

KIST DP Course Descriptions 2011-2012

Group: Group 4

Level: HL/SL

Subject: Biology

Grade: 12

Unit Number: 1

Unit Title: Human Health and Physiology

Approximate Duration: 3 months

Key Concepts:

Organ systems of the body contain specialised structures to perform specific life functions and maintain homeostasis, yet they remain interdependent.

LP Link: Risk Taker

TOK Link(s):

Estimating accurately the size of risks, using good scientific data. The use of double-blind trials for vaccines or for drug treatments could be discussed. The placebo effect can also be considered.

Description of the Unit:

This unit looks at the human body and associated health issues. Systems are studied independently at first and then their interdependence is made clear through the unit on nervous and endocrine regulation and homeostasis. The following systems will be studied at SL: digestive, respiratory, circulatory, immune, nervous, endocrine and reproductive. In addition to more depth in the above, HL students will also study the excretory and musculoskeletal systems.

Students will conduct practical experiments and prepare written lab reports to contribute towards their internal assessment requirements. A unit test will be given and the content will subsequently re-appear in semester and final exams.

Key Knowledge/Skills Addressed:

Organs contain specialised tissues and cells to perform specialised functions. Organ systems cooperate to ensure all life functions are met for the whole multicellular organism (human). Organ systems are interdependent, as cell specialise dictates that not every cell can perform every life function for itself. The following systems will be studied at SL: digestive, respiratory, circulatory, immune, nervous, endocrine and reproductive. In addition to more depth in the above, HL students will also study the excretory and musculoskeletal systems.

Main Summative Assessment of the Unit: DP Past Paper Exam

KIST DP Course Descriptions 2011-2012

Group: Group 4

Level: HL/SL

Subject: Biology

Grade: 12

Unit Number: 2

Unit Title: Ecology and Evolution

Approximate Duration: 1 month

Key Concepts:

No organism exists in isolation . Species are intricately connected by flows of energy in ecosystems and within species, fierce competition for resources and mates exist. Those with selective advantages pass on the genes while those that don't perish.

LP Link: Balanced

TOK Link(s):

What difference might it make to scientific work if nature were to be regarded as a machine, for example, as a clockwork mechanism, or as an organism, that is, the Gaia hypothesis?

Description of the Unit:

This unit is about the diversity of living things, the way they interact with each other and their abiotic environment and human impacts on that environment. We examine the mechanisms and processes which drive diversity and lead to evolution. We also study and practice the systematic approach to identifying, classifying and naming organisms.

Students will conduct practical experiments and prepare written lab reports to contribute towards their internal assessment requirements. A unit test will be given and the content will subsequently re-appear in semester and final exams.

Key Knowledge/Skills Addressed:

Communities and ecosystems. The Greenhouse effect. The precautionary principle. Population growth. Evolution by natural selection. Classification. Linnaean Binomial Nomenclature. Constructing classification keys. Constructing and interpreting food chains and food webs.

Main Summative Assessment of the Unit: DP Past Paper Exam

KIST DP Course Descriptions 2011-2012

Group: Group 4

Level: HL/SL

Subject: Biology

Grade: 12

Unit Number: 3

Unit Title: Evolution

Approximate Duration: 2 months

Key Concepts:

Origin of life on earth. Species and Speciation. Human Evolution. Hardy Weinberg Equilibrium (HL). Phylogeny and Systematics (HL)

LP Link: Open Minded

TOK Link(s):

Thenature/nurture debate. There is clear causation when a genetic factor controls a characteristic. Cultural factors are much more complex and correlation and cause are more easily confused.

Description of the Unit:

This unit starts with an examination of theories for the origin of life on Earth and the experimental evidence in support of the theories. It then moves to past and present species and examines both the evidence and mechanisms for their evolution. Finally, evidence and issues associated with human evolution are presented.

There is limited scope for practical work in this unit, however a lab that simulates the natural selection process is conducted and students write a formal lab report for this lab that is assessed using the internal assessment criteria.

Key Knowledge/Skills Addressed:

Origin of life on earth. Species and Speciation. Human Evolution. Hardy Weinberg Equilibrium (HL). Phylogeny and Systematics (HL)

Main Summative Assessment of the Unit: DP Past Paper Exam