Curriculum Content Science - Biology Year 11

Content - Big ideas

CB6: Plant Structures and their Functions

Big Question: Why are plants so important to ecosystems and how are they structured to function efficiently?

Learning Outcomes:

- Understand the process and importance of photosynthesis and the factors that its rate of reaction
- Describe specialized plant tissues and organs, particularly in relation to the transport of water, minerals, sucrose and other biomolecules; and explain the external factors that affect this transport

CB7: Animal Control, Co-ordination and Homeostasis

Big Question: How does the body regulate key internal processes?

Learning Outcomes:

- Describe and explain the structure and function of the human endocrine system
- Describe and explain the human menstrual cycle; making links to commonly used contraception
- Describe and explain the control of blood glucose levels in humans; making links to diabetes

CB8: Exchange and Transport in Animals

Big Question: How does the body exchange materials with the environment and then transport and use those materials?

Learning Outcomes:

- Describe and explain the structure and function of the human respiratory and circulatory systems to allow efficient transport and exchange of essential materials
- Describe and explain the process of cellular respiration to release energy for life processes

CB4: Natural Selection and Genetic Modification

Big Question: How does the body exchange materials with the environment and then transport and use those materials?

Learning Outcomes:

- Describe the evidence for human evolution
- Describe Darwin's theory of evolution through natural selection and explain the supporting evidence
- Describe the classification system for living organisms and the binomial naming system
- Describe and explain genetic engineering, giving examples in agriculture and medicine, along with a consideration of the ethics

Prior learning

- The processes of photosynthesis, aerobic and anaerobic respiration
- Specialized cells and the organization of cells, tissues, organs and systems; particularly the human digestive, respiratory and circulatory systems; human reproduction and the menstrual cycle
- Adaptations of structure to function
- The storage and inheritance of characteristics
- Mechanism of action of enzymes and digestion; diet, obesity and malnutrition
- Transport of substances in and out of cells

Global/IOM/Subject Links

Global & IOM links:

- Agriculture, Biosphere, Health & Medicine

Subject:

- Rates of reaction – Maths, Chemistry & D/T
- Circulation and breathing – PE
- Ethics - RS

Subject specific skills development

- Calculating rates of reaction

Practical skills

- Qualitative testing to investigate the rate of photosynthesis under different abiotic conditions (required practical)
- Quantitative testing to investigate the rate of respiration under different abiotic conditions (required practical)