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**BIOLOGY**  
**Demonstrate knowledge of Monera,  
Protista and Fungi**

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<b>level:</b>	<b>5</b>
<b>credit:</b>	<b>4</b>
<b>planned review date:</b>	November 2003
<b>sub-field:</b>	Science
<b>purpose:</b>	People credited with this unit standard are able to describe: the features of Monera; the habitats and the major ecological roles of Monera; the evidence for bacterial origin of organelles in eukaryotic cells; the features which distinguish the Protista groups; the habitats and major ecological roles of selected Protista; the structural and functional characteristics which distinguish the divisions of Fungi; and the ecological roles of Fungi.
<b>entry information:</b>	Open.
<b>accreditation option:</b>	Evaluation of documentation and visit by NZQA and industry.
<b>moderation option:</b>	A centrally established and directed external moderation system has been set up by NZQA on behalf of the Science and Technology National Standards Body.

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- special notes:**
- 1 It is intended that in demonstrating knowledge for this unit standard the emphasis is placed on:
    - a evolutionary trends;
    - b the dynamic nature of biological classification systems.
  
  - 2 It is intended that, except where there are widespread global implications, examples used in description of species will reflect their significance in New Zealand, in relation to, but not limited to: ecology, health, medicine, and food production.

**Elements and Performance Criteria**

**element 1**

Describe the features of Monera.

**performance criteria**

- 1.1 The description compares the characteristics of selected Monera in terms of their structure.

Range: Archaeobacteria, Eubacteria.

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- 1.2 The description compares the characteristics of selected Monera in terms of their function.

Range: may include, but is not limited to - nutrition, major energy producing pathway, locomotion, reproduction.

**element 2**

Describe the habitats and the major ecological roles of Monera.

**performance criteria**

- 2.1 The description compares two selected Monera in terms of their major habitats.
- 2.2 The description compares the major ecological roles of selected Monera.

Range: includes, but is not limited to - bacteria in nutrient recycling, primary production and disease.

**element 3**

Describe the evidence for bacterial origin of organelles in eukaryotic cells.

**performance criteria**

- 3.1 The description outlines theories for the bacterial origin of mitochondria and chloroplasts in eukaryotic cells.

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**element 4**

Describe the features which distinguish the Protista groups.

**performance criteria**

- 4.1 The description compares the structural features of a named unicellular alga and a named multi cellular alga.
- 4.2 The description compares modes of locomotion in a flagellate protist, a ciliate protist and an amoeboid protist.
- 4.3 The description outlines two modes of nutrition in selected protists.
- 4.4 The description outlines the life cycle of a named parasite.
- 4.5 The description states one reason for each of the slime moulds and the water moulds to be classified as protists rather than as fungi.

**element 5**

Describe the habitats and major ecological roles of selected Protista.

**performance criteria**

- 5.1 The description compares two selected Protista in terms of their major habitats.
- 5.2 The description compares the major ecological roles of selected Protista.  
  
Range: includes but is not limited to - primary production, disease.

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**element 6**

Describe the structural and functional characteristics which distinguish the divisions of Fungi.

**performance criteria**

6.1 The description outlines the structure of typical representatives to illustrate the characteristics of each division.

Range: Zygomycota, Ascomycota, Basidiomycota.

6.2 The description outlines the life-cycle of one selected Fungus.

6.3 The description compares modes of nutrition of three named Fungi.

Range: saprobic, parasitic, symbiotic.

**element 7**

Describe the ecological roles of Fungi.

**performance criteria**

7.1 The description explains the ecological importance of Fungi as decomposers.

7.2 The description explains the importance of lichens as colonisers.

7.3 The description explains the role of mycorrhizae.

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7.4 The description identifies one plant and one animal pathogen.

**Comments to:**

Science and Technology National Standards Body  
Unit Standard Revision  
PO Box 160  
WELLINGTON

*by* November 2003.

**Please Note:** Providers must be accredited by the Qualifications Authority before they can offer programmes of education and training assessed against unit standards.

Accredited providers assessing against unit standards must engage with the moderation system that applies to those unit standards. [Please refer to relevant Plan ref: 0152]