

Grade 9

Assessment Highlights

Knowledge & Employability

# Science

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Alberta Provincial Achievement Testing

2017–2018

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 2018 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 2018 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 Stakeholder File Exchange. This report complements the detailed school and jurisdiction reports.

### How Many Students Wrote the Test?

A total of 1 309 students wrote the 2018 Grade 9 Knowledge and Employability Science Achievement Test.

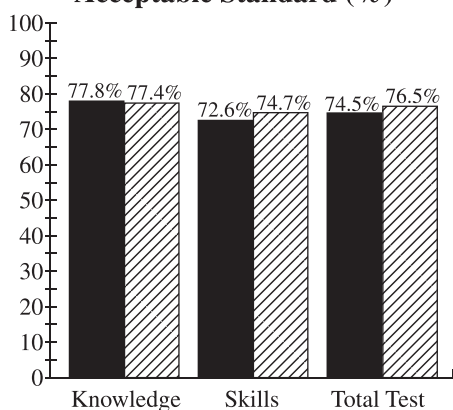
### What Was the Test Like?

The 2018 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.

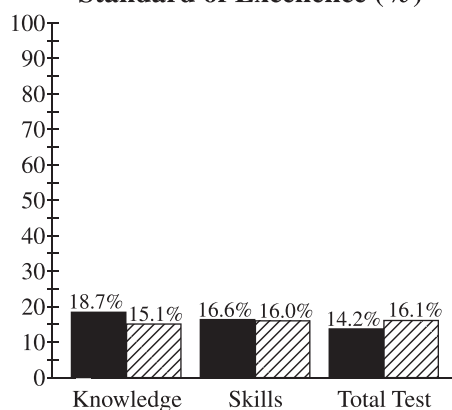
### How Well Did Students Do?


The percentages of students meeting the acceptable standard and the standard of excellence in 2018 compared with 2017 are shown in the graphs below. Out of a possible total score of 50, the provincial average was 30.5 (61.0%).


**Percentage of Students Meeting the Acceptable Standard (%)**



**Percentage of Students Meeting the Standard of Excellence (%)**



 2018 Achievement Standards: The percentage of students in the province who met the acceptable standard and the standard of excellence on the 2018 Grade 9 Knowledge and Employability Science Achievement Test (based on those who wrote).

 2017 Achievement Standards: The percentage of students in the province who met the acceptable standard and the standard of excellence on the 2017 Grade 9 Knowledge and Employability Science Achievement Test (based on those who wrote).

## *2018 Test Blueprint and Student Achievement*

In 2018, 74.5% of students who wrote the Grade 9 Knowledge and Employability Science Achievement Test achieved the acceptable standard, and 14.2% of students who wrote achieved the standard of excellence.

The blueprint below shows the reporting categories and topics by which 2018 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			<b>6.5/10 (65.0%)</b>
Matter and Chemical Change			<b>6.1/10 (61.0%)</b>
Environmental Chemistry			<b>5.5/9 (61.1%)</b>
Electrical Principles and Technologies			<b>7.0/11 (63.6%)</b>
Space Exploration			<b>5.5/10 (55.0%)</b>
<b>Provincial Student Achievement (Average Raw Score and Percentage)</b>	<b>13.6/21 (64.8%)</b>	<b>16.9/29 (58.3%)</b>	<b>Total Test Raw Score = 30.5/50 (61.0%)</b>

## Commentary on 2018 Student Achievement

The following is a brief summary of the areas where most students experienced difficulties and demonstrated strengths on the 2018 Grade 9 Knowledge and Employability Science Achievement Test. 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 related to similarities between different species;
- identify the percentage daily value of a nutrient from given nutrition facts;
- identify an event related to static electricity;
- identify a specific celestial object in Earth's solar system based on given data.

For **multiple-choice question 23**, students had to identify the percentage daily value of a nutrient from given nutrition facts. Approximately 83.5% of students who met the acceptable standard and 98.4% of students who met the standard of excellence answered this question correctly.

Use the following information to answer question 23.

Nutrition Facts	
Serving size 5 pieces (232 g)	
Amount	% Daily value
<b>Calories</b> 473	
<b>Fat</b> 35 g	54 %
Saturated fat 4 g	45 %
<b>Cholesterol</b> 137 mg	46 %
<b>Sodium</b> 1674 mg	70 %
<b>Carbohydrate</b> 6 g	2 %
Fibre 0 g	0 %
Sugars 0 g	
<b>Protein</b> 33 g	
Vitamin A 0 %	Vitamin C 0 %
Calcium 0 %	Iron 12 %

23. According to the label above, the smallest percentage daily value is the one for

- A. carbohydrate
- B. cholesterol
- C. sodium
- D. fat

79.6% of the students chose A (correct answer)

9.2% of the students chose B

5.8% of the students chose C

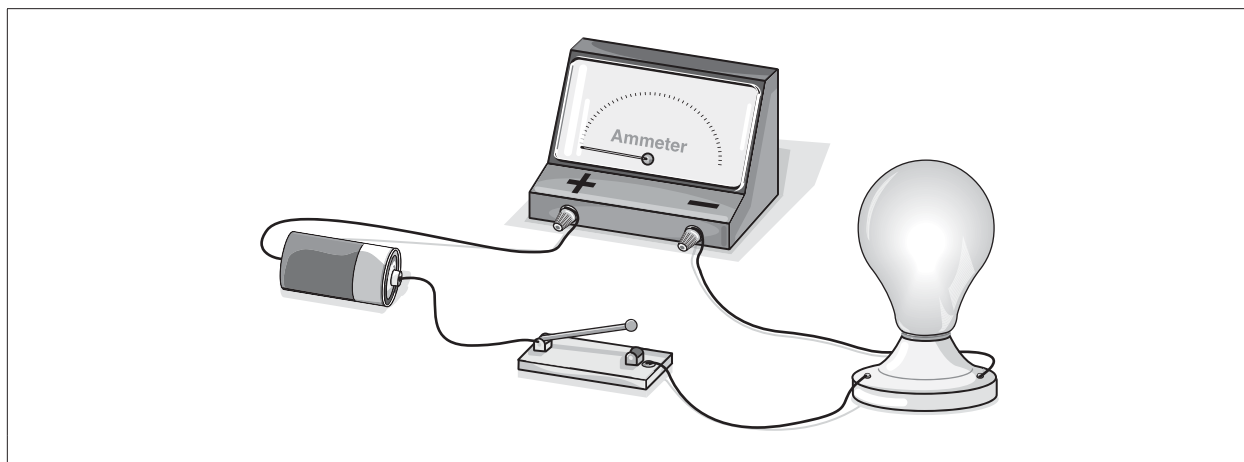
5.3% of the students chose D

**Students experienced relative difficulty with:**

- identifying the model representation of a water molecule;
- analyzing information to distinguish between simple and parallel circuits;
- analyzing a diagram to make an inference related to Earth's axis and its effect on Earth;
- analyzing information to draw a conclusion related to space technologies and Earth's atmospheric conditions.

For **multiple-choice question 35**, students had to analyze information to distinguish between simple and parallel circuits. Approximately 52.2% of students who met the acceptable standard and 69.7% of students who met the standard of excellence answered this question correctly.

*Use the following information to answer question 35.*



35. The objects in the diagram above are wired in a   *i*   circuit because there is   *ii*   path for the current.

The statement above is completed by the information in row

Row	<i>i</i>	<i>ii</i>
A.	series	only one
B.	series	more than one
C.	parallel	only one
D.	parallel	more than one

46.6% of the students chose A (correct answer)

22.8% of the students chose B

21.1% of the students chose C

9.4% of the students chose D

# ***Provincial Achievement Testing Program Support Documents***

The Alberta Education website contains several documents that provide valuable information about various aspects of the Provincial Achievement Test program. To access these documents, go to the [Alberta Education website](#). 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 Provincial Achievement Test 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 Provincial 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 Provincial Achievement Tests in grades 6 and 9 English Language Arts and Français/French Language Arts, writing samples are designed for teachers and students to enhance students' writing and to assess this writing relative to the standards inherent in the scoring guides. 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 Provincial Achievement Tests (parts A and B) for Grade 9 semestered students are secured and must be returned to Alberta Education. All May/June Provincial 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 answers frequently asked questions about the Provincial Achievement Test program and provides descriptions of and sample questions for each Provincial Achievement Test subject.

## **Involvement of Teachers**

Teachers of grades 6 and 9 are encouraged to take part in activities related to the Provincial Achievement Test 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 Provincial Achievement Test results to improve student learning.