Year 11 Earth and Environmental Science

 Assessment Task 2

 Depth Study

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| **TOPIC**: **Human Impacts** | **MARKS:** 60  |
| **SUBMISSION REQUIREMENTS:** Task is to be uploaded to CANVAS in appropriate file format by **11.59 pm Friday June 16 th 2023** | **WEIGHT:** 35%  |
| **OUTCOMES TO BE ASSESSED:**EES 11-1 Develops and **evaluates** questions and hypotheses for scientific investigationEES 11-4 **Selects** and **processes** appropriate qualitative and quantitative data and information using a  range of appropriate media.EES 11-5 **Analyses** and **evaluates** primary and secondary data and informationEES 11-6 **Solves** scientific problems using primary and secondary data, critical thinking skills and scientific processesEES 12-7 **Communicates** scientific understanding using suitable language and terminology for a specific audience or purpose EES11-11 **Describes** human impacts on the Earth in relation to hydrological processes, geological processes and biological changes. |
| **DIRECTIONAL VERBS:****Analyse -** Identify components and the relationship between them; draw out and relate implications**Describe -** Provide characteristics and features**Evaluate -** Make a judgement based on criteria; determine the value of.**Processes** - A series of actions or steps taken in order to achieve a particular end.**Select -** To make a choice**Solves** - To find the answer or explanation for |
| **TASK DESCRIPTION:**This Depth Study will provide opportunities to meet the assessable outcomes for Earth and Environmental Science. The task will assess content from **Module 4 – Human Impacts**Students will **gather** and **process** secondary sources of data and information to **develop** a question and hypothesis that investigates the complex relationship between the actions of humans and the subsequent impacts on the interrelated spheres of the Earth. Students are required to **gather** and **process** data and information that **analyses** the way in which humans interact with Earth’s resources to maintain life or provide infrastructure and provide solutions to reduce or manage the impacts on Earth caused by humans. |
| **ASSESSMENT CRITERIA:**Students are to complete a 15-hour\* depth study and produce the following:**A secondary-sourced investigative information piece,** that draws on any part(s) of the following inquiry questions from Module 4 Human Impacts:* How can water be managed for use by humans and ecosystems?

And/or* How does human use of land affect soil?

And/or* How do introduced species affect the Australian environment and ecosystems?

The information piece can be presented in any suitable format, that communicates scientific understanding using suitable language and terminology for a specific audience or purpose, for example but not limited to:* A documentary or media report
* A literature review
* An evidence-based argument
* A scientific journal article
* An essay
* An environmental management plan
* A visual presentation
* An Investigation into emerging technologies.

Students will gather and process a wide range of valid and reliable scientific data and information that will provide evidence for their hypothesis on humans interactions with Earth’s resources and the subsequent impacts on the environment. The data and information will be analysed and evaluated to support the student’s proposed solutions and conclusions for the sustainable use and management of Earth’s natural resources.As a guide the information piece (transcript if an oral submission) should be no longer than 10 single sided pages in length, including for example; formatting, diagrams, tables, graphs and pictures.All references must be acknowledged using in text citations with full references listed in the bibliography.\* 5 Hours will be allocated in class (1 hour weekly on Friday’s weeks 5 to 7. With 2 hours in week 8; Wednesday and Friday) to facilitate the gathering and processing of secondary sources of information.\*5 Hours will be allocated to completing fieldwork investigations at EEC Bundeena RNP and, to support students with their knowledge and understanding of Humans and their impacts on the Environment. \* 5 Hours will be provided via student’s private study arrangements. |
| **Marking Criteria:****EES12-1 Develops and evaluates questions and hypotheses for scientific investigation.*** Develops questions from engaging in background research to guide an investigation.
* Hypothesis relates human impacts to hydrological processes or, geological processes or biological changes.
* Conclusion evaluates gathered data in relation to hypothesis

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| **Criteria** | **Marks** |
| Independently develops questions to guide investigation, shows comprehensive evidence of independent background research Independently generates and clearly incorporates hypothesis for all areas listed in assessment section Evaluates solutions presented commenting on theoretically likelihood & practical application of solutions. | 9-10 |
| Independently develops questions to guide investigation, shows thorough evidence of independent background research Independently generates hypothesis Evaluates solutions presented commenting on theoretically likelihood &/ OR practical application of a solution. | 7-10 |
| Is guided by supervisor or syllabus to refine questions and improve research progress. Independent background research is evident and referred to.Is aided by supervisor to generate hypothesis OR uses pre-existing hypothesis from research/agencies (reworded)Sound evaluation of proposed mitigation of impacts. | 5-6 |
| Is extensively guided by supervisor or syllabus to create questions and refine research progress. (must be referenced) Background sources are given and briefly referred to.Is guided by supervisor to generate hypothesis OR uses pre-existing hypothesis from research/agencies (must be referenced)Poor evaluation of solution. | 3-4 |
| Is given sources by supervisor and extensively guided through the research process.Does not clearly make predictions, hypothesis or show progression of refinement of researchNo evaluations evident. | 1-2 |

**EES12-4 Selects and processes appropriate qualitative and quantitative data and information using a range of appropriate media.**● Select qualitative and quantitative data and information and represent them using a range of formats, digital technologies and appropriate media ● Apply quantitative processes where appropriate

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| **Criteria** | **Marks** |
| Demonstrates a comprehensive knowledge and understanding of data that identifies present and future consequences of human impactsProvides highly detailed descriptions of impacts and risks of humans on a range of identified environmental parameters covering the geosphere, hydrosphere and biosphere Provides clear and relevant evidence linked to secondary source references that support the points identified to the impacts of humans | 9-10 |
| Demonstrates a thorough knowledge and understanding of data that identifies present and future consequences of human impacts Provides detailed descriptions of impacts and risks of humans on a range of identified environmental parameters covering the geosphere, hydrosphere and biosphere Provides clear and relevant evidence linked to secondary source references that support the points identified to the impacts of humans | 7-10 |
| Demonstrates a sound knowledge and understanding of data that identifies present and future consequences of human impacts Provides sound descriptions of impacts and risks of human on a range of identified environmental parameters covering the geosphere, or hydrosphere and biosphere Provides relevant evidence linked to secondary source references that support 1 or more points identified to the impacts of humans | 5-6 |
| Demonstrates basic knowledge of data that identifies present consequences of a human impactsProvides basic descriptions of impacts &/OR risks of humans on an identified environmental parameter Provides satisfactory evidence linked to secondary source references that support 1 or more points identified to the impacts of humans  | 3-4 |
| Demonstrates limited knowledge of data that identifies a present consequence of a human impactProvides limited description of a risks or impact of human impacts on an identified environmental parameterNo linked references | 1-2 |

**EES 11-5 Analyses and evaluates primary and secondary data and information*** Relevant and specific data and information is appropriately referenced, cited throughout student work and used to support arguments and conclusions
* Includes judgment of the reliability, validity and accuracy of data and information used to support arguments and conclusions

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| **Criteria** | **Marks** |
| The use of relevant and specific data and information is used extensively to provide highly detailed and substantiated arguments and conclusionsSelection of data and information demonstrates a comprehensive understanding of reliability, validity and accuracy | 9-10 |
| The use of relevant and specific data and information is used thoroughly to provide detailed and substantiated arguments and conclusionsSelection of data and information demonstrates a thorough understanding of reliability, validity and accuracy | 7-10 |
| Relevant data and information is used to support arguments &/OR conclusionsSelection of data and information demonstrates a limited understanding of reliability &/OR validity &/OR accuracy | 5-6 |
| Relevant data and information is used to support arguments and/or conclusionsSelection of data and information demonstrates a limited understanding of reliability &/OR validity &/OR accuracy | 3-4 |
| Data &/OR information is used to provide support an argument &/OR conclusion&/OR Selection of data and/or information demonstrates a basic understanding of reliability or validity or accuracy | 1-2 |

**EES 11-6 Solves scientific problems using primary and secondary data, critical thinking skills and scientific processes*** Uses data to propose and evaluate solutions to reduce the impact of humans on the geosphere, hydrosphere and biosphere.
* Presents evidence-based arguments and conclusions

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| **Criteria** | **Marks** |
| Provides well-informed and plausible solutions to reduce and manage human impacts to restore or improve the geosphere, hydrosphere and biosphereSuggests suitable areas of future research.All claims effectively backed up with valid evidence. Appropriate in-text referencing is used throughout report. | 9-10 |
| Provides relevant and plausible solutions to reduce and manage human impacts to restore or improve the geosphere, hydrosphere and biosphereSuggests suitable areas of future research.Most claims backed up with valid evidence.In-text referencing used throughout report. | 7-10 |
| Provides solutions to reduce and manage human impacts to restore or improve the geosphere or hydrosphere or biosphereSuggests a suitable area of future research.Makes some effort to back up claims with valid evidence.In-text referencing limited throughout report. | 5-6 |
| Provides a solution to reduce or manage a human impact to restore or improve the geosphere or hydrosphere or biosphereSuggests a suitable area of future research. Evidence used to back up claims lack validity.Draws upon background reading in report. | 3-4 |
| Provides a solution to reduce or manage a human impact Suggests a suitable area of future research.Little to no evidence used to support solutions.No in-text referencing used. | 1-2 |

**EES12-7 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

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| **Criteria** | **Marks** |
| Communicates scientific understanding succinctly, logically, and consistently using correct and precise scientific terms and application of nomenclature. | 9-10 |
| Communicates scientific understanding, logically, and effectively using correct scientific terms and application of nomenclature. | 7-10 |
| Communicates scientific understanding effectively using scientific terms and application of nomenclature. | 5-6 |
| Communicates scientific understanding using basic scientific terms and application of nomenclature | 3-4 |
| Communicates scientific understanding using limited scientific terms. | 1-2 |

**EES11-11 Describes human impacts on the Earth in relation to hydrological processes, geological processes and biological changes.**

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| **Criteria** | **Marks** |
| Clearly demonstrates a comprehensive understanding of human impacts on Earths processes. | 9-10 |
| Clearly demonstrates a thorough understanding of human impacts on Earths processes. | 7-10 |
| Demonstrates a sound understanding of human impacts on Earths processes. | 5-6 |
| Demonstrates a basic understanding of a human impact on an Earths process. | 3-4 |
| Demonstrates a limited understanding of a human impact on an Earths process. | 1-2 |

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