Science as a Human Endeavour Investigation: Earth’s Resources

*In this task you have the opportunity to investigate a contemporary example of how science interacts with society. You will select and explore a recent discovery, innovation, issue, or advancement linked to the topic Earth’s Resources.*

For example:

(from Stage 2 Earth and Environmental Science — Implementation Workshop Booklet Ref: A604944)

- Use the article by Stephen Long, (28 Feb 2017) entitled **‘Methane emissions** from coal seam gas development raise climate change concerns’, at

<http://www.abc.net.au/news/2017-02-28/methane-emissions-from-coal-seam-gas-climate-change/8310932> as the basis for your discussion of the key concept:

*New technologies improve the efficiency of scientific procedures and data collection and analysis. This can reveal new evidence that may modify or replace models, theories, and processes.*

- Use the development of **hydroelectricity in Brazil** as a basis for discussion of the

key concept:

*The use of scientific knowledge may have beneficial or unexpected consequences; this requires monitoring, assessment, and evaluation of risk, and provides opportunities for innovation.*

Use a variety of sources that enable an in depth discussion of your chosen topic.

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 of science as a human endeavour that links to the investigation.

• an explanation of how the focus of the investigation illustrates the interaction between science and society

• relevant earth and environmental science concepts or background

• a discussion of the potential impact or significance of the focus of the investigation, e.g. potential of new development, effect on quality of life, environmental implications, economic impact, intrinsic interest

• a conclusion with justification

• citations and referencing.

You can choose the format of your report, for example: an article for a scientific publication, a letter to the editor, a multimedia presentation to an energy company. The report should have a maximum of 1500 words if written or a maximum of 10 minutes for an oral presentation, or the equivalent in multimodal form.

**ASSESSMENT**

This is one of eight required assessments, including the externally assessed Earth Systems Study (30%). It will provide *10% of your final school assessment mark.*

Your work will be assessed using the performance standards for Stage 2 Earth and Environmental Science that are highlighted on the next page:

|  | Investigation, Analysis, and Evaluation | Knowledge and Application |
| --- | --- | --- |
| **A** | Designs a logical, coherent, and detailed earth and environmental science investigation.  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.  Develops and 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** | Designs a well-considered and clear earth and environmental science investigation.  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.  Develops and 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** | Designs a considered and generally clear earth and environmental science investigation.  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.  Develops and 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 the 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.  Develops and 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** | Identifies a simple 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 develop and 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. |