Stage 2 Chemistry – Assessment Type 1: Investigations Folio

Science as a Human Endeavour Investigation – Global Warming

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 the effects of or the reduction of CO2 emissions to the atmosphere. Examples include clean coal technology, carbon capture and storage, photovoltaic cell research, changes in marine mollusc shell properties, and the destruction of the Great Barrier Reef.

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:

How new carbon capture and storage technologies provide sustainable solutions for reducing global warming

The impact of increasing the proportion of wind energy sources for South Australia’s electricity supply

The role of sceptics in hindering the reduction of CO2 emissions to the atmosphere

Select, analyse and synthesise information from different sources to:

* explain the science relevant to the focus of your investigation
* show its connections to one or more key science as a human endeavour concepts

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
* relevant chemistry concepts or background
* an explanation of how the focus of the investigation illustrates the interaction between science and society, including a discussion of the potential impact of the focus of the investigation, e.g. further development, effect on quality of life, environmental implications, economic impact, intrinsic interest
* a conclusion that summarises the connection between your topic and the key concept(s) of science as a human endeavour
* citations and referencing.

The report, which can be in a format of your choice, should be a maximum of 1500 words if written, or a maximum of 10 minutes for an oral presentation, or the equivalent in multimodal form.

**The key concepts of Science as a Human Endeavour in the study of Chemistry are:**

Communication and Collaboration

* Science is a global enterprise that relies on clear communication, international conventions, and review and verification of results.
* Collaboration between scientists, governments, and other agencies is often required in scientific research and enterprise.

Development

* Development of complex scientific models and/or theories often requires a wide range of evidence from many sources and across disciplines.
* 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.

Influence

* Advances in scientific understanding in one field can influence and be influenced by other areas of science, technology, engineering, and mathematics.
* The acceptance and use of scientific knowledge can be influenced by social, economic, cultural, and ethical considerations.

Application and Limitation

* Scientific knowledge, understanding, and inquiry can enable scientists to develop solutions, make discoveries, design action for sustainability, evaluate economic, social, cultural, and environmental impacts, offer valid explanations, and make reliable predictions.
* The use of scientific knowledge may have beneficial or unexpected consequences; this requires monitoring, assessment, and evaluation of risk and provides opportunities for innovation.
* Science informs public debate and is in turn influenced by public debate; at times, there may be complex, unanticipated variables or insufficient data that may limit possible conclusions.