AQA A-level Environmental Science – Course Overview

A-level AQA Environmental Science provides students with a comprehensive and contemporary understanding of the natural world and the human impact upon it. The course explores the interactions between physical environments, living organisms, and human activity, focusing on key environmental issues such as climate change, resource management, biodiversity loss, and sustainability.

Students develop knowledge across biological, chemical, and geographical principles, applying scientific methods to investigate environmental systems. They also gain practical and analytical skills through fieldwork and data handling, learning how to evaluate environmental evidence and propose solutions to real-world challenges.

The course encourages critical thinking, decision-making, and the application of science to global issues, preparing students for further study and careers in environmental science, conservation, sustainability, and related fields.

Year 12 Environmental Science Content

Advent 1

Students learn about the conditions that make life possible on Earth, including the atmosphere, water and energy from the Sun. They study energy flows and life-support systems in ecosystems, as well as the cycling of essential materials. The course examines global climate change, its causes and impacts, and explores the importance of biodiversity for healthy ecosystems and human well-being. Students also investigate how human activities affect biodiversity, including habitat loss, pollution and resource use, and consider ways to conserve and manage the natural environment sustainably.

Key areas of study:

- Conditions for life on Earth
- Energy processes and life support systems
- Global climate change
- The importance of the conservation of biodiversity
- How humans influence biodiversity

Advent 2

Students study global climate change, including its causes, evidence and environmental impacts. They learn about ozone depletion, focusing on the role of ozone in protecting life on Earth, the causes of ozone loss and its effects on ecosystems and human health. The course also explores methods of conserving

biodiversity, including the use of protected areas, species recovery programmes, legislation and sustainable management strategies to protect habitats and species.

Key areas of study:

- Global climate change
- Ozone depletion
- Methods of conserving biodiversity

Lent 1

Students study the hydrosphere, including the distribution and movement of water on Earth, the water cycle, and the importance of freshwater resources for ecosystems and human societies. They also learn about life processes and conservation planning, examining how species interact with their environments, the factors that affect population survival, and the approaches used to develop effective conservation strategies for protecting biodiversity.

Key areas of study:

- The hydrosphere
- Life processes and conservation planning

Lent 2

Students learn about mineral resources, including how they are formed, extracted and used, and the environmental impacts associated with their exploitation. They also study the biogeochemical cycles of carbon, nitrogen and phosphorus, exploring how these essential elements move through the atmosphere, hydrosphere, lithosphere and biosphere, and their importance in supporting life and ecosystem functioning.

Key areas of study:

- Mineral resources
- Biogeochemical cycles, carbon, nitrogen and phosphorous

Trinty 1

Students study soils, including their formation, composition, properties and importance for ecosystems and food production. They also develop skills in essay planning and soil research methods, learning how to investigate soil characteristics, collect and analyse data, and communicate scientific findings effectively. In addition, students learn a range of environmental research methods, including fieldwork

techniques, data collection, analysis and evaluation, to support scientific investigations and environmental decision-making.

Key areas of study:

- Soils, essay planning and soil research methods
- Research methods

Trinity 2

Students study dynamic equilibria, exploring how natural systems maintain balance and how changes can disrupt environmental stability. They learn about energy, including the sources, transfers and transformations of energy within ecosystems and the wider environment. The course also develops practical skills through research methods and fieldwork, enabling students to collect, analyse and evaluate environmental data and investigate real-world environmental issues.

Key areas of study:

- Dynamic equilibra
- Energy
- Research methods and fieldwork

Year 13 Environmental Science Content

Advent 1

Students learn about energy resources and their importance to society, including the role of renewable and non-renewable energy sources in meeting human needs, the environmental impacts of energy production, and the challenges of achieving sustainable energy use. They also study agriculture, examining how food is produced, the environmental effects of farming practices, and approaches to managing agricultural systems sustainably while meeting growing demand for food.

Key areas of study:

- Energy resources - Importance to society
- Agriculture

Advent 2

Students study non-renewable energy resources, including fossil fuels and nuclear energy, examining how they are used, their environmental impacts, and the challenges associated with future energy supply. They also learn about pollution from pesticides and nutrient enrichment, exploring how these contaminants affect ecosystems, biodiversity and water quality. In addition, students investigate aquatic food resources, including fisheries and aquaculture, and consider the environmental and sustainability issues involved in meeting global demand for seafood.

Key areas of study:

- Energy resources- non-renewable and energy
- Pollution pesticides and nutrients
- Aquatic food resources

Lent 1

Students study air pollution, including smoke, acid rain, oxides of nitrogen, hydrocarbons and carbon monoxide, examining their sources, environmental impacts and effects on human health. They also learn about forest resources, exploring the ecological and economic importance of forests, the pressures they face from human activities, and strategies for their sustainable management and conservation.

Key areas of study:

- Pollution - smoke, acid rain, oxides of nitrogen, hydrocarbons, carbon monoxide
- Forest resources

Lent 2

Students study different types of pollution, including thermal, oil, noise, mining-related, metal, solid waste and radioactive pollution, focusing on their sources, environmental impacts and methods of control and mitigation. They also develop maths skills, particularly statistics, to analyse and interpret environmental data, identify trends and patterns, and support scientific conclusions in environmental investigations.

Key areas of study:

- Pollution - thermal, oil, noise, mines, metals, solid waste and radiation
- Maths skills – statistics

Trinity

Students study material cycles, including how key elements and compounds move through the environment and are recycled within ecosystems. They also learn about the circular economy, exploring how resources can be reused, repaired and recycled to reduce waste and environmental impact. In addition, students develop an understanding of research methods, including how to design investigations, collect and analyse environmental data, and evaluate the reliability of scientific evidence.

Key areas of study:

- Material cycles
- The circular economy
- Research methods