



DEFINITION OF THE EVALUATION DOMAIN

Course

Geometric Representations
MTH-P104-4

Common Core Basic Education Program
Mathematics

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Introduction

The Definition of the Evaluation Domain (DED) ensures consistency between a course and the related evaluation instruments. The Definition of the Evaluation Domain selects, organizes and describes the essential and representative elements of the course. The DED is based on the program of study and the course, but should by no means replace them in the planning of instructional activities.

The Definition of the Evaluation Domain is the reference document that ensures the validity of the examinations across the province¹. This document serves as a framework to develop multiple equivalent versions of an evaluation instrument.

The Definition of the Evaluation Domain for each ministerial examination is developed by the Ministry of Education, Leisure and Sport (MELS). The Definition of the Evaluation Domain for other types of examinations is developed either by MELS or the Société GRICS (BIM) at the request of the school boards. For ethical reasons, only those responsible for developing definitions of the domain can modify their content.

Examinations developed by MELS conform to the content of their respective Definition of the Evaluation Domain. Other examinations should also be in agreement with the DED.

1. Quebec, Ministry of Education of Quebec, *Policy on the Evaluation of Learning* (Quebec: Government of Quebec, 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"> • Representing the physical environment 	<p>Program of Study</p> <ul style="list-style-type: none"> • Mathematics <p>Course</p> <ul style="list-style-type: none"> • Geometric Representations MTH-P104-4
Essential Elements Targeted by the Evaluation	
<p>Competency in dealing with a situation pertaining to the following categories of actions</p> <ul style="list-style-type: none"> • Perceiving shapes and quantities in the physical environment • Producing representations of the physical environment • Determining measurements and ratios 	<p>Categories of Essential Knowledge</p> <ul style="list-style-type: none"> • Plane figures • Measurements • Decimals and ratios • Proportional relationships

Evaluation Content (*continued*)

Evaluation Criteria, Indicators and Weighting

Evaluation Criterion 1

PERCEIVING SHAPES AND QUANTITIES IN THE PHYSICAL ENVIRONMENT (30 %)

Indicators

- 1.1 Decode the symbols, notations and terms associated with arithmetic and geometric language. (5 %)
- 1.2 Make connections between figures, measurements, ratios and the objects they represent. (5 %)
- 1.3 Use inferences with respect to the properties of simple geometric figures in order to deduce implicit information in representations of the physical environment. (5 %)
- 1.4 Identify shapes and quantities. (5 %)

Note: A weighting of 10 % is assigned to the explicit evaluation of subject-specific knowledge.

Evaluation Criterion 2

PRODUCING REPRESENTATIONS OF THE PHYSICAL ENVIRONMENT (30 %)

Indicators

- 2.1 Select the geometric shapes that most closely resemble reality. (5 %)
- 2.2 Construct geometric shapes using the appropriate techniques. (10 %)
- 2.3 Indicate measurements in accordance with the International System of Units. (5 %)
- 2.4 Use mathematical models to structure a message appropriately. (10 %)

Evaluation Criterion 3

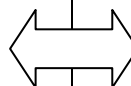
DETERMINING MEASUREMENTS AND RATIOS (40 %)

Indicators

- 3.1 Perform operations on ratios and decimals. (5 %)
- 3.2 Take measurements with precision. (5 %)
- 3.3 Make a note of the measurements taken by rigorously adhering to the International System of Units. (5 %)
- 3.4 Determine ratios or measurements by deducing them directly from a given representation. (15 %)

Note: A weighting of 10 % is assigned to the explicit evaluation of subject-specific knowledge.

Proficiency in Subject-Specific Knowledge



The proficiency in subject-specific knowledge presumes its acquisition, understanding, application and mobilization, and is therefore linked to the actions described in the indicators.

Explanation of the Evaluation Content

Evaluation Criteria and Indicators

The evaluation criteria are formulated exactly as in the course. The indicators are formulated mainly from the end-of-course outcomes.

Proficiency in Subject-Specific Knowledge

Proficiency in subject-specific knowledge is evaluated through the competencies where mobilization of knowledge is implicit. Tasks linked to the evaluation criteria and indicators allow for the evaluation of both subject-specific knowledge and competencies.

For this course, selected subject-specific knowledge is evaluated explicitly.

Weighting

The weighting assigned to the evaluation of competencies is 80 %. The weighting assigned to the explicit evaluation of subject-specific knowledge is 20 %. (See the distribution of these percentages in the preceding table.)

These weightings were established in order to emphasise the evaluation of competency in dealing with a situation, and as a function of the complexity and the importance of the associated knowledge.

Essential Knowledge

Essential knowledge targeted for the evaluation of competencies (choose 12) and the explicit evaluation of subject-specific knowledge (choose 8) is as follows:

Plane figures

- Regular convex polygons
- Classifying triangles (scalene, equilateral, right and isosceles)
- Classifying quadrilaterals
- Properties of simple figures (regular convex polygons and various types of triangles and quadrilaterals)
- Vertically opposite, adjacent, complementary and supplementary angles
- Significant segments (side, base, diagonal, radius and diameter)
- Perimeter and circumference
- Area
- Surface area
- Constructing angles from 0 to 180 degrees (to the nearest two degrees)
- Constructing polygons (squares, rectangles, various types of triangles)
- Constructing a circle
- Calculating the perimeter or the length of the sides of a convex polygon
- Decomposing a complex figure into simpler figures

Measurements (International System of Units only)

- Prefixes used in the International System (milli, centi, deci, deca, hecto, kilo)
- Units of measure for area, capacity, temperature and mass
- Measuring and estimating length
- Measuring and estimating capacity
- Measuring and estimating the size of an angle
- Measuring and estimating area using the tile method
- Converting a measurement into another within the International System (except for area measurements)

Ratios

- Improper fractions
- Equivalent fractions
- Simplifying fractions
- Common denominator
- Comparing fractions, improper fractions and mixed numbers (fractional parts with the same denominator, where the denominator of one fraction is a multiple of the denominator of the other, or whose denominators are less than or equal to four)
- Representing improper fractions (using the base 10 number system and visual aids : block sets, illustrations, etc)
- Converting a mixed number into an improper fraction and vice versa
- Adding and subtracting ratios of quantities of objects
- Adding and subtracting positive fractions, improper fractions and mixed numbers using a calculator, visual aids and written calculation algorithms (fractional parts with the same denominator, where the denominator of one fraction is a multiple of the denominator of the other, or whose denominators are less than or equal to four)
- Multiplication and division involving a natural number and a positive mixed number (using a calculator, visual aids and written calculation algorithms)
- Translating relations into arithmetic models using mixed numbers, improper fractions, positive mixed numbers and ratios of quantities of objects

Specifications for the Evaluation Instruments

Examination: Number of Parts, Procedure and Duration

The examination is comprised of two sections which are administered during the same examination session. The total length of the examination is 2 hours and 30 minutes.

Examination Content

Section “Explicit Evaluation of Subject-Specific Knowledge”

- The adult answers questions which lead to a short answer or a more developed answer.

Section “Evaluation of Competencies”

- The adult solves problems which are presented in one or more realistic application situations.

Information-Gathering Tools

Section “Explicit Evaluation of Subject-Specific Knowledge”

- Questionnaire

Section “Evaluation of Competencies”

- Problem solving tasks

Authorized Materials

For both sections of the examination:

- Geometry set
- Regular or scientific calculator

Assessment Tools

Section “Explicit Evaluation of Subject-Specific Knowledge”: answer key.

Section “Evaluation of Competencies”:

- Three evaluation grids based on criterion-referenced interpretation which make use of the following descriptive scale: Excellent, Very Good, Acceptable, Partially Acceptable, Unacceptable

OR

- A marking-scheme

Pass Mark

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

Retakes

The adult must retake the entire examination.