Sample course outline
Earth and Environmental Science – General Year 12
Unit 3 and Unit 4

Semester 1 – Unit 3 – Earth’s resources

<table>
<thead>
<tr>
<th>Week</th>
<th>Key teaching points</th>
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<tbody>
<tr>
<td>1–2</td>
<td>• exploration methods for locating ore deposits and energy resources, such as seismic survey, magnetic survey, gravity survey, soil and stream sampling, geological mapping</td>
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| 3–4  | • the type of mining used is related to the depth, size and grade of the ore body  
**Task 1:** Experiment – Extraction of metal from ore |
| 5–6  | • social and environmental guidelines need to be adhered to in order to responsibly manage a mining operation  
• Barrow Island oil and gas field is managed according to environmental and cultural guidelines  
**Task 2:** Extended task – Case study of a resource site |
| 7–8  | • environmental strategies are employed to rehabilitate an area after extraction operations have ceased  
**Task 3:** Test – Exploration methods, mining operations, rehabilitation  
**Task 4:** Investigation – Rehabilitation techniques: effect of smoke water on germination of native plants |
| 9–11 | • the formation of fossils  
• the study of fossils and their distribution provides information about paleoecology  
**Task 5:** Investigation – Fossil identification |
| 12–13| • the formation of fossil fuels  
• the unsustainable use of Earth’s resources  
**Externally set task** |
| 14–15| • the Western Australian resources industry makes an important contribution to Australia’s economy  
**Task 6:** Test – Fossils, fossil fuels, WA resources industry |
Semester 2 – Unit 4 - Sustainable Earth

<table>
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<tr>
<th>Week</th>
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<tr>
<td>1–3</td>
<td>• natural hazards, including cyclones, floods, drought, earthquakes, tsunamis and volcanic eruptions; planning for natural hazards</td>
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<tr>
<td>4</td>
<td>• climatic events: El Niño and La Niña</td>
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| 5–6  | • the enhanced greenhouse effect; the causes and effects of climate change; strategies to adapt to climate change effects  
  **Task 7**: Investigation – Effects of carbon dioxide on temperature change |
| 7–8  | • the climate change debate – scientific evidence for and against  
  **Task 8**: Test – Natural hazards, La Niña, El Niño, greenhouse effect |
| 9–11 | • the effects of climate change on biodiversity and industries, such as fisheries, viticulture, agriculture  
  • a Western Australian example of a biotic resources development, including possible future impacts due to climate change  
  **Task 9**: Extended task – The impact of climate change on a WA biotic resource |
| 12–15| • renewable energy resources, including geothermal, wave, tidal, biofuels, solar or wind. Sites for alternative energy sources in Western Australia can be identified  
  • renewable energy research and development in Western Australia, such as solar farms, geothermal cooling  
  **Task 10**: Investigation – Design, construct and test a solar oven  
  **Task 11**: Test – Climate change, renewable energy |