structure.
• Comparing nature and nurture in brain development.
• The ethics of using animals for medical research.