Stage 2 Earth and Environmental Science

Program 1: Assessment Type 1: Investigations Folio

Science as a Human Endeavour Investigation – Earth Systems

This task has a focus on science as a human endeavour; how science interacts with society.

Select and explore a recent discovery, innovation, issue, or advancement linked to our understanding and management of Earth Systems. This may draw on a context suggested in one of the topics or relate to a new context connecting topics. Examples include improving efficiencies of existing energy production and managing urban and industrial waste.

Use one or more of the key concepts of science as a human endeavour to develop a focus for your investigation. Make your topic quite specific to enable you to analyse information in depth.

For example:

Expansion of the Snowy Mountains Hydroelectricity Scheme

Geosequestration to provide sustainable solutions for reducing atmospheric levels of carbon dioxide

Pumped Hydro Energy Storage (PHES) facility at Port Augusta to help stabilise South Australia’s energy supply

Development of a renewable energy resource to reduce levels of greenhouse gases

The debate about a high level nuclear waste facility to be built in South Australia

Models that predict the effects of combustion of fossil fuels on global warming

Select, analyse and synthesise information from different sources to:

* explain the science relevant to the focus of your investigation
* show its connections to science as a human endeavor

Prepare a scientific report, which must include the use of scientific terminology and:

* an introduction to identify the focus of the investigation and the key concept(s) of science as a human endeavour that it links to (KA 3)
* relevant earth and environmental science concepts or background (KA 2)
* an explanation of how the focus of the investigation illustrates the interaction between science and society (KA 3)
* a discussion of the potential impact or application of the focus of the investigation, e.g. further development, effect on quality of life, environmental implications, economic impact, intrinsic interest (KA 3, IAE 3)
* a conclusion that summarises how your topic connects to the selected key concept(s) of science as a human endeavour (IAE 3)
* citations and referencing (KA 4)

KA 4 will be assessed throughout the report.

The report, which can be in a format of your choice, should be a maximum of 1500 words if written, or a maximum of 9 minutes for an oral presentation, or the equivalent in multimodal form.

Performance Standards for Stage 2 Earth and Environmental Science

| - | Investigation, Analysis, and Evaluation | Knowledge and Application |
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| A | Critically deconstructs a problem and designs a logical and coherent earth and environmental science investigation with detailed justification.  Obtains, records, and represents data, using appropriate conventions and formats accurately and highly effectively.  Systematically analyses and interprets data and evidence to formulate logical conclusions with detailed justification.  Critically and logically evaluates procedures and their effect on data. | Demonstrates deep and broad knowledge and understanding of a range of earth and environmental science concepts.  Applies earth and environmental science concepts highly effectively in new and familiar contexts.  Critically explores and understands in depth the interaction between science and society.  Communicates knowledge and understanding of earth and environmental science coherently, with highly effective use of appropriate terms, conventions, and representations. |
| B | Logically deconstructs a problem and designs a well-considered and clear earth and environmental science investigation with reasonable justification.  Obtains, records, and represents data, using appropriate conventions and formats mostly accurately and effectively.  Logically analyses and interprets data and evidence to formulate suitable conclusions with reasonable justification.  Logically evaluates procedures and their effect on data. | Demonstrates some depth and breadth of knowledge and understanding of a range of earth and environmental science concepts.  Applies earth and environmental science concepts mostly effectively in new and familiar contexts.  Logically explores and understands in some depth the interaction between science and society.  Communicates knowledge and understanding of earth and environmental science mostly coherently, with effective use of appropriate terms, conventions, and representations. |
| C | Deconstructs a problem and designs a considered and generally clear earth and environmental science investigation with some justification.  Obtains, records, and represents data, using generally appropriate conventions and formats, with some errors but generally accurately and effectively.  Undertakes some analysis and interpretation of data and evidence to formulate generally appropriate conclusions with some justification.  Evaluates procedures and some of their effect on data. | Demonstrates knowledge and understanding of a general range of earth and environmental science concepts.  Applies earth and environmental science concepts generally effectively in new or familiar contexts.  Explores and understands aspects of the interaction between science and society.  Communicates knowledge and understanding of earth and environmental science generally effectively, using some appropriate terms, conventions, and representations. |
| D | Prepares a basic deconstruction of a problem and an outline of an earth and environmental science investigation.  Obtains, records, and represents data, using conventions and formats inconsistently, with occasional accuracy and effectiveness.  Describes data and undertakes some basic interpretation to formulate a basic conclusion.  Attempts to evaluate procedures or suggest an effect on data. | Demonstrates some basic knowledge and partial understanding of earth and environmental science concepts.  Applies some earth and environmental science concepts in familiar contexts.  Partially explores and recognises aspects of the interaction between science and society.  Communicates basic earth and environmental science information, using some appropriate terms, conventions, and/or representations. |
| E | Attempts a simple deconstruction of a problem and a procedure for an earth and environmental science investigation.  Attempts to record and represent some data, with limited accuracy or effectiveness.  Attempts to describe results and/or interpret data to formulate a basic conclusion.  Acknowledges that procedures affect data. | Demonstrates limited recognition and awareness of earth and environmental science concepts.  Attempts to apply earth and environmental science concepts in familiar contexts.  Attempts to explore and identify an aspect of the interaction between science and society.  Attempts to communicate information about earth and environmental science. |