This document contains assessment highlights from the 2012 Grade 6 Science Achievement Test.

The Assessment Highlights document provides information about the overall test, the test blueprint, and student performance on the 2012 Grade 6 Science 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 2012 achievement tests. 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 extranet. Assessment Highlights reports for all 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 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.

For further information, contact Sean Wells, Grades 6 and 9 Science Assessment Standards Team Leader, at Sean.Wells@gov.ab.ca, or Ken Marcellus, Director, Achievement Testing, at Ken.Marcellus@gov.ab.ca at the Assessment Sector, or call (780) 427-0010. To call toll-free from outside Edmonton, dial 310-0000.

The Alberta Education Internet address is education.alberta.ca.

This document was written primarily for:

| Students | 
| Teachers | ✓ of Grade 6 Science | 
| Administrators | ✓ | 
| Parents | 
| General Audience | 
| Others |
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The 2012 Grade 6 Science Achievement Test

This report provides teachers, school administrators, and the public with an overview of the performance of those students who wrote the 2012 Grade 6 Science Achievement Test. It complements the detailed school and jurisdiction reports.

How Many Students Wrote the Test?

A total of 39,169 students wrote the 2012 Grade 6 Science Achievement Test.

What Was the Test Like?

The 2012 Grade 6 Science Achievement Test consisted of 50 multiple-choice questions 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 2012 compared with 2011 are shown in the graphs below. Out of a total possible score of 50, the provincial average was 34.8 (69.6%). The results presented in this report are based on scores achieved by all students who wrote the test. Detailed provincial assessment results are provided in school and jurisdiction reports.

![Graphs showing percentages of students meeting the acceptable standard and the standard of excellence in 2011 and 2012.]

2011 Achievement Standards: The percentage of students in the province who met the acceptable standard and the standard of excellence on the 2011 Grade 6 Science Achievement Test (based on those who wrote).

2012 Achievement Standards: The percentage of students in the province who met the acceptable standard and the standard of excellence on the 2012 Grade 6 Science Achievement Test (based on those who wrote).
2012 Test Blueprint and Student Achievement

In 2012, 85.7% of students who wrote the Grade 6 Science Achievement Test achieved the acceptable standard, and 31.0% of students who wrote achieved the standard of excellence. These results are consistent with previous administrations of the achievement test.

Student achievement on the 2012 Grade 6 Science Achievement Test averaged 34.8 out of a total score of 50 (69.6%).

The blueprint below shows the reporting categories and topics by which 2012 summary data are reported to schools and school authorities, and it shows the provincial average of student achievement by both raw score and percentage.
**Commentary on 2012 Student Achievement**

The following is a brief summary of the areas where most students demonstrated strengths and experienced difficulties on the 2012 Grade 6 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 airplane wing designs in relation to producing lift
- Identify trends in data presented in a chart
- Make inferences based on a crime scene diagram
- Identify the meaning of certain tree cookie characteristics

For **multiple-choice question 7**, a Knowledge question, students had to infer the purpose for the design of a trailer. Approximately 86.3% of students who met the *acceptable standard* and 97.8% of students who met the *standard of excellence* answered this question correctly.

Use the following illustration to answer question 7.

7. The purpose of the trailer’s wedge-shaped front end is **most likely** to

A. give the trailer lift  
B. give the trailer drag  
C. make the trailer light  
D. make the trailer streamlined

4.0% of students chose A  
7.3% of students chose B  
3.7% of students chose C  
85.0% of students chose D (correct answer)
For multiple-choice question 31, a Skills question, students had to determine the order of tracks shown in a diagram. Approximately 84.4% of students who met the acceptable standard and 94.6% of students who met the standard of excellence answered this question correctly.

Use the following diagram to answer question 31.

31. In what order were the tracks created?

   A. Footprints, car, bicycle
   B. Footprints, bicycle, car
   C. Bicycle, car, footprints
   D. Bicycle, footprints, car

6.6% of students chose A
84.6% of students chose B (correct answer)
4.4% of students chose C
4.4% of students chose D
Students demonstrated relative difficulty with:

- Identifying controlled variables in an experiment
- Determining the relationship between the rising and setting of the sun with the rotation of Earth
- Identifying the proper procedure for conducting a chromatography test
- Analyzing various perspectives on forest development

For multiple-choice question 20, a Skills question, students had to identify a method of increasing the reliability of an experiment. Approximately 49.9% of students who met the acceptable standard and 77.1% of students who met the standard of excellence answered this question correctly.

Use the following information to answer question 20.

**Greg's Meteorite Experiment**

Greg wonders if the mass of a meteorite will affect the depth of the crater the meteorite creates when it hits Earth's surface. He creates the following experiment:

20. In order for Greg to make his results more reliable, he should

A. test objects of three different shapes
B. increase the height from which the objects are dropped
C. test more than three different objects with different masses only once
D. repeat the experiment by dropping each of the objects at least three times

10.9% of students chose A
18.9% of students chose B
15.1% of students chose C
55.1% of students chose D (correct answer)
For **multiple-choice question 39**, a Knowledge question, students had to identify vocabulary related to descriptions of various leaf margins. Approximately 50.1% of students who met the *acceptable standard* and 86.2% of students who met the *standard of excellence* answered this question correctly.

*Use the following information to answer question 39.*

<table>
<thead>
<tr>
<th>Categories Used to Describe a Leaf</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
</tr>
<tr>
<td>II</td>
</tr>
<tr>
<td>III</td>
</tr>
<tr>
<td>IV</td>
</tr>
</tbody>
</table>

39. The terms *smooth*, *serrated*, and *scalloped* would **most commonly** be associated with category

A. I
B. II
C. III
D. IV

16.3% of students chose A
18.8% of students chose B
56.8% of students chose C (correct answer)
8.1% of 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 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 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 3, 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 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 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 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 also use the 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 as well as descriptions of and sample questions for each achievement test subject.

Involvement of Teachers
Teachers of grades 3, 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.