

*Definition of the domain
for summative evaluation*

BLG-5069-1

Biology Secondary V

Ecology

Reach for
your **Dreams**

Québec 

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for summative evaluation*

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Ecology

Formation professionnelle et technique
et formation continue

Direction de la formation générale
des adultes

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1. Introduction

This definition of the domain for summative evaluation describes and classifies the essential and representative elements of the *Biology* program—specifically, for the course *Ecology*. It presents an overview of the program, but should by no means replace the program itself. The purpose of defining the domain is to ensure that all the instruments for summative evaluation are consistent with the overall program.

This definition of the domain is organized in the same way as it is in other courses. The content of each section is, however, specific to this course.

The definition of the domain for summative evaluation is used to prepare examinations that are valid from one version to another, from year to year, and from one school board to another, taking into account the responsibilities shared by the Ministère de l'Éducation and the school boards.

2. Program Orientations and Consequences for Summative Evaluation

Orientations

The purpose of this program is to help students acquire knowledge of the plant kingdom, the animal kingdom, and the influence of humans on the environment.

The purpose of the program is also to show the dynamics that exist among people and the animal and plant kingdoms.

Consequences

Evaluation will test the students' knowledge of the plant kingdom, the animal kingdom, and the influence of humans on the environment.

Evaluation will test the students' understanding of the dynamics among people and the plant and animal kingdoms.

3. Course Content for Purposes of Summative Evaluation

Themes

- **Basic Principles of Ecology**
 - Structure of a leaf:
 - description
 - role of stomata and guard cells
 - diagram
 - gas exchanges
 - Biotic and abiotic factors
 - Characteristics of a biome and a population
 - Population fluctuations
 - Phases in the growth of a population
 - Terms related to ecology:
 - biosphere, ecology, environment, species, population, community, biome, biotic potential, ecological niche
 - Vegetation in different biomes
 - Ecosystem:
 - description
 - interactions between different populations
 - biotic and abiotic factors
- **Ecological Phenomena**
 - Photosynthesis:
 - process
 - importance
 - Plant respiration:
 - process and relationship with photosynthesis
 - Relationships among producers, consumers and decomposers

Ecology

Definition of the Domain

- Ecological succession and climax community:
 - definition, description and examples
 - determining factors

- Symbiosis, parasitism and commensalism:
 - description
 - examples

- Food chain:
 - description
 - loss of energy
 - circulation of elements in an ecosystem

- Artificial eutrophication of a lake:
 - description
 - causes
 - effects
 - preventive measures

Skills

- **Describing:** Observing, identifying or recalling the characteristics of a phenomenon or the components of a system.

- **Explaining:** Showing in a structured way the nature and interaction of complex relationships between objects or phenomena.

4. Table of Dimensions

Themes	Basic Principles of Ecology 45%	Ecological Phenomena 55%
Skills		
Describing 45%	Structure of a leaf (5%) Characteristics of a biome and a population (5%) Terms related to ecology (10%) (1) 20%	Relationships among producers, consumers and decomposers (5%) Symbiosis, parasitism and commensalism (10%) Food chain (10%) (3) 25%
Explaining 55%	Biotic and abiotic factors (5%) Population fluctuation (5%) Phases in the growth of populations (5%) Vegetation in different biomes (5%) Ecosystem (5%) (2) 25%	Photosynthesis (5%) Plant respiration (5%) Ecological succession and climax community - definition, description and examples (10%) - determining factors (5%) Artificial eutrophication of a lake (5%) (4) 30%

5. Observable Behaviours**Dimension 1**

- Given a series of statements, choose those that correctly describe the structure of a leaf, the role of stomata and guard cells, and the gas exchanges that take place within a leaf. Correct false statements to make them valid. (5%)
- Given a series of statements, choose those that correctly specify the characteristics of a biome and a population. Correct false statements to make them valid. (5%)
- Associate statements with the following terms: biosphere, ecology, environment, species, population, community, biome, biotic potential and ecological niche. (The statements refer to definitions or examples. A term may be associated with more than one statement.) (10%)

Dimension 2

- For a given environment, list two biotic factors and two abiotic factors and explain how they affect the environment. (5%)
- Given a brief text describing population fluctuations in a given environment, specify the factor causing the fluctuation and explain how it affects the population. (5%)
- Given a series of statements, choose those that correctly explain the different phases in the growth of a population. Correct false statements to make them valid. (5%)
- For a given biome, list the factors that determine the type of vegetation found in a biome and explain how these factors affect it. (5%)
- Given a series of statements, choose those that correctly explain the structure of an ecosystem, the biotic and abiotic factors that affect it, and the relationships among the different populations. Correct false statements to make them valid. (A diagram of an ecosystem is provided.) (5%)

Dimension 3

- Given a series of statements, choose those that correctly describe and illustrate the relationships among producers, consumers and decomposers in a community. Correct false statements to make them valid. (5%)
- Associate symbiosis, parasitism or commensalism with the corresponding descriptive elements and examples. The list should contain more than three descriptive elements and examples. (10%)

- Given the names of plant and animal species that are characteristic of an ecosystem, classify them according to the different links in the food chain. Given a series of statements, choose those that correctly describe the loss of energy between links in the food chain and the way in which an element circulates in an ecosystem. Correct false statements to make them valid. (10%)

Dimension 4

- Given a series of statements, choose those that correctly explain the process of photosynthesis, the factors essential to the process, and its importance to the animal kingdom. Correct false statements to make them valid. (5%)
- Given a concrete example, explain briefly the relationship between photosynthesis and plant respiration. (5%)
- Ecological succession and climax community:

Arrange in the proper sequence true statements about a concrete case of ecological succession in order to correctly explain the process of ecological succession and of climax community. (10%)

Given a series of statements, choose those that correctly explain the natural and human factors that affect ecological succession. Correct false statements to make them valid. (5%)
- Given a series of statements, choose those that correctly explain the process of artificial eutrophication of a lake, its causes and effects, and the measures that can be taken to prevent it. Correct false statements to make them valid. (5%)

6. Explanation of Content and Weighting

The relative importance of the themes *Basic Principles of Ecology* and *Ecological Phenomena* has been established according to the distribution of course content.

The relative importance of each skill to be developed has been determined by adding up the weightings given to the observable behaviours pertaining to that skill.

Based on the tasks prescribed in the terminal objectives of the program, the weighting of the themes and skills has been established as follows:

Dimensions related to the theme <i>Basic Principles of Ecology</i>	45%
Dimensions related to the theme <i>Ecological Phenomena</i>	55%
Dimensions related to the skill <i>Describing</i>	45%
Dimensions related to the skill <i>Explaining</i>	55%

7. Description of the Examination

A. Type of Examination

The summative examination is a written examination administered at the end of the course. It is designed to measure all of the dimensions and counts for 100% of the final mark. It consists of structured-response and short-response items.

B. Characteristics of the Examination

The examination is written at the end of the course in a single session lasting no more than 120 minutes.

C. Pass Mark

The pass mark for the entire examination is 60%.

