Stage 1 Biology

Skills and Applications Task

Garden Design

Topic 4: Biodiversity and Ecosystem Dynamics

**Purpose:**

This task allows you to:

* demonstrate your knowledge and understanding of the concepts of biodiversity and ecosystem dynamics
* obtain and represent information
* apply biological concepts in a new context
* demonstrate the interaction between science and society
* communicate using appropriate terms and conventions.

**Description of assessment**

For this task you will design a garden to suit a particular niche and use it as evidence that garden design may illustrate Science as a Human Endeavour.

Guidelines:

* Choose the niche that your garden will suit; e.g. pond, desert, temperate, wetland.
* Consider the key concept(s) of Science as a Human Endeavour (*Influence* or *Application and Limitation* may be your focus) described on page 12 and 13 of the subject outline. Explore and explain how at least one of these may be linked to garden design.
* Select a minimum of 10 different types of organisms, clearly identifying the plants, animals, and/or microorganisms that are significant for a garden in the niche you have chosen.
* Explain the role the organisms play in the garden and the adaptations each has for the niche. Diagrams or other representations (e.g. food webs or biogeochemical cycles) should be included.
* Use correct biological terminology.

Assessment conditions

* This is an individual task completed during supervised class time over 2 weeks.
* You have access to computers and any other resources.
* You may negotiate the format of presentation with your teacher.

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|  | Investigation, Analysis and Evaluation | Knowledge and Application |
| A | Critically deconstructs a problem and designs a logical, coherent, and detailed biological investigation.  Obtains, records, and represents data, using appropriate conventions and formats accurately and highly effectively.  Systematically analyses and interprets data and evidence to formulate logical conclusions with detailed justification.  Critically and logically evaluates procedures and their effect on data. | Demonstrates deep and broad knowledge and understanding of a range of biological concepts.  Applies biological concepts highly effectively in new and familiar contexts.  Critically explores and understands in depth the interaction between science and society.  Communicates knowledge and understanding of biology coherently, with highly effective use of appropriate terms, conventions, and representations. |
| B | Logically deconstructs a problem and designs a well-considered and clear biological investigation.  Obtains, records, and represents data, using appropriate conventions and formats mostly accurately and effectively.  Logically analyses and interprets data and evidence to formulate suitable conclusions with reasonable justification.  Logically evaluates procedures and their effect on data. | Demonstrates some depth and breadth of knowledge and understanding of a range of biological concepts.  Applies biological concepts mostly effectively in new and familiar contexts.  Logically explores and understands in some depth the interaction between science and society.  Communicates knowledge and understanding of biology mostly coherently, with effective use of appropriate terms, conventions, and representations. |
| C | Deconstructs a problem and designs a considered and generally clear biological investigation.  Obtains, records, and represents data, using generally appropriate conventions and formats with some errors but generally accurately and effectively.  Undertakes some analysis and interpretation of data and evidence to formulate generally appropriate conclusions with some justification.  Evaluates procedures and some of their effect on data. | Demonstrates knowledge and understanding of a general range of biological concepts.  Applies biological concepts generally effectively in new or familiar contexts.  Explores and understands aspects of the interaction between science and society.  Communicates knowledge and understanding of biology generally effectively, using some appropriate terms, conventions, and representations. |
| D | Prepares a basic deconstruction of a problem and an outline of a deconstruction and biological investigation.  Obtains, records, and represents data, using conventions and formats inconsistently, with occasional accuracy and effectiveness.  Describes data and undertakes some basic interpretation to formulate a basic conclusion.  Attempts to evaluate procedures or suggest an effect on data. | Demonstrates some basic knowledge and partial understanding of biological concepts.  Applies some biological concepts in familiar contexts.  Partially explores and recognises aspects of the interaction between science and society.  Communicates basic biological information, using some appropriate terms, conventions, and/or representations. |
| E | Attempts a simple deconstruction of a problem and a procedure for a biological investigation.  Attempts to record and represent some data, with limited accuracy or effectiveness.  Attempts to describe results and/or interpret data to formulate a basic conclusion.  Acknowledges that procedures affect data. | Demonstrates limited recognition and awareness of biological concepts.  Attempts to apply biological concepts in familiar contexts.  Attempts to explore and identify an aspect of the interaction between science and society.  Attempts to communicate information about biology. |