VCE Biology: Performance descriptors

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| **VCE BIOLOGY**  **SCHOOL-ASSESSED COURSEWORK** | | | | | | | |
| **Performance descriptors: ‘Communication of the design, analysis and findings of a student-designed and student-conducted scientific investigation through a structured scientific poster and logbook entries’** | | | | | | | |
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| ***Unit 4***  ***Outcome 3***  ***Design and conduct a scientific investigation related to cellular processes and/or how life changes and responds to challenges, and present an aim, methodology and methods, results, discussion and a conclusion in a scientific poster.*** |  | | **DESCRIPTOR: typical performance in each range** | | | | |
| **Key Science Skill** | | **Very Low** | **Low** | **Medium** | **High** | **Very high** |
| *Develop aims and questions, formulate hypotheses and make predictions* | | Limited attempt at formulation of an aim and investigable question with very limited understanding of the appropriateness of the use of variables in the selected scientific investigation. | Some attempt at formulation of an aim and investigable question with some understanding of the appropriateness of the use of variables in the selected scientific investigation. | Sufficient formulation of an aim and investigable question with satisfactory understanding of the appropriateness of the use of variables in the selected scientific investigation. | Focussed formulation of an aim and investigable question with sound understanding of the appropriateness of the use of variables in the selected scientific investigation. | Highly proficient formulation of an aim and investigable question with through understanding of the appropriateness of the use of variables in the selected scientific investigation. |
| *Plan and conduct investigations* | | Limited skills in designing and conducting the selected scientific investigation to generate appropriate primary data, including very limited understanding and use of an appropriate methodology and method to answer the question under investigation. | Some skills in designing and conducting the selected scientific investigation to generate appropriate primary data, including limited understanding and use of an appropriate methodology and method to answer the question under investigation. | Adequate skills in designing and conducting the selected scientific investigation to generate appropriate primary data, including satisfactory understanding and use of an appropriate methodology and method to answer the question under investigation. | Competent skills in designing and conducting the selected scientific investigation to generate appropriate primary data, including detailed understanding and use of an appropriate methodology and method to answer the question under investigation. | Proficient skills in designing and conducting the selected scientific investigation to generate appropriate primary data, including sophisticated understanding and use of an appropriate methods to answer the question under investigation. |
| *Generate, collate and record data* | | Limited ability to appropriately record and summarise generated data in logbook entries and to construct and present appropriate diagrams, flow charts, tables and graphs relevant to the selected scientific investigation. | Some ability to appropriately record and summarise generated data in logbook entries and to construct and present appropriate diagrams, flow charts, tables and graphs relevant to the selected scientific investigation. | Sound ability to appropriately record and summarise generated data in logbook entries and to construct and present appropriate diagrams, flow charts, tables and graphs relevant to the selected scientific investigation. | Competent ability to appropriately record and summarise generated data in logbook entries and to construct and present appropriate diagrams, flow charts, tables and graphs relevant to the selected scientific investigation. | Highly proficient ability to appropriately record and summarise generated data in logbook entries and to construct and present appropriate diagrams, flow charts, tables and graphs relevant to the selected scientific investigation. |
| *Analyse end evaluate data and investigation methods* | | Identifies some trends, patterns and relationships in qualitative and quantitative data relevant to the selected scientific investigation with limited identification of limitations and uncertainty in the data available. | Some identification and comparison of trends patterns and relationships in qualitative and quantitative data relevant to the selected scientific investigation with some identification of limitations and uncertainty in the data available. | Accurate analysis and comparison of trends patterns and relationships in qualitative and quantitative data relevant to the selected scientific investigation with suitable identification of limitations and uncertainty in the data available. | Detailed analysis and comparison of trends patterns and relationships in qualitative and quantitative data relevant to the selected scientific investigation with well-considered identification of limitations and uncertainty in the data available. | Highly proficient analysis and comparison of trends patterns and relationships in qualitative and quantitative data relevant to the selected scientific investigation with insightful identification limitations and uncertainty in the data available. |
| Limited evaluation of the investigation methodology and method of the selected scientific investigation as part of the logbook entries and structured scientific poster. | Some accurate evaluation of the investigation methodology and method of the selected scientific investigation including some ways in which the method maybe be improved as part of the logbook entries and structured scientific poster. | Accurate evaluation of the investigation methodology and method of the selected scientific investigation including some ways in which the method maybe be improved as part of the logbook entries and structured scientific poster. | Detailed evaluation of the investigation methodology and method of the selected scientific investigation and detailed ways in which the methods may be improved as part of the logbook entries and structured scientific poster. | Comprehensive evaluation of the investigation methodology and method of the selected scientific investigation and comprehensive ways in which the methods may be improved as part of the logbook entries and structured scientific poster. |
| *Construct evidence-based arguments and draw conclusions* | | Very limited evaluation of qualitative and/or quantitative data and use of reasoning to draw conclusions consistent with evidence available and as relevant to the initial prediction or hypothesis for the selected scientific investigation. | Some appropriate evaluation of qualitative and/or quantitative data and use of reasoning to draw conclusions consistent with evidence available and as relevant to the initial prediction or hypothesis for the selected scientific investigation. | Appropriate evaluation of qualitative and/or quantitative data and use of reasoning to draw conclusions consistent with the evidence available and as relevant to the initial prediction or hypothesis for the selected scientific investigation. | Detailed evaluation of qualitative and/or quantitative data and use of reasoning to draw conclusions consistent with evidence available and as relevant to the initial prediction or hypothesis for the selected scientific investigation. | Insightful evaluation of qualitative and/or quantitative data and use of reasoning to draw conclusions consistent with evidence available and as relevant to the initial prediction or hypothesis for the selected scientific investigation. |
| *Analyse, evaluate and communicate scientific ideas* | | Very limited use of appropriate biological terminology, representations and conventions and limited use of clear, coherent and concise expression in the communication of the selected scientific investigation. | Limited use of appropriate biological terminology, representations and conventions and some use of clear, coherent and concise expression in the communication of the selected scientific investigation. | Mostly appropriate use of biological terminology, representations and conventions and appropriate use of clear, coherent and concise expression in the communication of the selected scientific investigation. | Effective and appropriate use of biological terminology, representations and conventions and competent use of clear, coherent and concise expression in the communication of the selected scientific investigation. | Proficient and highly appropriate use of biological terminology, representations and conventions and proficient use of clear, coherent and concise expression in the communication of the selected scientific investigation. |
| Limited analysis and discussion of relevant biological information, concepts, relationships, theories and models in communicating the design, analysis and findings of the selected scientific investigation. | Some appropriate analysis and discussion of relevant biological information, concepts, relationships, theories and models in communicating the design, analysis and findings of the selected scientific investigation. | Appropriate analysis and discussion of relevant biological information, concepts, relationships, theories and models in communicating the design, analysis and findings of the selected scientific investigation. | Detailed analysis and discussion of relevant biological information, concepts, relationships, theories and models in communicating the design, analysis and findings of the selected scientific investigation. | Insightful analysis and discussion of relevant biological information, concepts, relationships, theories and models in communicating the design, analysis and findings of the selected scientific investigation. |

KEY to marking scale based on the outcome contributing 40 marks

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| Very Low 1-8 | Low 9–16 | Medium 17–24 | High 25–32 | Very High 33–40 |