

St. Paul's College
Department of Biology

New Senior Secondary Curriculum - Biology

(1) A brief description of the subject offered

The NSS Biology Curriculum consists of three parts, namely, the scientific investigations, the compulsory part and the elective part.

(a) Scientific Investigations.

(b) Compulsory Part:

I. Cells and Molecules of Life

- a. Molecules of life
- b. Cellular organization
- c. Movement of substances across membrane
- d. Cell cycle and division
- e. Cellular energetics

II. Genetics and Evolution

- a. Basic genetics
- b. Molecular genetics
- c. Biodiversity and evolution

III. Organisms and Environment

- a. Essential life processes in plants
- b. Essential life processes in animals
- c. Reproduction, growth and development
- d. Coordination and response
- e. Homeostasis
- f. Ecosystems

IV. Health and Diseases

- a. Personal health
- b. Diseases
- c. Body defence mechanisms

(c) Elective Part (Any 2 out of 4):

V. Human Physiology: Regulation and Control

- a. Regulation of water content (osmoregulation)
- b. Regulation of body temperature
- c. Regulation of gas content in blood
- d. Hormonal control of reproductive cycle

VI. Applied Ecology



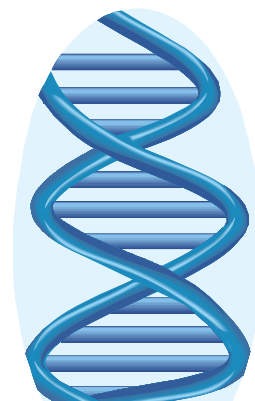
- a. Human impact on the environment
- b. Pollution control
- c. Conservation
- d. Sustainable development

VII. Microorganisms and Humans

- a. Microbiology
- b. Use of microorganisms
- c. Microbial genetics
- d. Harmful effects of microorganisms

VIII. Biotechnology

- a. Introduction to biotechnology
- b. Techniques in modern biotechnology
- c. Biotechnology in medicine
- d. Biotechnology in agriculture
- e. Bioethics



(2) Proposed schedule of topics

- ▶ Form 4: Scientific Investigations and part of the Compulsory Part (Cells and Molecules of Life).
- ▶ Form 5: Genetics and Evolution; Organisms and Environment.
- ▶ Form 6: Health and Diseases and the Elective Part (Human Physiology: Regulation and Control; Biotechnology).

(3) SBA schedule – tasks to be completed and timeline for completion

The SBA of Biology comprises two components: assessment of (1) practical related tasks which refer to students' laboratory work and field work, and (2) non-practical related tasks.

(a) Practical related tasks:

Students are required to perform a stipulated number of pieces of practical work/investigations. The practical work/investigations should be integrated closely with the curriculum content and form a part of the normal learning and teaching process. In investigative work, students are required to: design and perform investigations; present, interpret and discuss their findings; and draw appropriate conclusions. They are expected to make use of their knowledge and understanding of biology in performing these tasks, through which their practical, process and generic skills will be developed and assessed.

(b) Non-practical related tasks:

The tasks adopted should cover one or more of the curriculum emphases and two or more of the generic skills as listed below:

Curriculum emphases	Generic skills
<ul style="list-style-type: none">- Scientific inquiry- Science-Technology-Society-Environment connections- Nature and history of Biology	<ul style="list-style-type: none">- Creativity- Critical thinking skills- Communication skills- Problem-solving skills

Examples of such tasks include: information searching and report writing, survey studies, field-studies or site-visit reports, designing posters/pamphlets/web pages, writing articles, building models or developing multimedia artifacts.

The following implementation strategy of SBA will be adopted:

Year of examination	Implementation of SBA
2012	Schools are required to submit SBA marks for the practical related component only. The mark of this component will contribute to 20% of the final subject mark.
2013	Schools are required to submit SBA marks for the practical related component only. The mark of this component will contribute to 20% of the final subject mark.
2014 and thereafter	Schools have to submit SBA marks for both the practical and non-practical related components. The marks of both components will contribute to 20% of the final subject mark.

