Biology 11

~~Adaptation and~~ Evolution

It is expected that students will:

- ~~describe the basic structure of DNA~~
- ~~identify the roles of DNA in evolution~~
- ~~explain the role of sexual reproduction in variation and evolution~~
  [DNA addressed in grade 12; sexual reproduction addressed in grade 9/10]
- describe the process of natural selection
- suggest conditions under which the allelic frequencies of a population could change, including genetic drift, differential migration, mutation, and natural selection
- differentiate among and give examples of convergence, divergence, and speciation
- compare and contrast the gradual change model with the punctuated equilibrium model of evolution
- ~~identify the role of extinction in evolution~~

Microbiology (Kingdom Protista)

- examine members of the Kingdom Protista and describe the characteristics that unify them
- prepare wet-mount slides
- ~~differentiate between phytoplankton and zooplankton by observing living protists~~
- compare and contrast a prokaryotic cell (moneran) to a eukaryotic cell (protist)
- ~~demonstrate how knowledge of a pathogenic protist's life cycle can be used to control its spread~~
- relate the structural adaptations of protists to their diverse roles in food chains

Mycology

- examine members of the Kingdom Fungi and describe characteristics that unify them
- demonstrate sterile technique while preparing cultures
- devise experiments using the scientific method
- ~~demonstrate and evaluate the suitability of various growth conditions for fungi~~
- ~~relate the adaptations of fungi to their diverse roles in ecosystems~~

Plant Biology (Gymnosperms)

- describe the characteristics that unify gymnosperms
- explain how gymnosperms are adapted for survival in a land environment with respect to the following: alternation of generations, needles, seeds, pollen, vascular tissue
- ~~explain the role of meristems in primary and secondary stem growth~~
- evaluate the ~~economic and~~ ecological importance of gymnosperms

Animal Biology (Arthropoda)

- examine members of the Phylum Arthropoda and describe characteristics that unify them
- contrast members of two or more classes of arthropods
- demonstrate a knowledge of the adaptations of arthropods to a terrestrial environment
- demonstrate an appreciation of the diverse ecological ~~and economic~~ importance of arthropods

Ecology

- ~~describe factors that limit and control population growth~~
- suggest reasons for cyclic population fluctuations
- ~~solve simple population problems based on changes in natality, mortality, immigration, and emigration~~
- collect, display, and interpret data
- define and describe a pyramid of energy in terms of energy flow through an ecosystem
- demonstrate knowledge of the process of succession
- compare photosynthesis and cellular respiration in terms of the reactants, products, chemical equations, ~~and organelles responsible~~
- describe the roles of photosynthesis and cellular respiration

Biology 12

~~Cell Processes and Applications (Cancer)~~
- ~~describe cancer with respect to:~~
  - ~~abnormal nuclei~~
  - ~~disorganized and uncontrolled growth (anaplasia)~~
  - ~~lack of contact inhibition~~
  - ~~vascularization~~
  - ~~metastasis~~
- ~~list the seven danger signals that may indicate the presence of cancer~~
- ~~differentiate between a proto-oncogene and an oncogene~~
- ~~use examples to outline the roles of initiators and promoters in carcinogenesis~~
- ~~demonstrate a knowledge of how a virus can bring about carcinogenesis~~
- ~~collect, display, and interpret data~~

[may be able to work some of this information, particularly re: cell division, into the revised grade 8]

Human Biology (Nervous System--Neuron, Impulse Generation, and Reflex Arc)
- identify and give functions for each of the following: dendrite, cell body, axon
- distinguish among sensory, motor, and interneurons with respect to structure and function
- explain the transmission of a nerve impulse through a neuron, using the following terms:
  - resting and action potential
  - depolarization and repolarization
  - sodium and potassium gates
  - sodium-potassium pump
  - ~~recovery period~~
  - threshold ("all-or-none response")

Source BC Ministry of Education – Dec 2005
Note: Original highlighting removed