

Alberta Provincial
Achievement Testing

Assessment
Highlights
2009

GRADE

6

Mathematics

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This document contains assessment highlights from the 2009 Grade 6 English Mathematics Achievement Test.

Assessment highlights provide information about the overall test, the test blueprints, and student performance on the English form of the 2009 Grade 6 Mathematics Achievement Test. Also provided is commentary on student performance at the *acceptable standard* and the *standard of excellence* on the 2009 achievement test. This information is intended for teachers and is best used in conjunction with the multi-year and detailed school reports that are available to schools via the extranet. **Assessment Highlights** reports for all achievement test subjects and grades will be **posted on the Alberta Education website every year** in the fall.

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The Alberta Education Internet address is education.alberta.ca.

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The 2009 Grade 6 Mathematics Achievement Test

This report provides teachers, school administrators, and the public with an overview of the performance of those students who wrote the English form of the 2009 Grade 6 Mathematics Achievement Test. It complements the detailed school and jurisdiction reports.

How Many Students Wrote the Test?

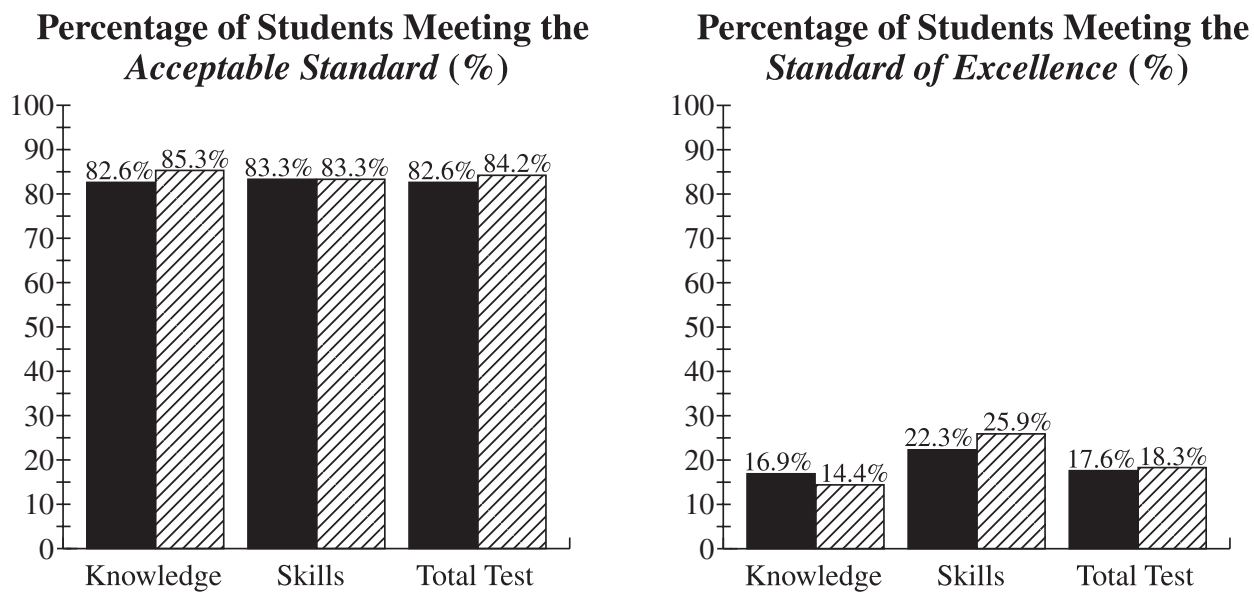
A total of 36 634 students wrote the English form of the 2009 Grade 6 Mathematics Achievement Test.

What Was the Test Like?

The 2009 Grade 6 Mathematics Achievement Test consisted of two parts. *Part A: Number Operations and Number Sense* consisted of 30 multiple-choice items designed to assess the knowledge students have of number sense. *Part B: Multiple Choice* consisted of 50 multiple-choice items based on content from the four strands: Number; Patterns and Relations; Shape and Space; and Statistics and Probability.

How Well Did Students Do?

The percentages of students meeting the *acceptable standard* and the *standard of excellence* in 2009 are consistent with 2008, as shown in the graphs below. Out of a total possible score of 54, the provincial average on the English form of the test was 37.7 (69.8%). The results presented in this report are based on scores achieved by all students who wrote the English form of the test; results for those students in French Immersion and Francophone programs who wrote the French form of the test are reported separately. Detailed provincial assessment results are provided in school and jurisdiction reports.



■ 2008 Achievement Standards: The percentage of students in the province who met the *acceptable standard* and the *standard of excellence* on the 2008 Grade 6 Mathematics Achievement Test (based on those who wrote).

▨ 2009 Achievement Standards: The percentage of students in the province who met the *acceptable standard* and the *standard of excellence* on the 2009 Grade 6 Mathematics Achievement Test (1989 Program of Studies) (based on those who wrote).

2009 Test Blueprint and Student Achievement

In 2009, 84.2% of students who wrote the test achieved the *acceptable standard* on the Grade 6 Mathematics Achievement Test, and 18.3% of students who wrote achieved the *standard of excellence*. These results are slightly higher than the results from 2008, in which 82.6% achieved the *acceptable standard* and 17.6% achieved the *standard of excellence*.

Student achievement on the 2009 Grade 6 Mathematics Achievement Test averaged 37.7 out of a total score of 54 (69.8%).

The blueprint below shows the reporting categories and test sections (curricular content areas) by which 2009 summary data are reported to schools and school authorities, and the provincial average of student achievement by both raw score and percentage.

Test Sections	Reporting Category		Provincial Student Achievement Average Raw Score and Percentage
	Knowledge	Skills	
	Recall facts, concepts, procedures, and terminology	Apply facts, concepts, procedures, terminology, and relationships to solve problems in a variety of situations	
Part A: Operations and Number Sense			3.3/4 (82.5%)
Part B: Multiple Choice (See four categories below)			
Number • Number Concepts • Number Operations			11.9/17 (70.0%)
Patterns and Relations • Patterns • Variables and Equations • Relations and Functions			9.2/13 (70.8%)
Shape and Space • Measurement • 3-D Objects and 2-D Shapes • Transformations			8.0/12 (66.7%)
Statistics and Probability • Data Analysis • Chance and Uncertainty			5.3/8 (66.3%)
Provincial Student Achievement Average Raw Score and Percentage for Students Who Wrote the Test	15.2/21 (72.4%)	22.4/33 (67.9%)	Total Test 37.7/54 (69.8%)

*Please Note: Twenty items have not been released from the 2008 test.

2009 Mathematics 6 PAT Student Performance Commentary

The following table provides a brief synopsis of student performance demonstrated on the 2009 Grade 6 Mathematics Achievement Test. The observations have been categorized in terms of student performance strengths and challenges in relation to outcomes that were tested in each of the four strands from the Alberta Program of Studies for K–9 Mathematics.

Strand	Outcome Strengths	Outcome Challenges
Number	<ul style="list-style-type: none"> • Applying knowledge of multiples and/or factoring to solve a problem • Solving problems involving integers by extending counting numbers to less than zero • Solving problems involving ratios • Solving problems involving multi-step operations on decimals to thousandths 	<ul style="list-style-type: none"> • Using knowledge of least common multiples to solve a problem • Solving problems involving improper fractions and mixed numbers • Demonstrating the meaning of percentage pictorially and symbolically
Patterns and Relations	<ul style="list-style-type: none"> • Summarizing relationships using everyday language • Describing rules to describe, complete, and extend patterns and relationships • Finding approximate number values from a given graph • Demonstrating the preservation of equality by balancing objects represented in a model/ diagram 	<ul style="list-style-type: none"> • Determining relationships to verify predictions • Using pre-algebra strategies to solve equations with one unknown and with whole number coefficients and solutions
Shape and Space	<ul style="list-style-type: none"> • Converting commonly used SI units of length, mass, and capacity to solve problems • Determining the volume of an object by measuring the displacement of a liquid by that object • Estimating and measuring angles, using a circular protractor • Classifying triangles according to the measures of their angles • Identifying the ordered pairs of a design after it has undergone a translation and/or a reflection 	<ul style="list-style-type: none"> • Developing and applying rules or expressions for the perimeter of polygons • Determining the ordered pairs of a shape after it is reflected in the first quadrant • Constructing rectangles when given one or both of perimeter and area, using whole numbers • Demonstrating pictorially that many rectangles are possible for a given perimeter or a given area
Statistics and Probability	<ul style="list-style-type: none"> • Reading and interpreting graphs that are provided • Making the connection between the number of faces on a die and the probability of an event • Calculating theoretical probability, using numbers between 0 and 1 	<ul style="list-style-type: none"> • Distinguishing between theoretical and experimental results • Determining how collected data are affected by the nature of the sample, the method of collection, the sample size and biases

Achievement Testing Program Support Documents

The Alberta Education website contains several documents that provide valuable information about various aspects of the achievement testing program. To access these documents, go to the Alberta Education website at education.alberta.ca. From the home page, follow this path: *Teachers > Provincial Testing > Achievement Tests*, and then click on one of the specific links under the *Achievement Tests* heading to access the following documents.

Achievement Testing Program General Information Bulletin

The *General Information Bulletin* is a compilation of several documents produced by Alberta Education and is intended to provide superintendents, principals, and teachers with easy access to information about all aspects of the achievement testing program. Sections in the bulletin contain information pertaining to schedules and significant dates; security and test rules; test administration and directives; test accommodations; field testing; resources and web documents; calculator and computer policies; test marking and results; samples, forms, and letters; and Learner Assessment contacts.

Subject Bulletins

At the beginning of each school year, Subject Bulletins are posted on the Alberta Education website for all achievement test subjects for grades 3, 6, and 9. Each bulletin provides descriptions of assessment standards, test design and blueprinting, and scoring guides as well as suggestions for preparing students to write the tests and information about how teachers can participate in test development activities.

Writing Samples

For achievement tests in grades 3, 6, and 9 English Language Arts and Français/French Language Arts, and grades 6 and 9 Mathematics, writing samples have been designed to be used by teachers and students to enhance students' writing and to assess this writing relative to the standards inherent in the scoring guides for the achievement tests. The writing samples documents contain sample responses with scoring rationales that relate student work to the scoring categories and scoring criteria for the writing assignments.

Previous Achievement Tests and Answer Keys

All January achievement tests (parts A and B) for Grade 9 semestered students are secured and must be returned to Alberta Education. All May/June achievement tests are secured except Part A of grades 3, 6, and 9 English Language Arts and Français/French Language Arts. Unused or extra copies of only these Part A tests may be kept at the school after administration. Teachers may also use the print versions of released items that have been mailed to schools and/or the tests that are posted on the Alberta Education website.

Parent Guides

Each school year, print versions of the Parent Guide to Provincial Achievement Testing for grades 3, 6, and 9 are mailed to schools and posted on the Alberta Education website. Each guide presents answers to frequently asked questions about the achievement testing program; descriptions of and sample questions for each achievement test subject; and excerpts from the *Curriculum Handbook for Parents* identifying what students should know and be able to do in each subject by the end of grades 3, 6, and 9.

Involvement of Teachers

Teachers of grades 3, 6, and 9 are encouraged to take part in a variety of activities related to the achievement testing program. These activities include item development, test validation, field testing, and marking. In addition, regional consortia can make arrangements for teacher in-service workshops on topics such as Interpreting Achievement Test Results to Improve Student Learning.