

Alberta Provincial Achievement Testing

Assessment
Highlights
2010-2011

GRADE
9

Knowledge and Employability **Science**



Government
of Alberta ■

Alberta ■

Freedom To Create. Spirit To Achieve.

This document was written primarily for:

Students	
Teachers	✓ of KE Science
Administrators	
Parents	
General Audience	
Others	

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The [Alberta Education website](http://education.alberta.ca) is found at education.alberta.ca.

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The 2011 Grade 9 Knowledge and Employability Science Achievement Test

This report provides teachers, school administrators, and the public with an overview of the performance of those students who wrote the 2011 Grade 9 Knowledge and Employability Science Achievement Test. The examination statistics that are included in this document represent all writers, both French and English. If you would like to obtain English-only statistics or French-only statistics that apply to your school, please refer to your detailed reports, which are available on the Extranet. This report complements the detailed school and jurisdiction reports.

How Many Students Wrote the Test?

A total of 1 381 students wrote the 2011 Grade 9 Knowledge and Employability Science Achievement Test.

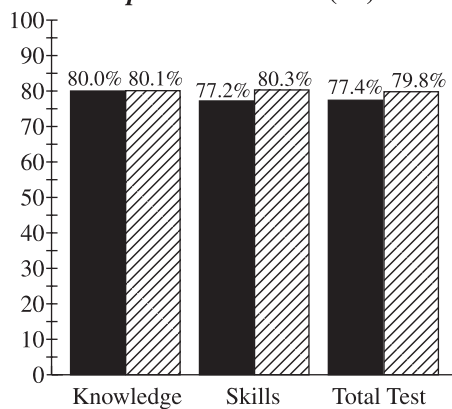
What Was the Test Like?

The 2011 Grade 9 Knowledge and Employability Science Achievement Test consisted of 50 multiple-choice questions based on five science topics: Biological Diversity, Matter and Chemical Change, Environmental Chemistry, Electrical Principles and Technologies, and Space Exploration.

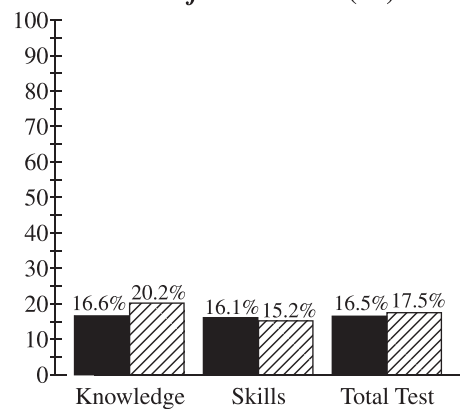
How Well Did Students Do?

The percentages of students meeting the *acceptable standard* and the *standard of excellence* in 2011 compared with 2010 are shown in the graphs below. Out of a total possible score of 50, the provincial average was 32.9 (65.8%).

Percentage of Students Meeting the Acceptable Standard (%)



Percentage of Students Meeting the Standard of Excellence (%)



■ 2010 Achievement Standards: The percentage of students in the province who met the *acceptable standard* and the *standard of excellence* on the 2009 Grade 9 Knowledge and Employability Science Achievement Test (based on those who wrote).

▨ 2011 Achievement Standards: The percentage of students in the province who met the *acceptable standard* and the *standard of excellence* on the 2011 Grade 9 Knowledge and Employability Science Achievement Test (based on those who wrote).

2011 Test Blueprint and Student Achievement

In 2011, 79.8% of students who wrote the Grade 9 Knowledge and Employability Science Achievement Test achieved the *acceptable standard*, and 17.5% of students who wrote achieved the *standard of excellence*. These results are consistent with previous administrations of the achievement test.

The blueprint below shows the reporting categories and topics by which 2011 summary data are reported to schools and school authorities, and it shows the provincial average of student achievement by both raw score and percentage.

Topics	Reporting Category		Provincial Student Achievement Average (Raw Score and Percentage)
	Knowledge	Skills	
Biological Diversity			7.3/11 (66.4%)
Matter and Chemical Change			6.4/10 (64.0%)
Environmental Chemistry			6.1/9 (67.8%)
Electrical Principles and Technologies			6.8/11 (61.8%)
Space Exploration			6.2/9 (68.9%)
Provincial Student Achievement (Average Raw Score and Percentage)	14.3/22 (65.0%)	18.5/28 (66.0%)	Total Test Raw Score = 32.9/50 (65.8%)

Commentary on 2011 Student Achievement

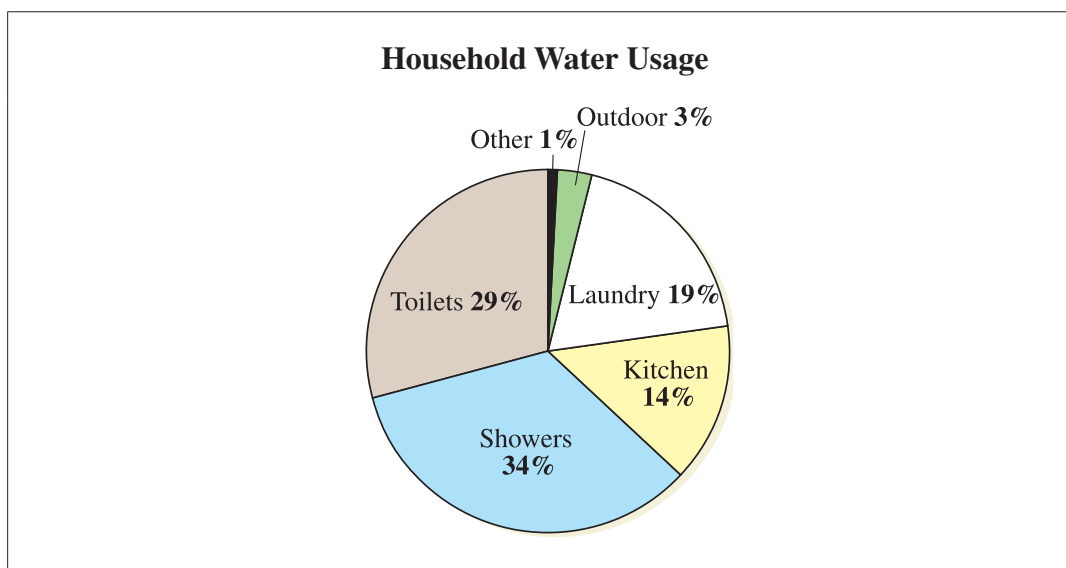
The following is a brief summary of the areas where most students experienced difficulties and demonstrated strengths on the 2011 Grade 9 Knowledge and Employability Science Achievement Test. Four sample questions are also provided to highlight some of these areas. These questions are no longer secured and will not be reused on future achievement tests.

Students demonstrated relative strength by being able to:

- Evaluate information to draw a conclusion about similarities between different species
- Analyze information to evaluate and identify a strategy related to water usage
- Identify a given food group related to Canada's Food Guide to Healthy Eating
- Identify and distinguish a method for reducing the environmental impact related to energy waste
- Analyze diagrams to draw a conclusion related to the position of the moon

For **multiple-choice question 26**, students had to analyze information to evaluate and identify a strategy related to water usage. Approximately 84.7% of students who met the *acceptable standard* and about 95.4% of students who met the *standard of excellence* answered this question correctly.

Use the following information to answer question 26.



26. Based on the information in the pie chart above, which of the following strategies will **most likely** have the largest impact on reducing household water usage?
- A. Taking shorter showers and watering the lawn less often
 - B. Taking shorter showers and installing water-saving toilets
 - C. Using shorter laundry cycles and watering the lawn less often
 - D. Using shorter laundry cycles and installing water-saving toilets

10.8% of the students chose A
79.6% of the students chose B (correct answer)
3.7% of the students chose C
5.8% of the students chose D

For **multiple-choice question 41**, students had to identify and distinguish a method for reducing the environmental impact related to energy waste. Approximately 74.3% of students who met the *acceptable standard* and about 82.6% of students who met the *standard of excellence* answered this question correctly.

- 41.** If a person wants to purchase a light bulb that has the **least** environmental impact, then which of the following light-bulb characteristics should the person consider?
- A.** Size
 - B.** Power rating
 - C.** Style of light bulb
 - D.** Colour of light produced

8.0% of the students chose A

71.6% of the students chose B (correct answer)

14.5% of the students chose C

5.7% of the students chose D

Students demonstrated relative difficulty with:

- Identifying an example that does not describe diversity within a species
- Identifying a product in a simple chemical reaction
- Recognizing and identifying the pH of a neutral solution
- Identifying favourable environmental practices of consumers
- Distinguishing between events to determine the greatest impact on the natural balance of an ecosystem
- Identifying the components in a given circuit diagram

For **multiple-choice question 11**, students had to distinguish between events to determine the greatest impact on the natural balance of an ecosystem. Approximately 44.8% of students who met the *acceptable standard* and about 76.8% of students who met the *standard of excellence* answered this question

- 11.** Which of the following events is the **most disruptive** to the natural balance of an ecosystem?
- A.** The introduction of non-native species
 - B.** The erosion of a riverbank
 - C.** The planting of a garden
 - D.** The migration of birds

46.1% of the students chose A (correct answer)

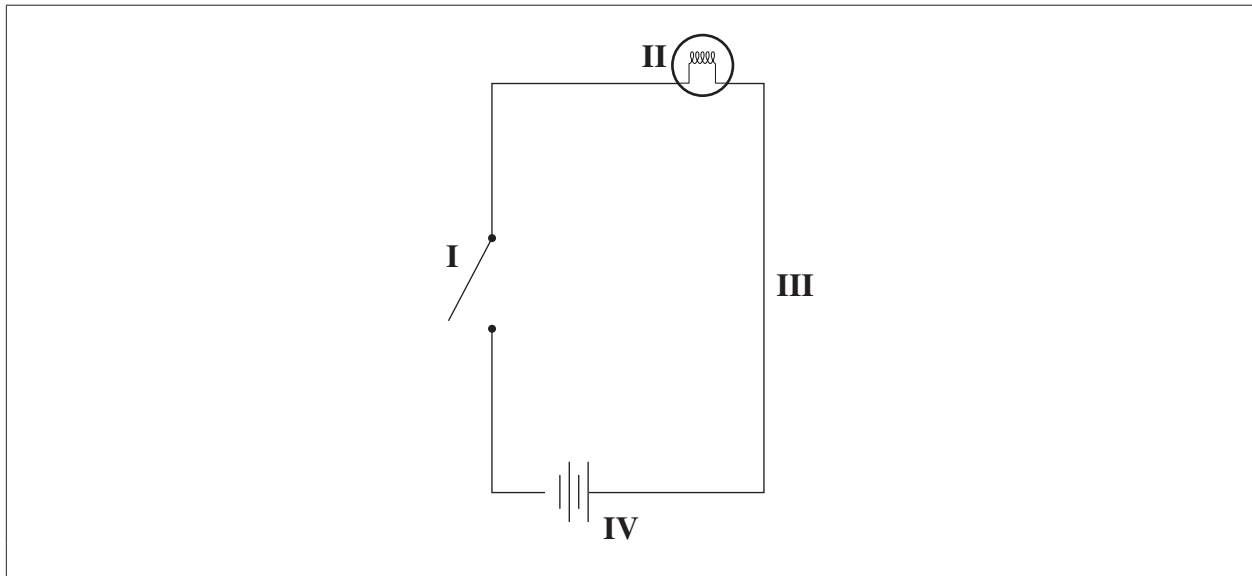
30.6% of the students chose B

9.1% of the students chose C

14.0% of the students chose D

For **multiple-choice question 32**, students had to identify the components in a given circuit diagram. Approximately 55.6% of students who met the *acceptable standard* and about 91.3% of students who met the *standard of excellence* answered this question correctly.

Use the following information to answer question 32.



32. Which of the following rows identifies the parts of the circuit diagram above labelled I, II, III, and IV?

Row	I	II	III	IV
A.	Switch	Load	Conductor	Electrical source
B.	Switch	Conductor	Load	Electrical source
C.	Electrical source	Load	Switch	Conductor
D.	Electrical source	Conductor	Switch	Load

56.7% of the students chose A (correct answer)

33.2% of the students chose B

6.5% of the students chose C

3.4% of the students chose D

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](http://education.alberta.ca) 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 Assessment Sector contacts.

Subject Bulletins

At the beginning of each school year, subject bulletins are posted on the Alberta Education website for all achievement testing subjects for Grades 3, 6, and 9. Each bulletin provides descriptions of assessment standards, test design and blueprinting, and scoring guides (for Grades 3, 6, and 9 English Language Arts and Français/French Language Arts), 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, 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 *Part A: Writing* achievement tests. The writing samples documents contain sample responses with scoring rationales, student self-assessment checklists, and scoring categories and 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 use the versions of released items and/or tests that are posted on the Alberta Education website.

Parent Guides

Each school year, versions of the [Parent Guide to Provincial Achievement Testing](#) for Grades 3, 6, and 9 are posted on the Alberta Education website. Each guide presents answers to frequently asked questions about the achievement testing program, sample questions for each achievement testing 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*.