VCE Units 3 and 4 Environmental Science: Performance descriptors

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| **VCE ENVIRONMENTAL SCIENCE**  **SCHOOL-ASSESSED COURSEWORK** | | | | | | | |
| **Assessment task: ‘Presentation of recommendations using evidence-based decision-making, including analysis and evaluation of primary data’** | | | | | | | |
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| ***Unit: <insert>***  ***Outcome: <insert no.>***  ***<insert outcome statement>*** |  | | **DESCRIPTOR: typical performance in each range** | | | | |
| **Key Science Skills** | | **Increasing levels of performance** | | | | |
| ***Develop aims and questions, formulate hypotheses and make predictions*** | | * States the problem or issue that will be explored through the primary data. | * Develops an aim or question that will be investigated. | * Explains why data is required for decision-making. | * Outlines how primary data will be analysed and evaluated to make recommendations about a problem or issue. | * Justifies further data that could be generated or collated to respond to the problem or issue. |
| ***Generate, collate and record data*** | | * Records generated primary data to inform decision-making * Records qualitative and/or quantitative data. | * Records generated primary data using provided tables to inform decision-making * Identifies generated data as qualitative and/or quantitative. | * Constructs tables to record generated primary data to inform decision-making * Distinguishes between the qualitative and quantitative data used. to inform decision-making | * Organises generated primary data into tables to inform decision-making * Describes how the generated quantitative and/or quantitative data relates to the problem or issue. | * Selects relevant generated primary data to include in tables to inform decision-making * Explains how the generated quantitative and/or quantitative data will be used in decision-making. |
| ***Analyse and evaluate data and investigation methods*** | | * Identifies the data to be plotted on a graph. | * Labels graph axes including units. | * Plots data using a suitable scale. | * Uses a bar chart to present discrete data or a line graph to represent continuous data. | * Shows patterns or relationships between variables in graphs. |
| * Refers to a specific data point on a graph in the discussion of data * States a pattern in tabled data. | * Compares specific data points on a graph in data analysis * Describes a relationship or pattern from graphed data. | * Uses interpolation in data analysis * Applies mathematical skills to analyse a relationship or pattern in data. | * Uses extrapolation in data analysis * Identifies outliers when evaluating data. | * Extrapolates from data to make predictions with reference to decision options * Accounts for outliers in discussing a relationship or pattern in data. |
| * Identifies an error or mistake in data analysis * Identifies incomplete data. | * Distinguishes between errors and mistakes * Identifies contradictory data. | * Distinguishes between random and systematic errors * Suggests why incomplete or contradictory data may have been generated. | * Explains the effect of errors on data analysis * Explains possible effects of using incomplete or contradictory data in decision-making. | * Suggests how errors could have been minimised * Discusses how data quality could be improved. |
| **Construct evidence-based arguments and draw conclusions** | | * States their own / others’ recommendation or decision. | * Supports their own / others’ recommendation or decision based on an opinion. | * Uses data to support their own / others’ recommendation or decision. | * Explains how their own / others’ recommendation or decision is supported by data. | * Discusses the limitations of data in evaluating their own / others’ recommendation or decision. |
| * Describes the current situation in relation to the decision to be made * Lists advantages and disadvantages of different decision options. | * Suggests an immediate action in the context of the decision to be made * Compares advantages and disadvantages of different decision options. | * Justifies an immediate action in the context of the decision to be made * Provides a reasoned argument for a preferred decision option. | * Proposes short-term recommendations in the context of the decision to be made * Ranks different decision options, explaining the criteria used to make decisions to identify viable options. | * Proposes long-term recommendations in the context of the decision to be made * Evaluates viable decision options to determine a preferred option. |
| * Identifies an immediate impact of the recommendation or decision on the problem or issue in terms of scientific ideas. | * Compares impacts of the recommendation or decision related to the problem or issue in terms of scientific ideas. | * Explains the short-term impacts of the recommendation or decision on the problem or issue in terms of scientific ideas. | * Makes predictions about the long-term impacts of the recommendation or decision on the problem or issue in terms of scientific ideas. | * Discusses the implications for future decision-making of the recommendations or decisions on the problem or issue in terms of scientific ideas. |
| **Analyse, evaluate and communicate scientific ideas** | | * Selects relevant data for analysis to inform decision-making. | * Organises data related to the problem or issue requiring a decision to be made or evaluated using environmental science conventions. | * Analyses data related to the problem or issue requiring a decision to be made or evaluated using environmental science language. | * Summarises advantages and disadvantages of different options related to decision-making using environmental science language. | * Presents recommendations or makes decisions using environmental science language. |
| * Identifies the science concepts associated with their recommendations or decisions * Communicates their recommendations or decisions in language that is appropriate for the audience. | * Describes the science concepts associated with their recommendations or decisions * Communicates their recommendations or decisions clearly. | * Makes links between the science concepts associated with their recommendations or decisions * Sequences their communication of recommendations or decisions logically. | * Explains the relationships between the science concepts associated with their recommendations or decisions * Selects relevant data and information to support the communication of their recommendations or decisions. | * Discusses the importance of the relationships between the science concepts associated with their recommendations or decisions * Communicates the uncertainty associated with their recommendations or decisions. |