Éducation, Loisir et Sport Québec

# Framework for the Evaluation of Learning

# Science and the Environment

## Secondary School
## Cycle Two

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# Framework for the Evaluation of Learning

## Introduction

**Following the announcement of new orientations regarding the evaluation of student learning by the Minister of Education, Recreation and Sports, the *Basic school regulation for preschool, elementary and secondary education* has been amended to require that, as of July 1, 2011, evaluation be based on the *Framework for the Evaluation of Learning* produced for each program. These frameworks provide guidelines for the evaluation of learning specific to each subject in the Québec Education Program in order to determine students' results, which will be communicated in the provincial report card.**

## The role of knowledge in evaluation

Knowledge is at the heart of student learning, since it provides the foundation for all school subjects. Knowledge gives students the means to reflect and to understand the world around them, and its acquisition is the first step in any learning process. Through the knowledge they acquire and through the connections they are able to make among different items of knowledge, students can develop an understanding of simple and complex concepts. Knowledge must therefore be acquired, understood, applied and used thoroughly. Evaluation must thus take place throughout the learning process to ensure proficient knowledge.

## Organization of the evaluation frameworks

For each subject, the framework defines the criteria on which the student's results must be based. These evaluation criteria are based on the ones in the Québec Education Program.

The framework stipulates the weighting of the competencies that makes it possible to determine the subject marks to be recorded in the report card. Where applicable, it provides direct links to the *Progression of Learning* documents that give additional information on the learning specific to each subject in the Québec Education Program.

## The teacher’s role in evaluation

Section 19 of the *Education Act* stipulates that teachers are entitled "to select the means of evaluating the progress of students so as to examine and assess continually and periodically the needs and achievement of objectives of every student entrusted to [their] care." It is therefore up to teachers to choose the means of evaluating student learning.

| | |
|---|---|
| ⟺ | ***This arrow*** indicates that the evaluation of learning involves a process of going back and forth between the acquisition of subject-specific knowledge and the understanding, application and use of this knowledge. Evaluation must thus take place throughout the learning process to ensure proficient knowledge. |
| Knowledge will be evaluated at specific times chosen by the teacher, who will determine the importance of the various dimensions to be evaluated in calculating the student's mark. | |

**Seeks answers or solutions to scientific problems**

**PRACTICAL: 40%**

**Communicates using scientific language**

**Evaluation of Learning**

| **Evaluation criteria**[1] |
|---|
| ⟺ |
| ▪ Proficiency of subject-specific knowledge targeted in the *Progression of Learning*:<br>  ▪ Techniques<br>  ▪ Strategies* |
| ▪ Appropriate representation of the situation<br>▪ Development of a suitable plan of action<br>▪ Appropriate implementation of the plan of action<br>▪ Development of relevant explanations, solutions or conclusions |
| ⟺ |
| * The student must be provided with feedback on this element, but the element must not be considered when determining the student's mark in the report card. |

**Makes the most of his/her scientific knowledge**

**THEORY: 60%**

**Communicates using scientific language**

**Evaluation of Learning**

| **Evaluation criteria**[2] |
|---|
| ⟺ |
| ▪ Proficiency of subject-specific knowledge targeted in the *Progression of Learning*:<br>  ▪ The Material World<br>  ▪ The Living World<br>  ▪ The Earth and Space<br>  ▪ Strategies* |
| ▪ Accurate interpretation of the problem<br>▪ Relevant use of scientific knowledge<br>▪ Appropriate formulation of explanations or solutions |
| ⟺ |
| * The student must be provided with feedback on this element, but the element must not be considered when determining the student's mark in the report card. |

## Appendix 1

**Information Clarifying the Criteria**

| | |
|---|---|
| **Appropriate representation of the situation** | ▪ Reformulation of the problem<br>▪ Formulation of hypotheses |
| **Development of a suitable plan of action** | ▪ Planning of steps in the plan of action<br>▪ Control of variables<br>▪ Selection of resources (materials, equipment, tools, etc.) |
| **Appropriate implementation of the plan of action** | ▪ Use of selected materials in accordance with the precision of the instruments or tools<br>▪ Observance of safety rules<br>▪ Recording of data<br>▪ Consideration of measurement errors<br>▪ Use of appropriate strategies and techniques<br>▪ Adjustments during the implementation of the plan of action<br>▪ Use of appropriate types of representation (tables, graphs, diagrams) |
| **Development of relevant explanations, solutions or conclusions** | ▪ Formulation of explanations or conclusions in accordance with the data collected and knowledge acquired<br>▪ Verification of consistency of the hypothesis with the analysis of the results<br>▪ Proposal of improvements<br>▪ Use of appropriate terminology, rules and conventions |

## Appendix 2

**Information Clarifying the Criteria**

| | |
|---|---|
| **Accurate interpretation of the problem** | ▪ Identification of elements relevant to the problem and the connections between them<br>▪ Proposal of a tentative explanation or opinion |
| **Relevant use of scientific knowledge** | ▪ Selection and application of:<br>  ▪ concepts<br>  ▪ laws<br>  ▪ models<br>  ▪ theories |
| **Appropriate formulation of explanations or solutions** | ▪ Formulation or justification of explanations related to the problem<br>▪ Justification of decisions or opinions on the basis of scientific knowledge<br>▪ Use of mathematical formalism (if needed)<br>▪ Use of appropriate terminology, rules and conventions |

1. The elements under the criterion related to the proficiency of subject-specific knowledge can be found in the *Progression of Learning*. Information clarifying the other criteria is presented in Appendix 1 of this document.
2. The elements under the criterion related to the proficiency of subject-specific knowledge can be found in the *Progression of Learning*. Information clarifying the other criteria is presented in Appendix 2 of this document.