

Updated
Framework for the Evaluation of Learning
PDF Version

Science and Technology
Secondary School
Cycle One

March 2011

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 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 the mastery of 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.

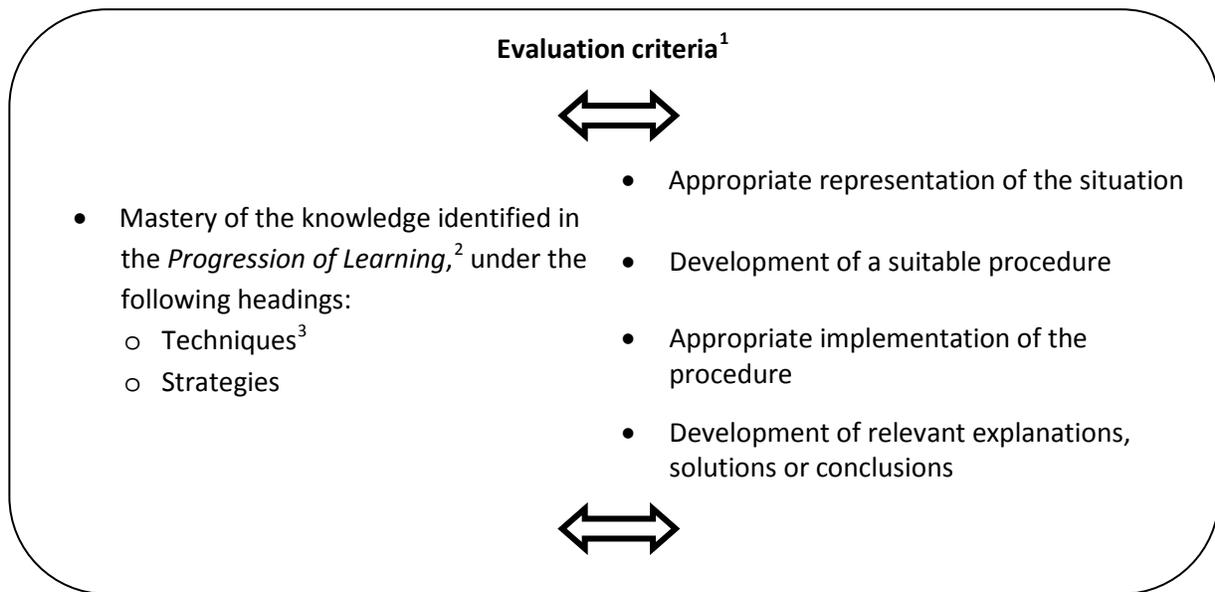
The teacher's role in evaluation

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.

PRACTICAL: 40%

- Seeks answers or solutions to scientific or technological problems
- Communicates in the languages used in science and technology

Evaluation of learning



Knowledge will be evaluated at specific times in accordance with the teacher’s overall planning, and the teacher will determine the importance of the various dimensions to be evaluated in calculating the student’s mark.

 **This arrow** indicates that the evaluation of learning involves a process of going back and forth between mastery of subject-specific knowledge and the understanding, application or use of this knowledge. Evaluation must take place throughout the learning process to ensure the mastery of knowledge.

¹ In the HTML version of the frameworks for the evaluation of learning (forthcoming), the information clarifying the criteria will also be available in a hyperlink by clicking on the criterion (in this version, this information is found in Appendix 1).

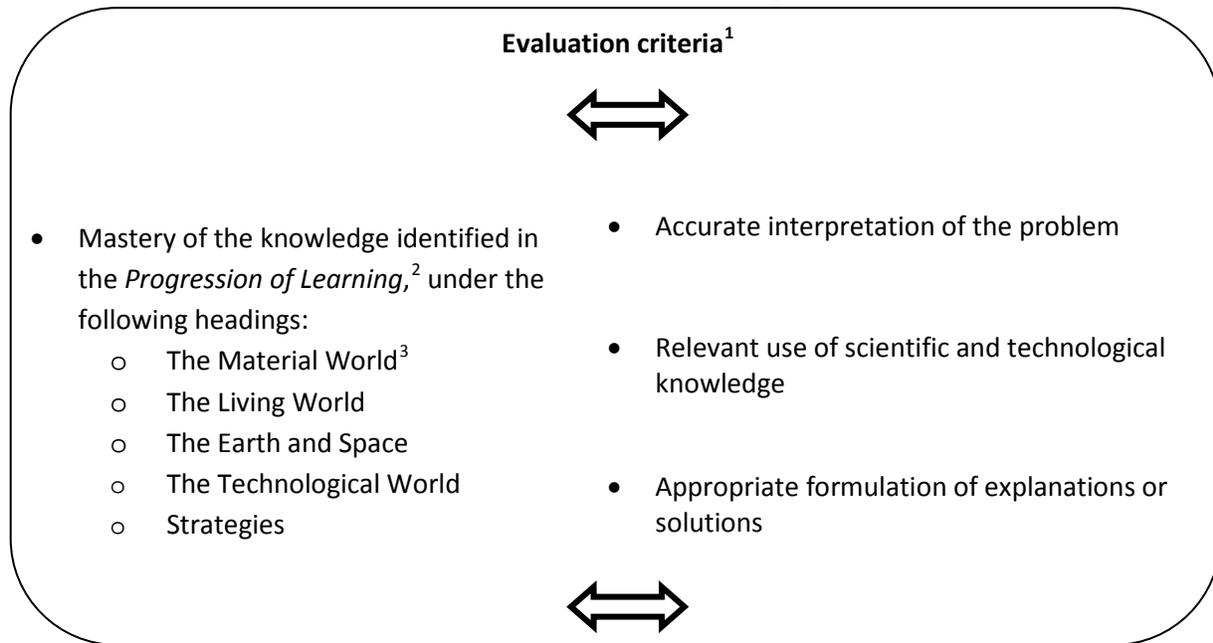
² The *Progression of Learning in Elementary School* is available at http://www.mels.gouv.qc.ca/progression/index_en.asp and the *Progression of Learning in Secondary School* is available at http://www.mels.gouv.qc.ca/progression/seconde/index_en.asp.

³ In the HTML version of the frameworks for the evaluation of learning (forthcoming), these headings will appear as hyperlinks that provide a direct link to the *Progression of Learning*.

THEORY: 60%

- *Makes the most of his/her knowledge of science and technology*
- *Communicates in the languages used in science and technology*

Evaluation of learning



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² The *Progression of Learning in Elementary School* is available at http://www.mels.gouv.qc.ca/progression/index_en.asp and the *Progression of Learning in Secondary School* is available at http://www.mels.gouv.qc.ca/progression/seconde/index_en.asp.

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Appendix 1

Information Clarifying the Criteria

Appropriate representation of the situation

Development of a suitable procedure

Appropriate implementation of the procedure

Development of relevant explanations, solutions or conclusions

- Reformulation of the problem
- Formulation of hypotheses or possible solutions
- Planning of steps in the procedure
- Selection of resources (materials, equipment, tools, etc.)
- Use of materials selected
- Observance of safety rules
- Recording of data
- Use of appropriate strategies and techniques
- Adjustments during the implementation of the procedure
- Use of appropriate types of representation (tables, graphs, diagrams)
- Formulation of explanations or conclusions in accordance with the data collected and knowledge acquired
- Verification of consistency of the hypothesis with the analysis of the results
- Production of a prototype in compliance with the specifications
- Proposal of improvements or new solutions
- 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
- Proposal of a tentative explanation or solution
- Identification of operating principles

Relevant use of scientific and technological knowledge

- Selection and application of:
 - concepts
 - laws
 - models
 - theories

Appropriate formulation of explanations or solutions

- Formulation or justification of explanations related to the problem
- Formulation or justification of solutions related to the technical object or system
- Justification of decisions on the basis of scientific and technological knowledge
- Use of appropriate terminology, rules and conventions