# Sample Assessment Task Year 12

# Investigating Science

## Sample for implementation for Year 12 from Term 4, 2018

### Context:

The products of science are models theories and laws that can be used to inform the way we live our life and construct the infrastructure and tools used in our societies. However, as a human endeavour, Science comes under the competing influences and perspectives of various groups within society.

|  |  |  |
| --- | --- | --- |
| Task number: 3 | Weighting: 25% | Timing: due week 8 of depth study |
| Outcomes assessed:* develops and evaluates questions and hypotheses for scientific investigation **INS11/12-1**
* conducts investigations to collect valid and reliable primary and secondary data and information **INS11/12-3**
* analyses and evaluates primary and secondary data and information **INS11/12-5**
* communicates scientific understanding using suitable language and terminology for a specific audience or purpose **INS11/12-7**
* evaluates the implications of ethical, social, economic and political influences on science **INS12-15**
 |
| Nature of the task:Students critically evaluate a scientific event, issue or tool by describing and evaluating the differing perspectives and influences of various groups within society, and establishing criteria to justify the best possible outcomes for society.This task is to be completed as a component of the **Year 12 Depth Study requirements** and approximately **1 hour of class time each week** will be used to complete the task. Students may access teacher formative feedback throughout the assessment.Students submit a report of their evaluation at the end of the depth study period. |
| Feedback provided:To inform future learning your feedback will consist of:Teacher recommendations that will be provided throughout the depth study periodAnnotations on the submitted task and comments on the marking guidelinesWhole class discussion - on general strengths and weaknesses of the analysis. |

### Marking criteria:

|  |
| --- |
| Knowledge and understanding**INS12-15** **evaluates the implications of ethical, social, economic and political influences on science**Students:* identify stakeholder groups and describe their perspectives
* evaluate the nature and impact of stakeholder influence on the science and its perception in society

Questioning and predicting**INS11/12-1 develops and evaluates questions and hypotheses for scientific investigation**Students:* develop and evaluate inquiry questions and hypotheses to identify a concept that can be investigated scientifically, involving primary and secondary data
* modify questions and hypotheses to reflect new evidence

Conducting investigations**INS11/12-3 conducts investigations to collect valid and reliable primary and secondary data and information**Students:* select and extract information from a wide range of reliable secondary sources and acknowledge them using an accepted referencing style
* identify and evaluate sources of information on area of scientific interest that is subject to debate within society

Analysing data and information**INS11/12-5 analyses and evaluates primary and secondary data and information**Students:* derive trends, patterns and relationships in data and information
* assess error, uncertainty and limitations in data
* assess the relevance, accuracy, validity and reliability of primary and secondary data and suggest improvements to investigations

Communicating**INS11/12-7 communicates scientific understanding using suitable language and terminology for a specific audience or purpose**Students:* select and use suitable forms of digital, visual, written and/or oral forms of communication
* select and apply appropriate scientific notations, nomenclature and scientific language to communicate in a variety of contexts
* construct evidence-based arguments and engage in peer feedback to evaluate an argument or conclusion
 |

### Marking guidelines

##### Students:

|  |  |  |  |
| --- | --- | --- | --- |
| Outcomes | Developing | Satisfactory | Accomplished |
| **INS12-15** **evaluate the implications of ethical, social, economic and political influences on science** | * identify some stakeholder groups and outline their perspectives
* describe some stakeholder influences on the science and its perception in society
 | * identify stakeholder groups and describe their perspectives
* discuss some stakeholder influences on the science and its perception in society
 | * identify stakeholder groups and describe their perspectives in detail
* evaluate the nature and impact of stakeholder influence on the science and its perception in society
 |
| **INS11/12-1 develop and evaluate questions and hypotheses for scientific investigation** | * develop an aim OR hypothesis that addresses the topic of research with teacher assistance
 | * state an aim and hypothesis that clearly address the topic of research
* discuss the ways in which the research will address the aim and hypothesis
 | * state an aim and hypothesis that effectively address the topic of research
* evaluate the effectiveness of the aim and hypothesis
 |
| **INS11/12-3 conduct investigations to collect valid and reliable primary and secondary data and information** | * provide limited evidence that a range of sources are used by acknowledgement in text or within a reference list
* identify sources as valid or reliable
 | * provide some evidence that a range of sources are used by acknowledgement in text or within a reference list
* discuss the validity and reliability of sources
 | * use a varied range of sources that are appropriately acknowledged in text and within a reference list
* evaluate the validity and reliability of sources
 |
| **INS11/12-5 analyse and evaluate primary and secondary data and information** | * state, in general terms, the type of data that has been collected

OR* use graphics, tables or representations to present gathered data
 | * apply a criterion to the quality of the data collected and/or appropriate calculations are attempted

AND* use graphics and tables and/or other representations to present gathered data
 | * analyse the general patterns and trends in the collected data and calculations are used effectively
* anomalies in the data are identified

AND* use tables or graphics or other representations to identify trends, patterns and/or relationships
 |
| **INS11/12-7 communicate scientific understanding using suitable language and terminology for a specific audience or purpose** | * do not clearly define the subject and purpose of research
* demonstrate limited understanding of information by providing insufficient support for ideas or conclusions
 | * provide purpose and subject of research
* demonstrate sound knowledge by explaining scientific concepts
* select and apply appropriate scientific language
 | * provide clear purpose and subject of research
* demonstrate extensive knowledge by clearly explaining scientific concepts using scientific terminology
* construct evidence-based arguments and support conclusions/ideas with evidence
 |