**Sample Course Outline**

Integrated Science

ATAR Year 11

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Sample course outline

Integrated Science – ATAR Year 11

Unit 1 and Unit 2

Unit 1 – Driver safety and hearing

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

|  |  |
| --- | --- |
| 1 | * Nervous system – brain, spinal cord, nerves, eyes and ears involved in reactions * Pathway of nerve impulses between neurons * Driver reaction time |
| 2–3 | * Blood alcohol concentration * Factors affecting stopping distance * Factors affecting braking distance * Calculating braking distance   **Task 1:** Test – Nervous system |
| 4–5 | * Newton’s Laws of Motion * Effect of collisions on occupants |
| 6–7 | * Vehicle safety devices * Newton’s Laws of Motion and conservation of momentum concepts applied in safety devices * Analysis of motor vehicle accident statistics * Educational campaigns for inexperienced driver safety   **Task 2:** Test– Newton’s Laws of Motion  **Task 3 :** Investigation –Vehicle safety design |
| 8–10 | * Sound production and transfer * Sound waves * Wave model * Calculations using * Acoustic properties of materials   **Task 4:** Test – Sound  **Task 5:** Investigation– Acoustic properties of materials |
| 11–12 | * Hearing * Detecting frequency (pitch) and amplitude(loudness) and effect of age * Hearing loss – conductive and nerve * Effect of loud noise and long exposure to noise   **Task 6:** Investigation – Effect of age on hearing |
| 13–14 | * Hearing aids and cochlea implants   **Task 7:** Extended response – Hearing aids and cochlea implants research assignment  **Task 8:** Test – Hearing and impairment |
| 15 | Revision |
| 16 | **Task 9:** Semester 1 examination |

Unit 2 – Biodiversity and conservation

| **Week** | **Key teaching points** |
| --- | --- |
| 1–2 | * Ecosystem services * Biodiversity * Human population growth |
| 3–5 | * Key threats to biodiversity * land clearing * fragmentation of native ecosystems * mining |
| 6–7 | * altered fire regimes * introduced species and pathogens * stock animals   **Task 10:** Extended response – Feral animals in Western Australia research assignment |
| 8–9 | * pollution * water   **Task 11:** Test – Key threats to biodiversity |
| 10–13 | * Ecosystem interactions * Ecological monitoring * Monitoring techniques * Soil and water quality monitoring   **Task 12:** Practical – Ecosystem monitoring techniques |
| 13–14 | * Interpreting monitoring data * Environmental impact statements   **Task 13:** Investigation – Monitoring a local ecosystem  **Task 14:** Test – Environmental monitoring |
| 15 | Revision |
| 16 | **Task 15:** Semester 2 examination |