# SAMPLE ASSESSMENT TASK YEAR 12

# EARTH AND ENVIRONMENTAL SCIENCE

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

### Context:

Natural disasters such as earthquakes and volcanic activity have a significant impact on the Earth’s environment, and often affect thousands of people, causing enormous damage. In many cases, the probability of such an event occurring is closely linked to an area’s proximity to a plate boundary. The type of plate boundary can also influence the severity of the event.

To some extent, technologies can be used to predict hazardous events and mitigate their effects. Students will explore the use, development and analysis of seismic data in order to examine significant seismic events.

This task may be used as assessment of a depth study.

| Task number: 2 | Weighting: 30% | Timing: Term 1, Week 10 |
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| Outcomes assessedA student:* develops and evaluates questions and hypotheses for scientific investigation **EES11/12-1**
* selects and processes appropriate qualitative and quantitative data and information using a range of appropriate media **EES11/12-4**
* solves scientific problems using primary and secondary data, critical thinking skills and scientific processes **EES11/12-6**
* communicates scientific understanding using suitable language and terminology for a specific audience or purpose **EES11/12-7**
* describes and evaluates the causes of the Earth’s hazards and the ways in which they affect, and are affected by, the Earth's systems **EES11-13**
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| Nature of the taskEarthquakes and volcanoes create natural disasters that affect many millions of people the world over. This task requires students to respond to the question:**Do we have the capacity to disaster-proof the planet?**Use two tectonic disasters from the past 15 years to give context to the use of technology involved in predicting/preventing the disastersStudents are required to:* carry out research to outline the use and effectiveness of technologies involved in predicting/preventing geological disasters
* suggest how these, or other, technologies can be used to disaster-proof the planet
* submit a written abstract of no more than 250 words in length
* reference any secondary resources used in a bibliography
* evaluate the resources used for their validity and reliability
* develop and deliver a presentation, of no more than five minutes duration, using a format of your choice
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| Marking criteriaYou will be assessed on how well you:* outline the determining geology and effects of two tectonic natural disasters
* predict the likely recurrence of the tectonic movement
* investigate possible solutions to minimise the disastrous effects of future events
* develop and deliver a timed presentation, using innovative media, using evidence from your research to present your conclusion to the driving question
* analyse and evaluate three to five key sources for validity and reliability
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| Feedback providedTo inform future learning your feedback will consist of:* annotations on marking guidelines
* class discussion
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### Marking guidelines

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| A student: | Mark Range |
| * provides specific and relevant content information to provide insight into the inquiry suggesting valid predictions
* uses multiple, varied data/sources of information and includes a thorough evaluation of reliability and validity
* cites specific, comprehensive evidence (eg examples, data, information) most relevant to the claim
* uses multiple representations (words, tables, diagrams, graphs, and/or mathematical expressions) to communicate clear and specific conclusions using extensive scientific terminology consistent with the evidence and includes an extensive reference list/bibliography using an accepted referencing style
* demonstrates comprehensive understanding of disasters that have occurred in the past
* demonstrates, consistently, comprehensive understanding of the nature of mitigating the effects of disasters
* summarises, clearly and succinctly, the issues that come about through tectonic movements
 | 21-25 |
| * provides specific and relevant content information to support the question suggesting reasonable predictions
* uses appropriate data and source information and includes an evaluation of reliability and validity
* cites specific evidence (eg examples, data, information) most relevant to the claim
* uses multiple representations (words, tables, diagrams, graphs) to communicate clear conclusions using scientific terminology consistent with the evidence and includes a reference list/bibliography using an accepted referencing style
* demonstrates thorough understanding of disasters that have occurred in the past
* demonstrates thorough understanding of the nature of mitigating the effects of disasters
* summarises the issues that come about through tectonic movement
 | 16-20 |
| * provides general content information that is related to the question suggesting predictions
* uses suitable data and source information and includes a brief evaluation of some aspects of reliability and validity
* states limited or general evidence relevant to the claim
* uses multiple representations (words, tables, diagrams, graphs) to communicate conclusions consistent with the evidence using limited scientific terminology and includes a reference list/bibliography
* demonstrates a sound understanding of disasters that have occurred in the past
* demonstrates a sound understanding of the nature of mitigating the effects of disasters
* partially summarises the issues that come about through tectonic movements
 | 11-15 |
| * articulates a relevant prediction that shows relationship to the question
* includes brief data and source information and includes minimal description of validity and reliability
* refers to evidence that is unclear or irrelevant to the claim
* attempts to use multiple representations to communicate conclusions, with limited use of scientific terminology and inaccuracies and includes a limited reference list
* demonstrates a limited understanding of disasters
* demonstrates basic understanding of limiting the effects of disasters
* summarises, in a simple way, the issues that come about through tectonic movements
 | 6-10 |
| * articulates a prediction that has a limited relationship to the question
* engages with some aspects of data collection
* does not refer to evidence to support the claim
* attempts to engage with or organise the data
* uses a suitable form of communication
* makes simple statements about disasters
* shows little understanding of limiting the effects of disasters
* identifies issues that come about through tectonic movements
 | 1-5 |