# Sample Assessment Task Year 11

# Earth and Environmental Science

## Sample for implementation for Year 11 from 2018

### Context

A fieldwork exercise investigating soil profiles from different sites, forming the basis of a depth study, has been conducted where data concerning soil samples have been collected. The areas for collection of soil samples were determined by the class with respect to location and depth of samples. Students carried out tests on the soil samples to determine the physical and chemical nature and composition of the soils.

| Task number: 1 | Weighting: 30% | Timing: Term 1, Week 8 |
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| Outcomes assessed A student:   * develops and evaluates questions and hypotheses for scientific investigation EES11/12-1 * designs and evaluates investigations in order to obtain primary and secondary data and information EES11/12-2 * analyses and evaluates primary and secondary data and information EES11/12-5 * communicates scientific understanding using suitable language and terminology for a specific audience or purpose EES11/12-7 * describes the key features of the Earth’s systems, including the geosphere, atmosphere, hydrosphere and biosphere and how they are interrelated EES11-8 | | |
| Nature of the task The assessment of the depth study will be an oral presentation of no longer than five minutes where students present their research and findings. Students must also include some visual content to support their presentation.  Students:   * develop an inquiry question stimulated by the data collected in the fieldwork * design a practical investigation that will answer their inquiry question * engage in peer feedback to review the design of their investigation * carry out the investigation * locate suitable secondary sources that can be used to assist in the investigation and the analysis of the results from the investigation * communicate their findings in a five minute presentation to the class | | |

### Marking criteria

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| Knowledge and Understanding – 10 marks Students:   * **EES11-8** **describe the key features of the Earth’s systems, including the geosphere, atmosphere, hydrosphere and biosphere and how they are interrelated** * describe the physical and chemical nature of soils * relate the physical and chemical nature of soils to their relative position in a soil profile * explain the significance of this data  Questioning and Planning Investigations – 15 marks Students:   * **EES11/12-1** **develop and evaluates questions and hypotheses for scientific investigation** * 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 * **EES11/12-2** **design and evaluate investigations in order to obtain primary and secondary data and information** * assess risks, consider ethical issues and select appropriate materials and technologies when designing and planning an investigation * justify and evaluate the use of variables and experimental controls to ensure that a valid procedure is developed that allows for the reliable collection of data * evaluate and modify an investigation in response to new evidence  Analysis and Communicating – 15 marks Students:   * **EES11/12-5** **analyses and evaluates primary and secondary data and information** * 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 * **EES11/12-7** **communicates scientific understanding using suitable language and terminology for a specific audience or purpose** * 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 |
| Feedback provided To inform future learning your feedback will consist of:   * an annotated marking guidelines sheet * annotations on your submitted work |

### Marking Guidelines

| Outcome | Developing | Elementary | Substantial | High |
| --- | --- | --- | --- | --- |
| **EES11-8** **describes the key features of the Earth’s systems, including the geosphere, atmosphere, hydrosphere and biosphere and how they are interrelated**  **Maximum marks 10** | * demonstrates limited knowledge of the physical and chemical nature of soils   or   * relates the physical and chemical nature of soils to their relative position in a soil profile   **Marks 1–3** | * describes the chemical and physical nature of soils   and   * relates the physical and chemical nature of soils to their relative position in a soil profile   or   * explains the significance of some of the data   **Marks 4–5** | * describes the chemical and physical nature of soils   and   * relates the physical and chemical nature of soils to their relative position in a soil profile   and   * explains the significance of some of the data   **Marks 6–8** | * describes the chemical and physical nature of soils in detail   and   * explains how the physical and chemical nature of soils relate to their relative position in a soil profile   and   * explains the significance of the data and how it can be used   **Marks 9–10** |
| **EES11/12-1** **develops and evaluates questions and hypotheses for scientific investigation**  **Maximum marks 5** | * requires teacher assistance to develop a question for investigation   **Marks 1** | * develops a simple question for investigation * plans secondary research * can alter investigation question in response to evidence   **Marks 2** | * develops a clear question for investigation * plans and carries out secondary research * modifies questions in response to evidence   **Marks 3–4** | * develops a clear and substantial question for investigation * plans and carries out significant secondary research * refines investigation question in response to primary and secondary evidence, where applicable   **Marks 5** |
| **EES11/12-2** **designs and evaluates investigations in order to obtain primary and secondary data and information**  **Maximum marks 10** | * identifies variables correctly * chooses appropriate equipment   **Marks 1–3** | * identifies variables correctly, including a number of controlled variables * chooses appropriate equipment to complete the practical investigation * modifies the method as a result of testing   **Marks 4–5** | * justifies the selection of variables * chooses appropriate equipment to complete the practical investigation effectively * assesses risks * modifies the investigation in response to new evidence   **Marks 6–8** | * justifies and evaluates the selection of variables * chooses appropriate equipment to complete the practical investigation efficiently * assesses risks and considers a range of issues * evaluates and modifies the investigation in response to new evidence   **Marks 9–10** |
| **EES11/12-5 Analyses and evaluates primary and secondary data and information**  **Maximum marks 5** | * presents data with limited   **Marks 1** | * states trends, patterns and relationships in data and information with limited analysis * states errors, uncertainty and analysis limitations in data   **Marks 2** | * derives trends, patterns and relationships in data and information * assesses error, uncertainty and limitations in data * assesses validity and reliability of the investigation   **Marks 3–4** | * evaluates trends, patterns and relationships in data and information * assesses error, uncertainty and limitations in data * assesses the relevance, accuracy, validity and reliability of primary and secondary data and suggests improvements to investigations   **Marks 5** |
| **EES11/12-7 Communicates scientific understanding using suitable language and terminology for a specific audience or purpose**  **Maximum marks 15** | * presents limited information   **Marks 1–4** | * communicates basic information through descriptive texts   **Marks 5–8** | * presents a well-organised response * selects and applies some scientific notations, nomenclature and scientific language to communicate   **Marks 9–12** | * presents a sustained, logical, evidence-based and cohesive response * selects and applies appropriate scientific notations, nomenclature and scientific language to communicate complex information   **Marks 13–15** |

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| Comments | Total mark /40 |
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