**Sample Course Outline**

Human Biology

ATAR Year 11

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Sample course outline

Human Biology – ATAR Year 11

Unit 1 – The functioning human body

| **Week** | **Key teaching points** |
| --- | --- |

|  |  |
| --- | --- |
| 1–2  | **Cells and tissues*** Science inquiry skills: investigation/experimental techniques
* Cells
* Cell membrane
* Factors affecting exchange across cell membranes
* Tissues
 |
| 3–5 | **Metabolism*** Metabolism
* Cellular respiration
* Enzyme function

**Task 1:** Practical– Enzyme function **Task 2:** Test – Metabolism and enzymes**Task 3:** Investigation– Cardiovascular health in teenagers (handed out) |
| 6 | **Respiratory system*** Structure of respiratory system
* Function of components of respiratory system
 |
| 7–8 | **Circulatory system*** Structure and function of the circulatory system
* Science Inquiry skills: heart dissection
* Components of blood
* Functions of the lymphatic system

**Task 3:** Investigation–Cardiovascular health in teenagers (due in)**Task 4:** Test –Respiratory and circulatory systems  |
| 9–10  | **Digestive system*** Structure and function of the digestive system
* Mechanical and chemical digestion
* Absorption of nutrients
* Elimination of wastes

**Task 5:** Extended response – Cardiovascular diseases and treatments **Task 6:** Practical– Effect of digestive enzymes on food |
| 11–12 | **Excretory system*** Structure and function of the excretory system
* Skin, kidneys, liver and lungs
* Deamination of amino acids
* The three basic processes of the nephron
 |
| 13–14  | **Musculoskeletal system*** Structure and function of the musculoskeletal system
* Sliding filament theory
* Action of paired muscles
* Function of skeleton
* Joints

**Task 7:** Test –Digestive and excretory systems **Task 8:** Extended response–Osteoporosis and osteoarthritisresearch assignment |
| 15  | * Revision

**Task 9:** Test – Musculoskeletal system  |
| 16 | **Task 10:** Semester 1 examination |

Unit 2 – Reproduction and inheritance

| **Week** | **Key teaching points** |
| --- | --- |
| 1–4  | **DNA*** DNA – structure, properties and function
* DNA replication, protein synthesis
* Stem cells and epigenetics

**Task 11:** Practical–Extraction of DNA from strawberries **Task 12:** Extended response– Gene expression**Task 13:** Test–DNA and protein synthesis  |
| 5–7 | **Cell reproduction*** Mitosis
* Meiosis
* Crossing over, non-disjunction, random assortment and variation due to these processes
* Difference between mitosis and meiosis
* Tumours/cancer

**Task 14:** Practical – Ugly bugs: Modelling crossing over, non-disjunction, random assortment and gene linkage**Task 15:** Test – Mitosis and meiosis  |
| 8–10 | **Human reproduction*** Structure and function of reproductive system
* Menstrual and ovarian cycles
* Spermatogenesis and oogenesis
* Conception through to development of embryo
* Stages of labour and birth

**Task 16:** Extended response – Reproductive technologiesresearch assignment |
| 11 | * Contraceptive methods
* STI’s
* Assisted reproductive technologies
* Genetic screening
 |
| 12–14  | **Types of inheritance** * Genotypes and phenotypes
* Punnett squares
* Dominance, co-dominance, autosomal and sex linked traits
* Pedigree charts
* DNA profiling

**Task 17:** Test – Reproduction and inheritance  |
| 15 | * Revision
 |
| 16 | **Task 18:** Semester 2 examination |