

**Alberta Provincial
Achievement Testing**

**Assessment
Highlights
2014–2015**

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

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The 2015 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 2015 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 1 335 students wrote the 2015 Grade 9 Knowledge and Employability Science Achievement Test.

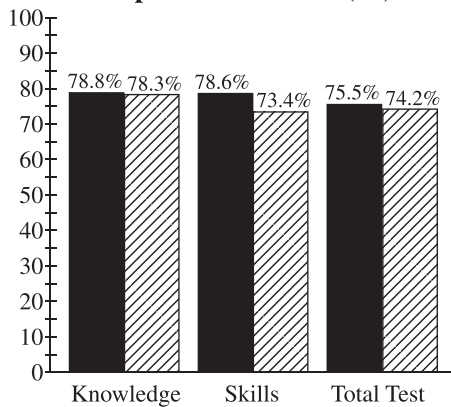
What Was the Test Like?

The 2015 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.

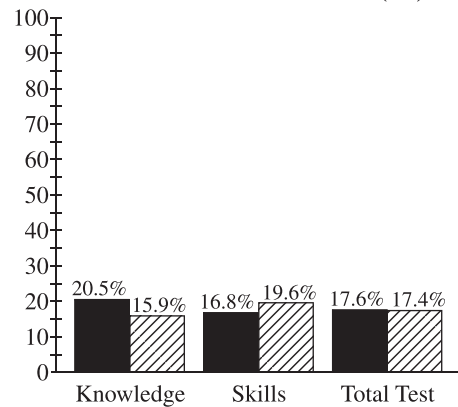
How Well Did Students Do?

The percentages of students meeting the acceptable standard and the standard of excellence in 2015 compared with 2014 are shown in the graphs below. Out of a possible total score of 50, the provincial average was 32.2 (64.4%).

Percentage of Students Meeting the Acceptable Standard (%)



Percentage of Students Meeting the Standard of Excellence (%)



■ 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).

▨ 2015 Achievement Standards: The percentage of students in the province who met the acceptable standard and the standard of excellence on the 2015 Grade 9 Knowledge and Employability Science Achievement Test (based on those who wrote).

2015 Test Blueprint and Student Achievement

In 2015, 74.2% of students who wrote the Grade 9 Knowledge and Employability Science Achievement Test achieved the acceptable standard, and 17.4% of students who wrote achieved the standard of excellence.

The blueprint below shows the reporting categories and topics by which 2015 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			7.0/10 (70.0%)
Matter and Chemical Change			6.6/10 (66.0%)
Environmental Chemistry			5.9/10 (59.0%)
Electrical Principles and Technologies			6.2/10 (62.0%)
Space Exploration			6.5/10 (65.0%)
Provincial Student Achievement (Average Raw Score and Percentage)	13.1/20 (65.5%)	19.2/30 (64.0%)	Total Test Raw Score = 32.2/50 (64.4%)

Commentary on 2015 Student Achievement

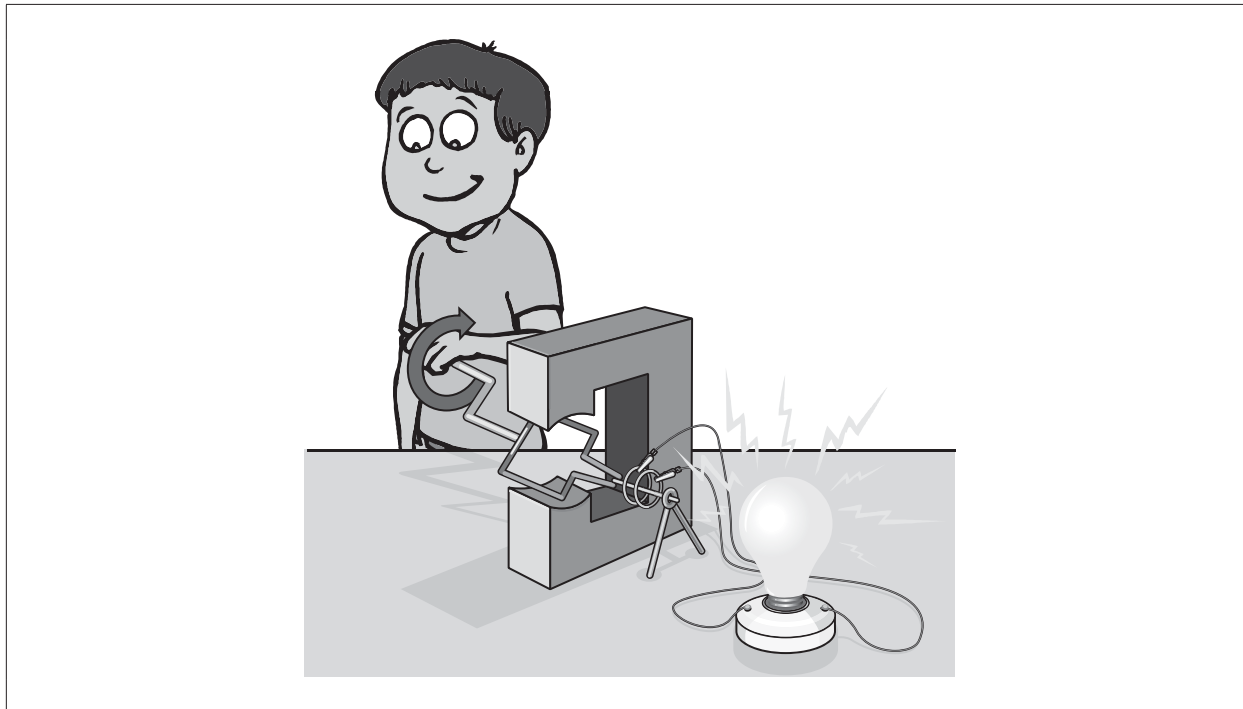
The following is a brief summary of the areas where most students experienced difficulties and demonstrated strengths on the 2015 Grade 9 Knowledge and Employability Science Achievement Test. Two sample questions are also provided to highlight some of these areas. These questions are no longer secured and will not be reused on future achievement tests.

Students demonstrated relative strength by being able to:

- Recognize and identify an example of selective breeding
- Analyze information to make an inference related to adaptations and survival of a species
- Recognize and identify energy transformation in a given example
- Analyze given information in order to identify the most energy efficient resource listed
- Recognize and identify a technology that has contributed to space exploration and our everyday lives

For **multiple-choice question 33**, students had to recognize and identify energy transformations in a given example. Approximately 82.5% of students who met the acceptable standard and 97.4% of students who met the standard of excellence answered this question correctly.

Use the following information to answer question 33.



33. Which of the following rows correctly identifies the energy transformation shown in the diagram above?

Row	Input Energy	Output Energy
A.	Mechanical	Electrical
B.	Mechanical	Chemical
C.	Thermal	Electrical
D.	Thermal	Chemical

76.6% of the students chose A (correct answer)

6.7% of the students chose B

14.1% of the students chose C

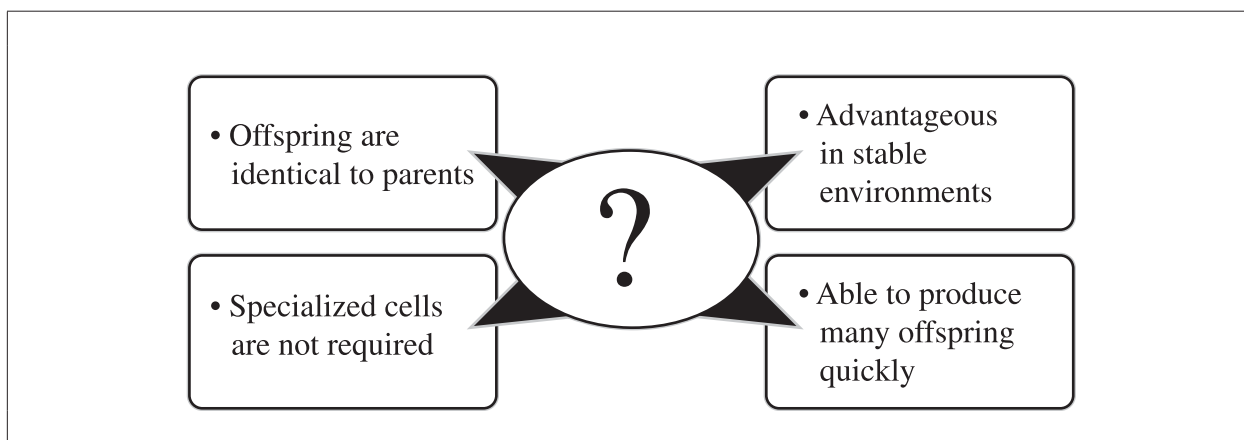
2.6% of the students chose D

Students experienced relative difficulty with:

- Analyzing information to draw a conclusion related to asexual reproduction
- Analyzing information in a given procedure to identify a major variable
- Applying information given in an illustration in order to draw a conclusion related to chemical dispersion in an ecosystem
- Applying information to distinguish between reactants and products in a given chemical reaction
- Identifying the impact of human actions on a given population to determine an alternative action

For **multiple-choice question 8**, students had to analyze information to draw a conclusion related to asexual reproduction. Approximately 44.7% of students who met the acceptable standard and 76.3% of students who met the standard of excellence answered this question correctly.

Use the following information to answer question 8.



8. Which of the following titles **best** replaces the question mark in the diagram above?
- A. Advantages of Asexual Reproduction
 - B. Advantages of Sexual Reproduction
 - C. Advantages of Genetic Engineering
 - D. Advantages of Natural Processes

47.1% of the students chose A (correct answer)

24.0% of the students chose B

13.3% of the students chose C

15.4% 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 website at education.alberta.ca. 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 Provincial 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.