

**Alberta Provincial
Achievement Testing**

**Assessment
Highlights
2013–2014**

**GRADE
9**

Knowledge and Employability Science

Alberta  Government

This document was written primarily for:

Students	
Teachers	✓ of KE Science
Administrators	✓
Parents	
General Audience	
Others	

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The 2014 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 2014 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 1 283 students wrote the 2014 Grade 9 Knowledge and Employability Science Achievement Test.

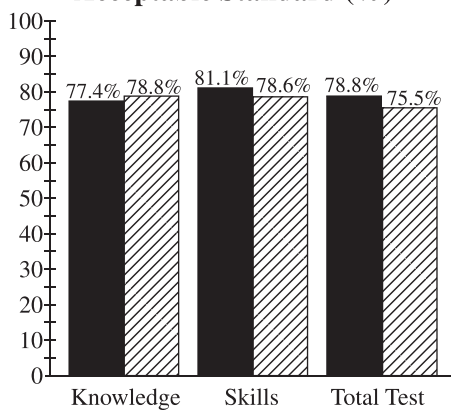
What Was the Test Like?

The 2014 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.

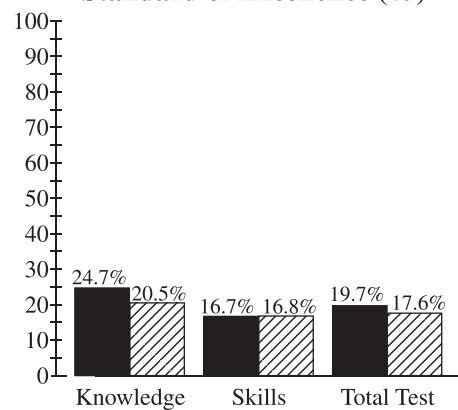
How Well Did Students Do?

The percentages of students meeting the acceptable standard and the standard of excellence in 2014 compared with 2013 are shown in the graphs below. Out of a possible total score of 50, the provincial average was 31.9 (63.8%).

Percentage of Students Meeting the Acceptable Standard (%)



Percentage of Students Meeting the Standard of Excellence (%)



■ 2013 Achievement Standards: The percentage of students in the province who met the acceptable standard and the standard of excellence on the 2013 Grade 9 Knowledge and Employability Science Achievement Test (based on those who wrote).

▨ 2014 Achievement Standards: The percentage of students in the province who met the acceptable standard and the standard of excellence on the 2014 Grade 9 Knowledge and Employability Science Achievement Test (based on those who wrote).

2014 Test Blueprint and Student Achievement

In 2014, 75.5% of students who wrote the Grade 9 Knowledge and Employability Science Achievement Test achieved the acceptable standard, and 17.6% of students who wrote achieved the standard of excellence. These results are similar to previous administrations of the achievement test.

The blueprint below shows the reporting categories and topics by which 2014 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			6.8/10 (68.0%)
Matter and Chemical Change			6.4/10 (64.0%)
Environmental Chemistry			6.5/10 (65.0%)
Electrical Principles and Technologies			5.8/10 (58.0%)
Space Exploration			6.4/10 (64.0%)
Provincial Student Achievement (Average Raw Score and Percentage)	14.3/22 (65.0%)	17.6/28 (62.9%)	Total Test Raw Score = 31.9/50 (63.8%)

Commentary on 2014 Student Achievement

The following is a brief summary of the areas where most students experienced difficulties and demonstrated strengths on the 2014 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:

- Recall an example of a human trait that is heritable
- Apply a given set of criteria to determine the correct graphing template to be used to display the information
- Determine the WHMIS symbol that would most likely be used on a container
- Use information from a nutritional label to identify specific amounts of given nutrients
- Analyze information to draw a conclusion about chemicals in our environment

For **multiple-choice question 19**, students had to determine the WHMIS symbol that would most likely be used on a container. Approximately 89.1% of students who met the acceptable standard and about 90.3% of students who met the standard of excellence answered this question correctly.

Use the following information to answer question 19.

The container shown below is used to transport gasoline.



19. Which of the following WHMIS symbols would **most likely** be on the container?

A.



B.



C.



D.



2.0% of the students chose A

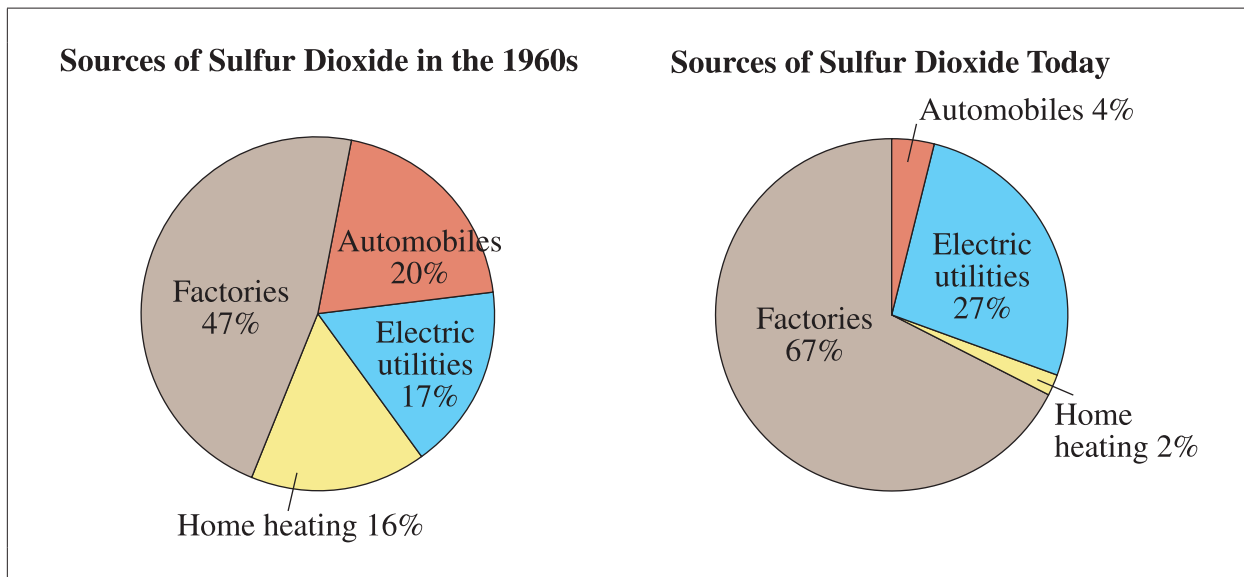
3.6% of the students chose B

85.2% of the students chose C (correct answer)

8.9% of the students chose D

For **multiple-choice question 30**, students had to analyze information to draw a conclusion related to chemicals in our environment. Approximately 88.6% of students who met the acceptable standard and about 96.9% of students who met the standard of excellence answered this question correctly.

Use the following information to answer question 30.



- 30.** According to the information in the pie charts above, the source of sulfur dioxide that increased the **most** from the 1960s to today is
- A. electric utilities
 - B. home heating
 - C. automobiles
 - D. factories

4.9% of the students chose A
7.6% of the students chose B
6.0% of the students chose C
81.2% of the students chose D (correct answer)

Students experienced relative difficulty with:

- Identifying an example of a mechanical mixture from given items
- Differentiating between given characteristics of wind power to draw a conclusion
- Identifying an example of current electricity from given examples
- Analyzing information to draw a conclusion related to a given circuit diagram
- Analyze given information to draw a conclusion related to the characteristics of planets

For **multiple-choice question 34**, students had to differentiate between given characteristics of wind power to draw a conclusion. Approximately 44.8% of students who met the acceptable standard and about 78.8% of students who met the standard of excellence answered this question correctly.

Use the following information to answer question 34.

Wind power is a potential alternative to the burning of fossil fuels for electricity.

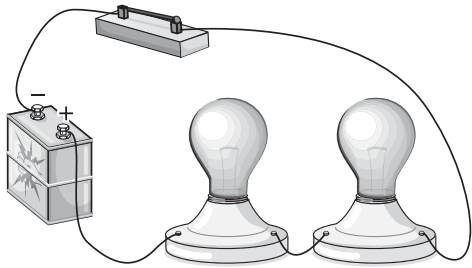
- 34.** Which of the following characteristics of wind power **most likely** prevents it from being a major energy source?
- A.** Wind is environmentally friendly.
 - B.** Wind frequency and strength vary.
 - C.** Wind turbines have large blades.
 - D.** Wind turbines are noisy.

26.7% of the students chose A
47.0% of the students chose B (correct answer)
17.4% of the students chose C
8.5% of the students chose D

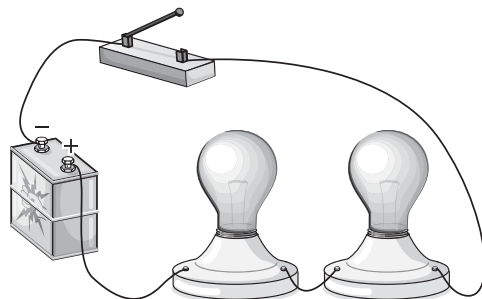
For **multiple-choice question 39**, students had to analyze information to draw a conclusion related to circuit diagrams. Approximately 39.7% of students who met the acceptable standard and about 60.6% of students who met the standard of excellence answered this question correctly.

39. Which of the following diagrams shows a circuit that is closed and wired in series?

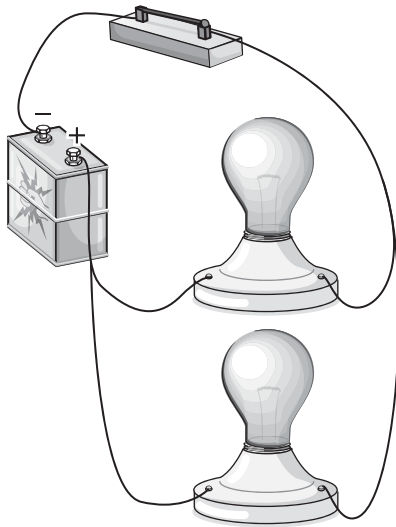
A.



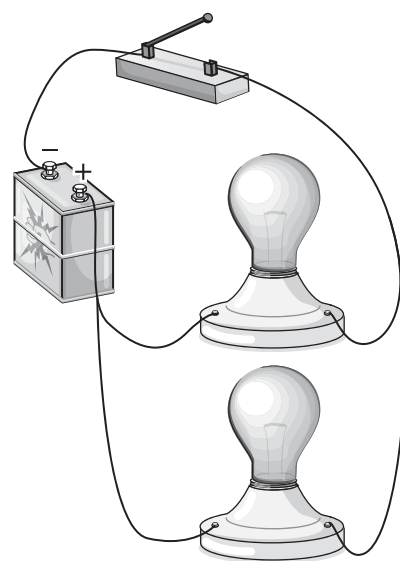
B.



C.



D.



40.1% of the students chose A (correct answer)

13.2% of the students chose B

36.3% of the students chose C

10.1% 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 website at education.alberta.ca. From the home page, follow the path *Teachers > Provincial Testing > Provincial Achievement Tests (PAT)*, and then click on one of the specific links 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 directives, guidelines, and procedures; calculator and computer policies; test accommodations; test marking and results; field testing; resources and web documents; forms and samples; 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 test subjects for grades 6 and 9. Each bulletin provides descriptions of assessment standards, test design and blueprinting, and scoring guides (where applicable) as well as suggestions for preparing students to write the tests and information about how teachers can participate in test development activities.

Examples of the Standards for Students' Writing

For achievement tests in grades 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 achievement tests. The exemplars documents contain sample responses with scoring rationales that relate student work to the scoring categories and scoring criteria.

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 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 released items and/or tests that are posted on the Alberta Education website.

Parent Guides

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

Involvement of Teachers

Teachers of grades 6 and 9 are encouraged to take part in activities related to the achievement testing program. These activities include item development, test validation, field testing, and marking. In addition, arrangements can be made through the Alberta Regional Professional Development Consortia for teacher in-service workshops on topics such as Interpreting Achievement Test Results to Improve Student Learning.