**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** |
| --- | --- |

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| --- | --- |
| 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 |