Stage 1 Biology

Skills and Applications Task

“How to…”

Topic 1: Cells and Microorganisms

**Purpose:**

This task allows you to:

* demonstrate your knowledge and understanding of a range of concepts in Topic 1: Cells and Microorganisms
* represent information
* apply biological concepts in a new context
* communicate using appropriate terms and conventions.

**Description of assessment**

**The scenario:**

While walking along the beach/in the bush/…….., a person discovers a blob of orange, jelly-like material. They bring it to you and they want to find out as much as possible about it.

For example:

* Is it living or non-living?
* Was it living and is now dead?
* If it came from something living, is it from a prokaryote or a eukaryote, autotroph or heterotroph, plant or animal?

Your task is to design a ‘How to……’ guide to help this person come to some conclusions.

**Guidelines for this task:**

* Consider the characteristics of living/non-living, alive/dead, prokaryote/eukaryote etc. that would provide the person with the information they are seeking.
* Devise a way of presenting information about these characteristics in such a way that the person can make decisions about their discovery in the form of an easy to follow ‘How to….guide’. A justification at each decision-making step should be included.
* The guide should include at least 5 different characteristics which may or may not include those listed in the scenario described above.
* Diagrams or other representations may be included.
* Correct biological terminology should be used.
* The guide will be presented to a small group of students and the teacher and respond to questions in a 3 to 4 minute *viva*.

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 choose the format of presentation. A written guide has a max of 500 words or equivalent for a multimedia version.

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|  | Investigation, Analysis and Evaluation | Knowledge and Application |
| A | Critically deconstructs a problem and designs a logical and coherent biological investigation with detailed justification.  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 with reasonable justification.  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 with some justification.  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 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. |