

Framework for the Evaluation of Learning

Mathematics

Elementary School Cycles One, Two and Three

April 21, 2011

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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.

To solve a situational problem related to mathematics

20% (Cycle One)
30% (Cycles Two and Three)

Evaluation of Learning

Evaluation criteria¹



- | | |
|---|---|
| <ul style="list-style-type: none"> ■ Proficiency of subject-specific knowledge targeted in the <i>Progression of Learning</i>: ♦ <ul style="list-style-type: none"> ■ Arithmetic ■ Geometry ■ Measurement ■ Statistics ■ Probability | <ul style="list-style-type: none"> ■ Indication (oral or written) that the situational problem has been understood ■ Correct application of the concepts and processes required to produce an appropriate solution ■ Explanation (oral or written) of the main aspects of the solution ■ Appropriate explanation (oral or written) of how the solution was validated* |
|---|---|



* 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.

♦ The proficiency of subject-specific knowledge is evaluated as part of *To reason using mathematical concepts and processes*.

To reason using mathematical concepts and processes

80% (Cycle One)
70% (Cycles Two and Three)

Evaluation of Learning

Evaluation criteria²



- | | |
|---|---|
| <ul style="list-style-type: none"> ■ Proficiency of subject-specific knowledge³ targeted in the <i>Progression of Learning</i>: <ul style="list-style-type: none"> ■ Arithmetic ■ Geometry ■ Measurement ■ Statistics ■ Probability | <ul style="list-style-type: none"> ■ Appropriate analysis of a situation involving applications ■ Appropriate application of the required processes ■ Correct justification of actions or statements by referring to mathematical concepts and processes |
|---|---|



To communicate by using mathematical language*

Evaluation of Learning

Evaluation criteria ⁴	
↔	
<ul style="list-style-type: none"> ■ Proficiency of subject-specific knowledge targeted in the <i>Progression of Learning</i>: ♦ <ul style="list-style-type: none"> ■ Arithmetic ■ Geometry ■ Measurement ■ Statistics ■ Probability 	<ul style="list-style-type: none"> ■ Correct interpretation of a message (oral or written) using mathematical language ■ Correct production of a message (oral or written) using mathematical language
↔	
<p>* 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.</p> <p>♦ The proficiency of subject-specific knowledge is evaluated as part of <i>To reason using mathematical concepts and processes</i>.</p>	

Appendix 1

Information Clarifying the Criteria

Indication (oral or written) that the situational problem has been understood	<ul style="list-style-type: none"> ■ Planning of steps involved in the situational problem ■ Identification of relevant information ■ Consideration of the constraints of the situational problem
Correct application of the concepts and processes required to produce an appropriate solution	<ul style="list-style-type: none"> ■ Selection of the required mathematical concepts and processes ■ Correct application of the required concepts and processes
Explanation (oral or written) of the main aspects of the solution	<ul style="list-style-type: none"> ■ Clear, thorough indication (oral or written) of how the solution is worked out
Appropriate explanation (oral or written) of how the solution was validated*	<ul style="list-style-type: none"> ■ Validation of the solution and rectification as needed
<p>* 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.</p>	

Appendix 2

Information Clarifying the Criteria

Appropriate analysis of a situation involving applications	<ul style="list-style-type: none"> ■ Identification of elements and actions that allow the requirements of the situation to be met ■ Selection of the required mathematical concepts and processes
Appropriate application of the required processes	<ul style="list-style-type: none"> ■ Application of the required mathematical concepts and processes
Correct justification of actions or statements by referring to mathematical concepts and processes	<ul style="list-style-type: none"> ■ Clear, thorough indication of work, justifying the actions, conclusions or results ■ Use of mathematical arguments, when needed, to explain actions, conclusions or results

Appendix 3

Information Clarifying the Criteria

Correct interpretation of a message (oral or written) using mathematical language*	<ul style="list-style-type: none"> ■ Identification of important elements of a message ■ Identification of relevant information ■ Selection of relevant mathematical concepts and processes ■ Translation of a message incorporating elements of mathematical language and everyday language
Correct production of a message (oral or written) using mathematical language*	<ul style="list-style-type: none"> ■ Production of a message consisting of relevant ideas ■ Use of relevant mathematical concepts and processes ■ Formulation of appropriate mathematical arguments ■ Appropriate use of mathematical language and everyday language ■ Observance of rules and conventions of mathematical language
<p>* 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.</p>	

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.
3. This criterion corresponds to *Mastery of mathematical concepts and processes*, a criterion in the previous version of the evaluation framework for elementary-level Mathematics.
4. 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 3 of this document.