

*Definition of the domain
for summative evaluation*

BLG-5061-1

Biology Secondary V

The Human Respiratory System

Reach for
your **Dreams**

Québec 

*Definition of the domain
for summative evaluation*

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Biology Secondary V

The Human Respiratory System

Formation professionnelle et technique
et formation continue

Direction de la formation générale
des adultes

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Ministère de l'Éducation, 2004 — 03-01076

ISBN 2-550-42060-8

Legal deposit — Bibliothèque nationale du Québec, 2004

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 *The Human Respiratory System*. 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 human anatomy and physiology.

The purpose of this program is to help students understand how the human body functions.

The purpose of this program is to help students understand the causes and effects of the principal health disorders associated with the human body and the factors that contribute to its health.

Consequences

Evaluation will test the students' knowledge of anatomical and physiological concepts of the human respiratory system.

Evaluation will test the students' understanding of how the human respiratory system functions.

Evaluation will test the students' ability to establish relationships between acquired anatomical and physiological concepts and the principal health problems associated with the human respiratory system.

3. Course Content for Purposes of Summative Evaluation

Themes

- **Anatomy of the Respiratory System**
 - Description of the respiratory system:
 - name of organs
 - description of organs
 - role of organs
 - diagram

- **Physiology of the Respiratory System**
 - Normal respiration (inhalation and exhalation):
 - organs involved in the process
 - air pressure
 - Forced respiration (inhalation and exhalation):
 - organs involved in the process
 - Respiratory volumes:
 - volumes of air associated with normal and forced respiration
 - Composition and temperature of inhaled and exhaled air:
 - concentration of O₂, N₂ and CO₂
 - temperature
 - effects of variations in concentration and temperature
 - Gas exchanges:
 - in the lungs
 - in the tissues
 - Mechanisms of gas transport in the blood:
 - oxygen
 - carbon dioxide

- **Respiratory Health and Hygiene**
 - Respiratory disorders:
 - infectious diseases and disorders caused by pollutants or allergens
 - symptoms
 - affected organs
 - causes and effects

- Carbon monoxide poisoning
- Respiratory hygiene:
 - lifestyle

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	Anatomy of the Respiratory System 24%	Physiology of the Respiratory System 48%	Respiratory Health and Hygiene 28%
Skills			
Describing 38%	Description of respiratory system (1) 24%		Respiratory disorders (3) 14%
Explaining 62%		Normal respiration (8%) Forced respiration (8%) Respiratory volumes (8%) Composition and temperature of inhaled and exhaled air (8%) Gas exchanges (8%) Mechanisms of gas transport in the blood (8%) (2) 48%	Carbon monoxide poisoning (7%) Respiratory hygiene (7%) (4) 14%

5. Observable Behaviours

Dimension 1

- Name the structures indicated on a diagram of the respiratory system and associate each of these structures with roles and descriptive elements appearing on a list. (The list should contain more roles and descriptive elements than are required.) (24%)

Dimension 2

- Given a series of statements, choose those that correctly explain the mechanism of normal inhalation or exhalation. Correct false statements to make them valid. (8%)
- Given a series of statements, choose those that correctly explain the mechanism of forced inhalation or exhalation. Correct false statements to make them valid. (8%)
- Given a series of statements, choose those that correctly explain the volumes of air associated with normal and forced respiration and that correctly associate respiratory volumes with various stages of pulmonary ventilation. Correct false statements to make them valid. (8%)
- Given a concrete situation involving potential problems in ambient air quality, answer questions related to variations in the composition and temperature of inhaled or exhaled air, and the effects these variations have on the human body. (8%)
- Using a diagram, explain the gas exchanges that take place in the lungs or in the tissues. (A diagram is provided.) (8%)
- Given a series of statements, choose those that adequately explain oxygen or carbon dioxide transport in the blood. Correct false statements to make them valid. (8%)

Dimension 3

- Associate the names of certain respiratory disorders with the following elements of information: symptoms, affected organs, causes and effects. (Elements of information are chosen from a list that contains more elements than are required.) (14%)

Dimension 4

- Given a series of statements, choose those that correctly explain the mechanism of carbon monoxide poisoning. Correct false statements to make them valid. (7%)
- Explain how a given lifestyle influences respiratory health. (7%)

6. Explanation of Content and Weighting

In establishing the relative importance of the themes *Anatomy*, *Physiology* and *Health and Hygiene*, greater weight has been assigned to understanding how the respiratory system functions and the factors that help maintain its health, than to memorizing anatomical structures.

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.

On the basis of the tasks prescribed by the terminal objectives of the program, the weighting of the themes and skills has been established as follows:

Dimensions related to the theme <i>Anatomy</i>	24%
Dimensions related to the theme <i>Physiology</i>	48%
Dimensions related to the theme <i>Health and Hygiene</i>	28%
Dimensions related to the skill <i>Describing</i>	38%
Dimensions related to the skill <i>Explaining</i>	62%

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%.

