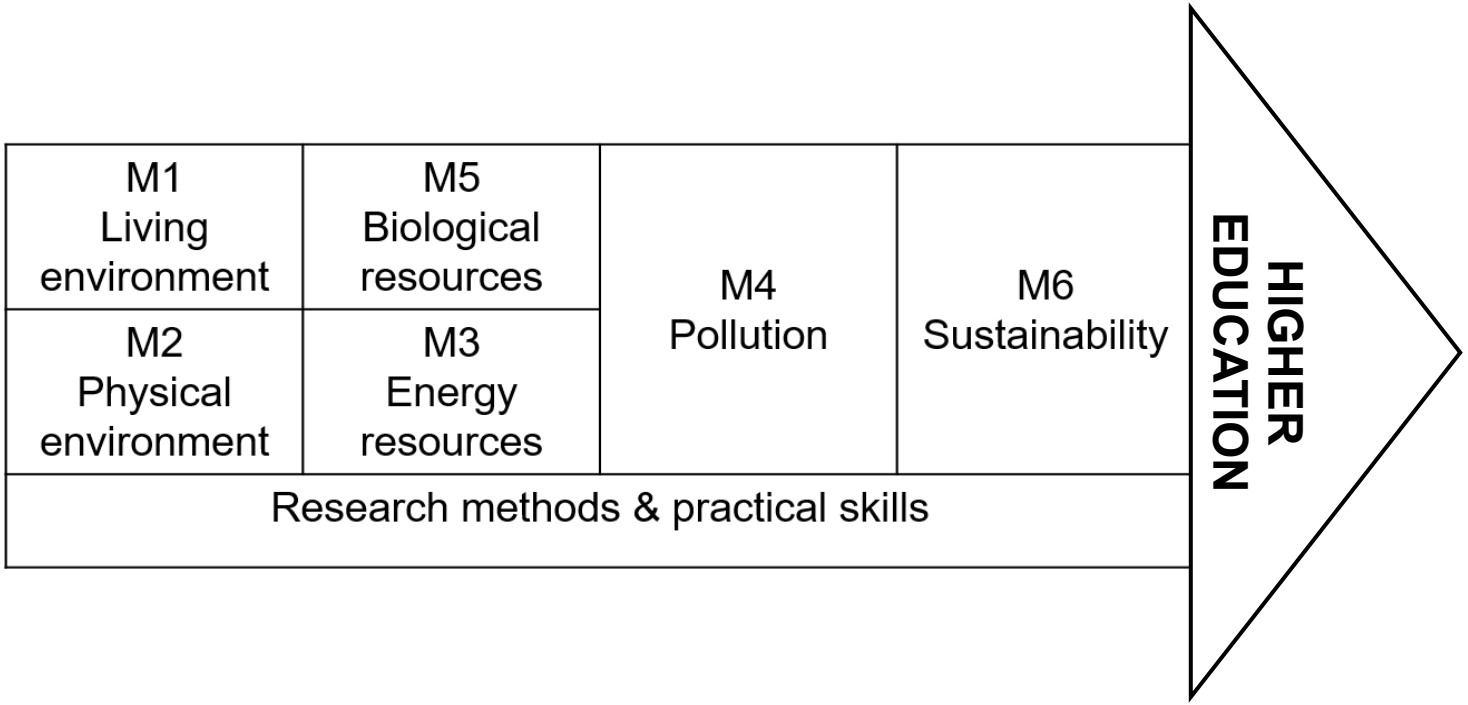
KS5 Environmental Science – Curriculum overview



The above arrow shows the progression of Environmental Science topics across Key Stage 5. It shows how substantive knowledge is built upon in a sequential nature to prepare learners for Higher Education. Running alongside and integrated throughout is the thread of working scientifically whereby students develop their knowledge of scientific methods, apparatus and data analysis.

KS5 Environmental Science – Curriculum intent

<table>
<tr><th>Intent</th><th></th><th colspan="4">What new knowledge/content do we introduce?</th><th></th></tr>
<tr><th>By the end of KS5 students are able to…</th><th></th><th colspan="2">Year 12</th><th colspan="2">Year 13</th><th>Choices</th><th>How does this curriculum incorporate the National Curriculum and go beyond? How does going beyond the NC ensure challenge?</th></tr>
<tr><td rowspan="3">Have a holistic understand of the Earth as a functioning system.

Explain the major threats to the environment in different spheres, and use scientific knowledge to explain how these can be addressed.

Conduct and perform a variety of fieldwork tasks, including utilising statistics to analyse data.</td><td>Autumn</td><td rowspan="3">Living environment
Conditions for life

Conservation of biology

Life processes in the biosphere</td><td rowspan="3">Physical environment
The atmosphere

The hydrosphere

Mineral resources

Biogeochemical cycles</td><td>Biological resources

Agriculture

Aquatic food production systems

Forest resources</td><td>Energy resources

Energy supplies in developing world

Strategies to secure future energy supplies</td><td rowspan="3">The living environment and physical environment are taught concurrently in Year 12. This is necessary not only to provide the requisite knowledge to provide a deeper understanding of subsequent topics, but to allow linkage and comparisons to be made between them.</td><td rowspan="3">Environmental science goes beyond the national curriculum by providing opportunity for additional challenge and extension within each scheme of work. This often bridges the content between A-level and Higher Education and permits students the opportunity to uncover potential career pathways within the scientific fields.

Further, there are also opportunities to</td></tr>
<tr><td>Spring</td><td>Pollution
Properties of pollutants

Environmental features affecting pollution

Strategies to control pollutants</td><td>Sustainability
Dynamic equilibria

Energy sources and renewables

Material cycles

Circular economy</td></tr>
<tr><td>Summer</td><td colspan="2">Revision and examinations</td></tr>
</table>

	Rationale for this sequence	Year 12 establishes the two main threads for the course: the living environment and the physical environment. The living environment establishes the conditions that were required for life to emerge, those that continue to sustain it and the approaches to conserving species. This will underpin much of Year 13 – including biological resources. The physical environment establishes a foundational knowledge of many areas that are key to energy resources.	Year 13 is able to build on the prior learning and make connections on Year 12 with it by considering the biological and energy resources of Earth. For example biological resources allows students to look at the resources within various environments, such as forests. Understanding the way species interact and the processes that maintain a health ecosystem is key requisite knowledge to understand the management of such resources. Similarly, energy resources explores how the physical environment can meet the demands of a growing society. Both topics then lead into pollution; whereby students learn about the properties of pollutants and the environmental features affecting them – both living and physical. It finishes with looking at strategies to control pollutants, which is supplemented by the following topic of sustainability which focuses in all topics to develop a holistic understanding of sustainability and the circular economy.		enrich learning beyond the curriculum through the use of trips in the local area (e.g. treasure trails around Cambridge) or visiting guest speakers.
	How does the KS5 Curriculum build on previous learning at KS4?	Environmental science is not taught at KS4 however this course extends many aspects that are. In each case, it develops substantive knowledge in that domain and invites students to make connections and links with existing knowledge.			