



**DEFINITION OF THE EVALUATION DOMAIN
FOR CERTIFICATION AND RECOGNITION**

Course
Algebraic Modelling
MTH-2101-3

Common Core Basic Education Program
Mathematics

April 2018

TABLE OF CONTENTS

Introduction	p. 1
Evaluation Content	p. 2
Explanation of the Evaluation Content	p. 3
Evaluation Criteria	p. 3
Proficiency in Mathematical Knowledge	p. 3
Weighting	p. 4
Knowledge	p. 4
Specifications for the Evaluation Instruments	p. 5
Examination: Number of Parts, Sections, Procedures and Duration	p. 5
Examination Content	p. 5
Information-Gathering Tools.....	p. 5
Authorized Materials	p. 5
Assessment Tools	p. 6
Pass Mark	p. 6
Retakes.....	p. 6

Introduction

The Definition of the Evaluation Domain (DED) ensures consistency between a course and the related evaluation instruments. It serves to select, organize and describe the essential and representative elements of the course. The DED is based on the program of study and on the course, but should by no means replace these in the planning of instructional activities.

The DED is the reference document that ensures the validity of examinations across the province¹. This document serves as a framework for developing multiple equivalent versions of an evaluation instrument.

The DED for each ministerial examination is developed by the *ministère de l'Éducation, du Loisir et du Sport* (MELS). The DED for other types of examinations is developed either by MELS or, at the request of the school boards, the Société GRICS (BIM). For ethical reasons, only those responsible for developing Definitions of the Evaluation Domain can modify their content.

Examinations developed by the MELS conform to the content of their respective DEDs. It is recommended all other examinations be in agreement with the DEDs.

¹ Québec, Ministère de l'Éducation du Québec, *Policy on the Evaluation of Learning* (Québec: Gouvernement du Québec, 2003), 47.

Evaluation Content

General Information	
<p>Broad Areas of Learning</p> <ul style="list-style-type: none"> • Health and Well-Being • Environmental and Consumer Awareness • World of Work • Citizenship <p>Subject Area</p> <ul style="list-style-type: none"> • Mathematics, Science and Technology <p>Class of Situations</p> <ul style="list-style-type: none"> • Establishing Relationships Between Quantities 	<p>Program of Study</p> <ul style="list-style-type: none"> • Mathematics <p>Course</p> <ul style="list-style-type: none"> • Algebraic Modelling MTH-2101-3
Essential Elements Targeted by the Evaluation	
<p>Competency</p> <ul style="list-style-type: none"> • To deal with a real-life situation pertaining to the class of situations targeted by the course. 	<p>Categories of Essential Knowledge</p> <ul style="list-style-type: none"> • Basic algebra • Arithmetic • Perimeter, area, volume • Proportion
Evaluation Criteria and Weighting	
<p>Evaluation Criteria for the Competency</p> <p>Interprets algebraic models correctly (20 %)</p> <p>Produces clear and unambiguous algebraic models (20 %)</p> <p>Correctly determines unknown values (40 %)</p>	<p>Proficiency in Mathematical Knowledge</p> <p>Proficiency in mathematical knowledge presupposes its acquisition, understanding, application and mobilization, and is therefore linked with the evaluation criteria for the competency*.</p> <p>* Explicit evaluation of mathematical knowledge (20 %)</p>

Explanation of the Evaluation Content

Evaluation Criteria

The evaluation criteria are formulated exactly as in the course.

Information Clarifying the Evaluation Criteria

Interprets algebraic models correctly

This criterion measures the adult's ability to:

- decode the symbols, notations and terms associated with algebraic models;
- identify the relationships between different quantities;
- check the plausibility and consistency of conclusions by referring to principals, laws or properties with which they are familiar.

Produces clear and unambiguous algebraic models

This criterion measures the adult's ability to:

- use the symbols, notations and terms associated with algebraic models;
- determine relationships between observed quantities;
- use proportional reasoning;
- structure their message by using algebraic models;
- define the variables used in the presentation of algebraic models.

Correctly determines unknown values

This criterion measures the adult's ability to:

- replace variables with known values in order to obtain an equation with a single unknown;
- perform the necessary simplifications, algebraic manipulations and arithmetic operations in order to accurately calculate an unknown value;
- apply the law of proportions to determine the unknown value in a directly or inversely proportional relationship;
- ensure that calculations and manipulations are consistent.

Proficiency in Mathematical Knowledge

Proficiency in mathematical knowledge is assessed through the evaluation of the competency using tasks related to the evaluation criteria.

For this course, the evaluation of some mathematical knowledge is done explicitly.

Weighting

The weighting for the evaluation of the competency is 80 %. The weighting assigned to the explicit evaluation of mathematical knowledge is 20 % (see the distribution of these percentages in the table).

These weightings were established in order to emphasize the competency while acknowledging the importance mathematical knowledge plays in its development.

Knowledge

Essential knowledge targeted for the evaluation of the competency are many, in the course MTH-2101, under the label *New compulsory knowledge* for the following categories:

- Basic algebra
- Arithmetic
- Perimeter, area, volume
- Proportion

It is recommended that approximately half of the essential knowledge be the object of evaluating mobilized knowledge, and that approximately one quarter of the essential knowledge be the object of explicit evaluation.

Specifications for the Evaluation Instruments

Examination: Number of Parts, Sections, Procedures and Duration

The examination is comprised of one part, divided into two sections. These sections are included in the same booklet and may be administrated over two sessions.

Should the examination take place over the course of two sessions, it is imperative to separate it into two distinct booklets in order to preserve its confidentiality.

Total length of the evaluation: 2 hours and 30 minutes

Section – *Explicit Evaluation of Mathematical*: 30 minutes

Section – *Evaluation of Mobilized Mathematical Knowledge*: 2 hours

Examination Content

Section – *Explicit Evaluation of Mathematical Knowledge*

The tasks to be performed by the adult learner in the section *Explicit Evaluation of Mathematical Knowledge* consist of answering questions leading to short answers or more developed answers.

Section – *Evaluation of Mobilized Mathematical Knowledge*

The tasks to be performed by the adult learner in the section *Evaluation of Mobilized Mathematical Knowledge* are problems to be solved. They are presented in one or more real-life situations associated with Establishing Relationships Between Quantities.

Information-Gathering Tools

Section – *Explicit Evaluation of Mathematical Knowledge*

The adult learner answers questions which lead to short answers or more developed answers.

Section – *Evaluation of Mobilized Mathematical Knowledge*

The adult learner solves problems contextualized in real-life situations.

Authorized Materials

For both sections of the examination

- Regular or scientific calculator
- A geometry set
- A ruler graduated according to the Imperial system
- A formula sheet appended to the *Adult's Booklet*
- A memory aid

Specifications:

- ◆ The memory aid, prepared by the adult learner, must not exceed one $8\frac{1}{2} \times 11$ inch single-sided sheet of paper. It may be handwritten or typed (minimum 12-point font; single-spaced) and must be approved by the teacher.
- ◆ Mathematical formulas and examples prepared by the adult learner are permitted on the memory aid.

Assessment Tools

Section – *Explicit Evaluation of Mathematical Knowledge*

- An answer key

Section – *Evaluation of Mobilized Mathematical Knowledge*

- An answer key
- A rubric for the competency, based on criterion-referenced examples of adult learners' reasoning that uses a descriptive scale with five levels.

Pass Mark

The pass mark is 60 % for the examination as a whole.

Retakes

The adult learner must retake another version of the entire examination.