

Grade 6

Assessment Highlights

Science

Alberta Provincial Achievement Testing
2017–2018

This document contains assessment highlights from the 2018 Grade 6 Science Provincial Achievement Test.

This *Assessment Highlights* document provides information about the overall test, the test blueprint, and student performance on the 2018 Grade 6 Science Provincial Achievement Test. Also provided is commentary on areas of strength and weakness in student performance at the acceptable standard and the standard of excellence on selected items from the 2018 provincial 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 Stakeholder File Exchange (SFX). *Assessment Highlights* reports for all provincial achievement test subjects and grades are posted on the Alberta Education website every year in the fall.

The examination statistics that are included in this document represent both French and English writers. 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 SFX.

For further information, contact Kely Findlay, Assessment Standards Senior Manager, Provincial Achievement Testing Program Grades 6 and 9 Science, at Kely.Findlay@gov.ab.ca; Kristine Gagnon, Grades 6 and 9 Science Examiner, at Kristine.Gagnon@gov.ab.ca; Nicole Lamarre, Director, Student Learning Assessments & Provincial Achievement Testing, at Nicole.Lamarre@gov.ab.ca at the Provincial Assessment Sector; or call 780-427-0010. To call toll-free from outside Edmonton, dial 310-0000.

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

This document was written primarily for:

| | |
|------------------|----------------------|
| Students | |
| Teachers | ✓ of Grade 6 Science |
| Administrators | ✓ |
| Parents | |
| General Audience | |
| Others | |

Copyright 2018, the Crown in Right of Alberta, as represented by the Minister of Education, Alberta Education, Provincial Assessment Sector, 44 Capital Boulevard, 10044 108 Street NW, Edmonton, Alberta T5J 5E6, and its licensors. All rights reserved.

Special permission is granted to **Alberta educators only** to reproduce, for educational purposes and on a non-profit basis, parts of this document that do **not** contain excerpted material.

Excerpted material in this document **shall not** be reproduced without the written permission of the original publisher (see credits, where applicable).

Contents

| | |
|---|---|
| The 2018 Grade 6 Science Provincial Achievement Test | 1 |
| 2018 Test Blueprint and Student Achievement | 2 |
| Commentary on 2018 Student Achievement | 3 |
| Provincial Achievement Testing Program Support Documents..... | 8 |

The 2018 Grade 6 Science Provincial 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 6 Science Provincial Achievement Test. It complements the detailed school and jurisdiction reports.

How Many Students Wrote the Test?

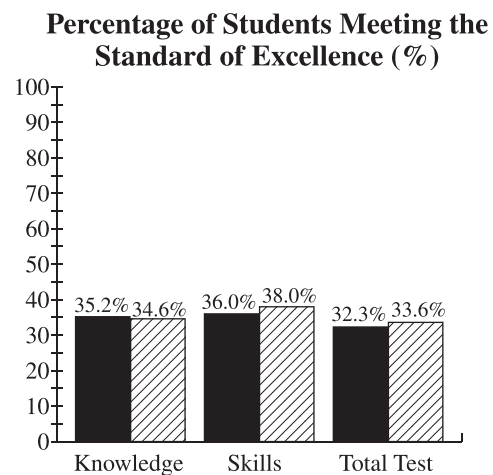
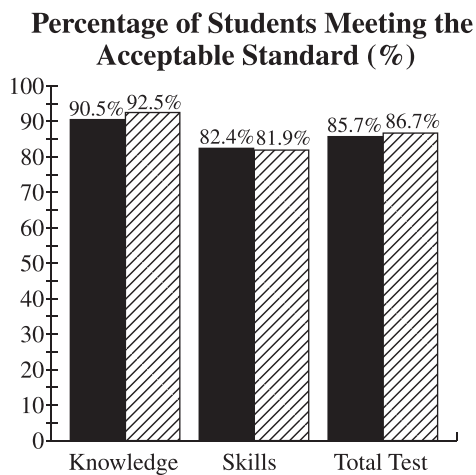
A total of 46 814 students wrote the 2018 Grade 6 Science Provincial Achievement Test.


What Was the Test Like?


The 2018 Grade 6 Science Provincial Achievement Test consisted of 50 multiple-choice items based on five science topics: Inquiry and Problem Solving; Air, Aerodynamics, and Flight; Sky Science; Evidence and Investigation; and Trees and Forests.

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 total possible score of 50, the provincial average was 34.2 (68.4%). The examination statistics that are included in this document represent both French and English writers. If you would like to obtain English-only or French-only statistics that apply to your school, please refer to the detailed reports that are available on the SFX.



 2017 Achievement Standards: The percentage of students in the province who met the acceptable standard and the standard of excellence on the 2017 Grade 6 Science Provincial Achievement Test (based on those who wrote).

 2018 Achievement Standards: The percentage of students in the province who met the acceptable standard and the standard of excellence on the 2018 Grade 6 Science Provincial Achievement Test (based on those who wrote).

2018 Test Blueprint and Student Achievement

In 2018, 86.7% of students who wrote the Grade 6 Science Provincial Achievement Test achieved the acceptable standard, and 33.6% of students who wrote achieved the standard of excellence. These results are consistent with previous administrations of the provincial achievement test.

Student achievement on the 2018 Grade 6 Science Provincial Achievement Test averaged 34.2 out of a total score of 50 (68.4%).

The blueprint below shows the categories and topics by which 2018 summary data are reported to schools and school authorities and lists 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 | |
| | Fundamental understanding of both the concepts and the processes of science | Application of science processes and the use of higher-level thinking to solve problems | |
| Inquiry and Problem Solving | | | 7.4/11 (67.3%) |
| Air, Aerodynamics, and Flight | | | 9.5/14 (67.9%) |
| Sky Science | | | 5.1/8 (63.8%) |
| Evidence and Investigation | | | 5.2/7 (74.3%) |
| Trees and Forests | | | 6.9/10 (69.0%) |
| Provincial Student Achievement Average Raw Score and Percentage for Students Who Wrote the Test | 13.2/20 (66.0%) | 21.0/30 (70.0%) | Total Test 34.2/50 (68.4%) |

Commentary on 2018 Student Achievement

The following is a brief summary of the areas where most students demonstrated strengths and experienced difficulties on the 2018 Grade 6 Science Provincial Achievement Test. Four sample items are also provided to highlight some of these areas. These items are no longer secured and will not be reused on future provincial achievement tests.

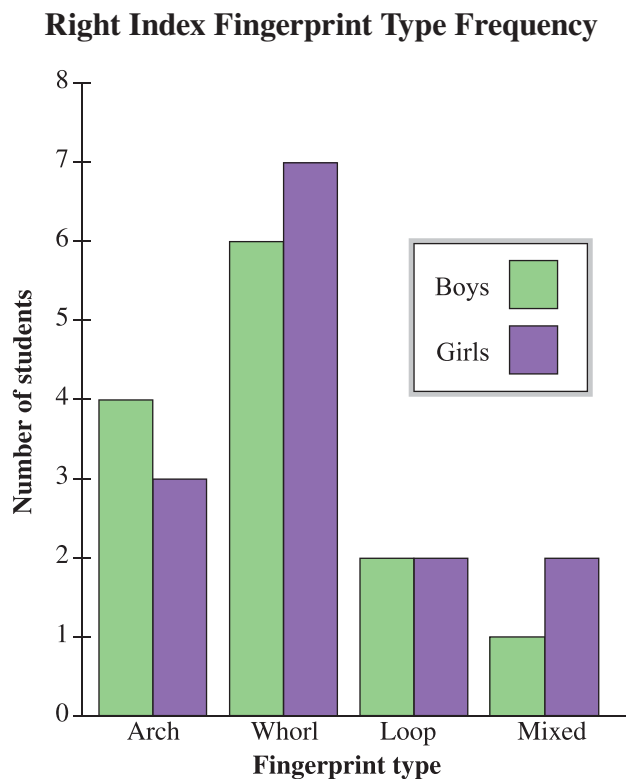
Students demonstrated relative strength by being able to

- identify a scenario that demonstrates the compressibility of air
- analyze hot air balloon flight data in order to choose the graph of those data
- evaluate a scene of human and animal activity to determine which inference the scene supports
- match two speaker statements about forest use with a perspective

For **multiple-choice question 31**, a Skills item, students had to infer a possible conclusion based on observations given in a graph. Approximately 80.1% of students who met the acceptable standard and 94.7% of students who met the standard of excellence answered this item correctly.

Use the following information to answer question 31.

The students in a Grade 6 class had their right index fingerprints analyzed. The results of the analysis are presented in the graph below.



31. Which of the following conclusions could be correctly made about the Grade 6 class?

- A.** Less than half of students have a right index finger with an arch fingerprint.
- B.** More girls than boys have a right index finger with a loop fingerprint.
- C.** Less girls than boys have right index fingers with whorl fingerprints.
- D.** Most students have a right index finger with a mixed fingerprint.

79.6% of the students chose A (correct answer)

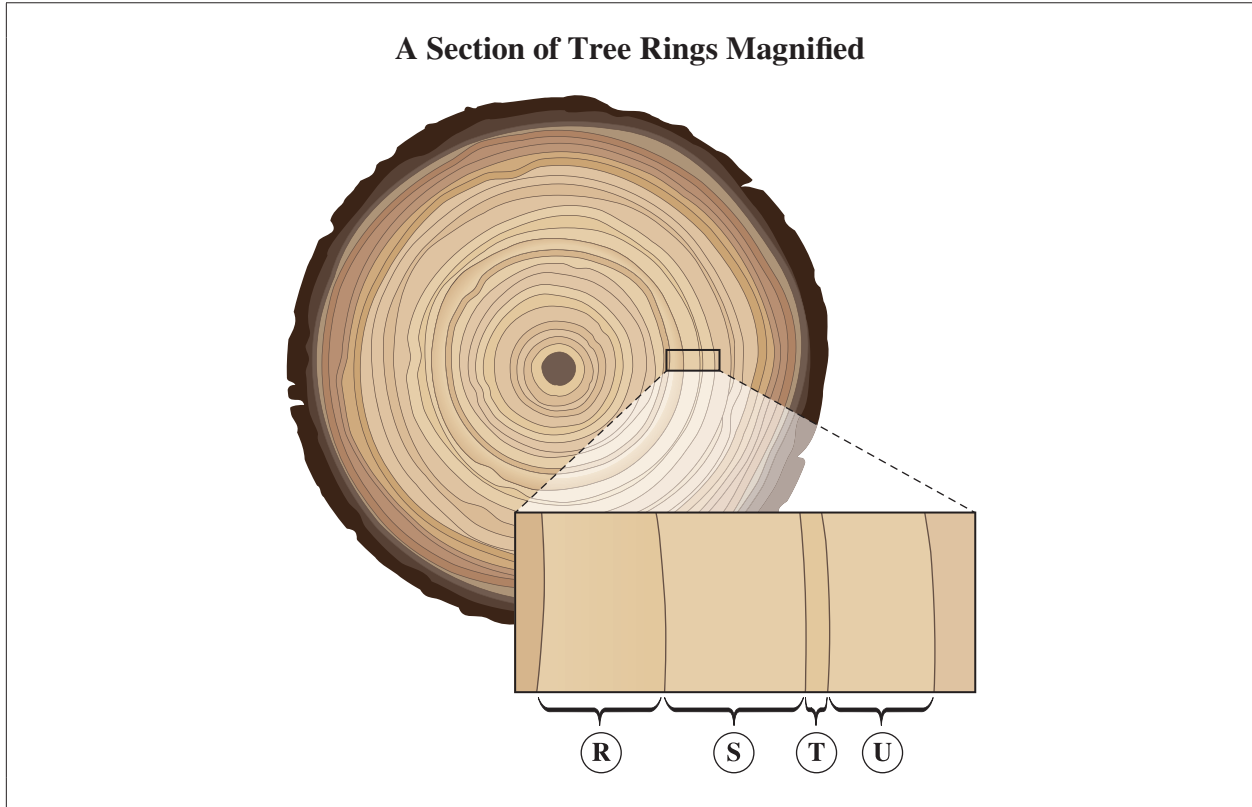
6.6% of the students chose B

8.2% of the students chose C

5.4% of the students chose D

For **multiple-choice question 48**, a Knowledge item, students had to interpret the growth pattern of a tree. Approximately 75.5% of students who met the acceptable standard and 94.5% of students who met the standard of excellence answered this item correctly.

Use the following information to answer question 48.



- 48.** The tree ring identified as T **most likely** indicates that there was a
- A. fall wildfire
 - B. dry summer
 - C. rainy spring
 - D. warm winter

6.1% of the students chose A
77.8% of the students chose B (correct answer)
11.2% of the students chose C
4.8% of the students chose D

Students demonstrated relative difficulty when asked to

- evaluate a design to test paper airplanes and propose a change to improve the test's fairness and reliability
- explain how the different parts of a hot-air balloon influence its flight
- label two bodies in space, given a diagram
- identify two characteristics used in handwriting analysis

For **multiple-choice question 11**, a Knowledge item, students had to identify the purpose of a parachute. Approximately 41.1% of students who met the acceptable standard and 69.9% of students who met the standard of excellence answered this item correctly.

- 11.** Parachutes reduce the speed of a falling object by
- A.** increasing drag forces acting on the object
 - B.** decreasing drag forces acting on the object
 - C.** increasing the force of gravity acting on the object
 - D.** decreasing the force of gravity acting on the object

48.6% of the students chose A (correct answer)

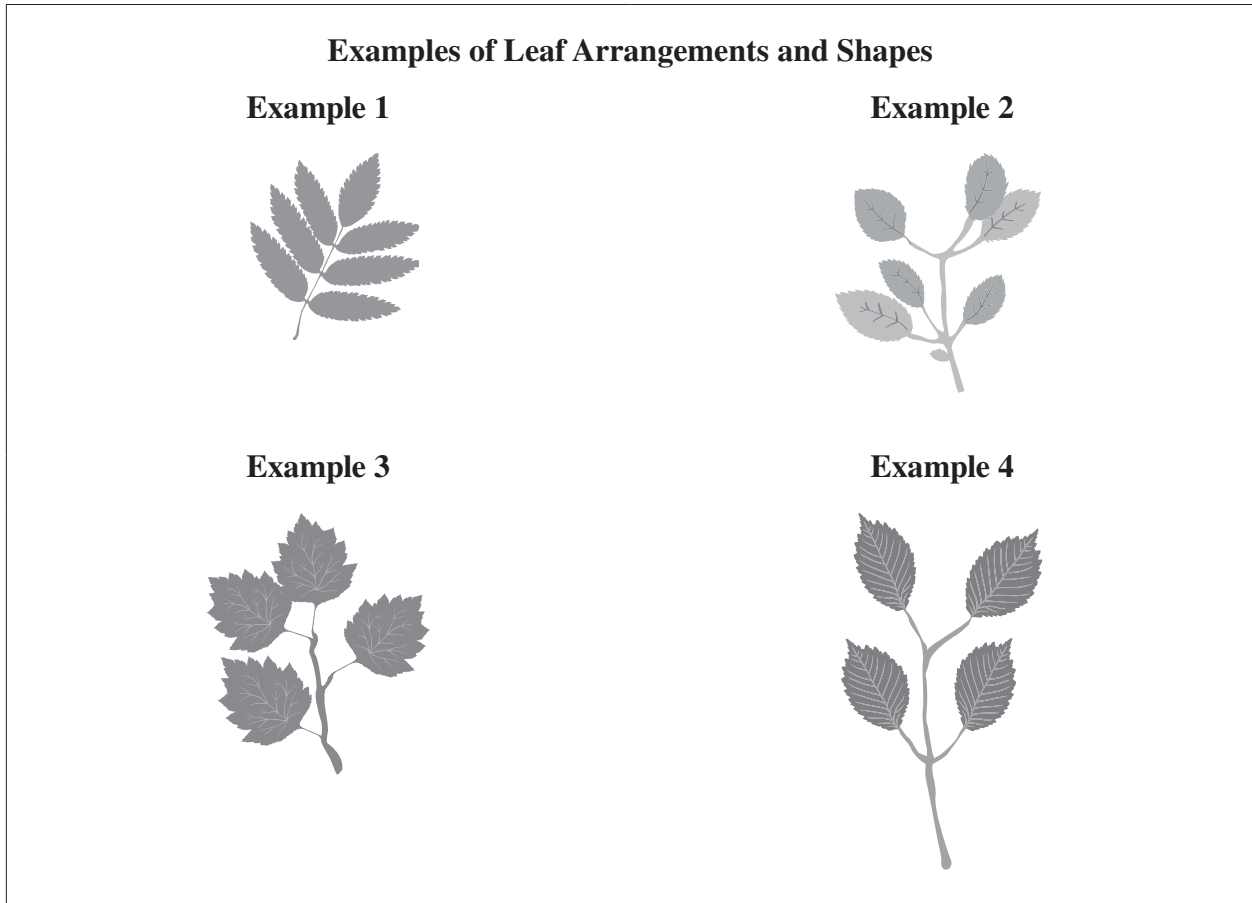
9.3% of the students chose B

13.7% of the students chose C

28.4% of the students chose D

For **multiple-choice question 46**, a Skills item, students had to identify a specified leaf arrangement and shape from a set of leaf diagrams. Approximately 51.2% of students who met the acceptable standard and 72.6% of students who met the standard of excellence answered this item correctly.

Use the following information to answer question 46.



46. Which of the following rows identifies the examples that have alternate leaf arrangements and an ovate leaf shape?

| Row | Alternate Leaf Arrangement | Ovate Leaf Shape |
|-----|----------------------------|------------------|
| A. | Example 3 | Example 1 |
| B. | Example 3 | Examples 2 and 4 |
| C. | Examples 1, 2, and 4 | Example 1 |
| D. | Examples 1, 2, and 4 | Examples 2 and 4 |

16.7% of the students chose A
 56.1% of the students chose B (correct answer)
 10.5% of the students chose C
 16.5% 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.

Provincial 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 Provincial 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.