

Using Calculators

BACKGROUND

Achievement tests are developed to reflect the learning outcomes and expectations specified in the programs of study for each course, including those that relate to the use of calculators.

To ensure compatibility with provincial programs of study, and fairness and equity to all students, mathematics and science achievement tests must be administered in accordance with the rules that follow. For further information about the use of calculators when writing achievement tests, see the *Subject Bulletins* for each course that are available on Alberta Education's website at: <http://education.alberta.ca/admin/testing/achievement/bulletins.aspx>.

RULES

1. Mathematics and science achievement tests may only be administered with the use of calculators as follows:

Grade 3 Mathematics

- Calculator use is prohibited, unless used as an accommodation approved by the superintendent (see the *Special Cases & Accommodations* section)

Grade 6 Mathematics

- Calculator use is encouraged but not required

Grade 9 Mathematics

- Calculator use is required; use of a graphing calculator is prohibited

Knowledge and Employability Mathematics

- Calculator use is recommended but not required; use of a graphing calculator is prohibited

Grade 6 Science

- Calculator use is permitted but not required

Grade 9 Science

- Calculator use is recommended but not required; use of a graphing calculator is prohibited

Knowledge and Employability Science

- Calculator use is recommended but not required; use of a graphing calculator is prohibited

2. Students may bring approved calculators and extra batteries into the test room, *for their exclusive use*, when writing a mathematics or science achievement test.
3. The following calculator materials, properties, and/or configurations are **not** permitted in the test room:
 - programmed memory content
 - built-in notes, libraries, or formulae (e.g. definitions or explanations in alpha notation),
 - upgraded or downloaded programs
 - remote communication capability

- external (peripheral) devices and other support materials such as manuals, printed or electronic cards, printers, memory expansion chips or cards, external keyboards
 - calculator cases
4. Prior to the commencement of an achievement test and before being taken from the testing room, calculators must be cleared of all information that is stored in programmable or parametric memory.
 5. Calculators must be set to operate in silent mode.

Using Computers to Complete Extended Written Response Test Questions

BACKGROUND

Students who have been taught to compose text on a computer, and who normally produce their written work in this way, may be disadvantaged if they are required to respond to written response achievement test questions by hand. Consequently, when it is appropriate to do so, students may use computers when completing extended written response achievement test questions. The principles, directives, rules, and procedures that follow address the requirements associated with the use of computers for this purpose.

GUIDING PRINCIPLES

Computers and word processing applications may be used when administering the extended written response portions of language arts tests. The use of computers for this purpose must not compromise the security of the tests or the validity and fairness of their administration.

A school principal may allow a student who normally produces extended written work on a computer, and who is proficient at using that school's computers and word processing application, to use them when writing any of the aforementioned achievement tests.

Students who choose to use computers and word processing applications when writing an achievement test are responsible for ensuring that they understand and follow all of the directives, rules, and procedures established for writing achievement tests in this manner.

DIRECTIVES

Principal

1. The principal shall decide whether to provide the opportunity for students to write language arts written response achievement test questions using the school's computers. This decision shall be based on the principal's certainty that the school can comply with all test writing and administration rules, and with the directives, rules, and procedures that follow.

2. The principal shall communicate to students and teachers the availability of and requirements related to the use of computers and word processing applications when writing written response questions on language arts achievement tests.
3. The principal shall ensure that only those students who understand and are able to follow all of the directives, rules, and procedures established for writing achievement test written response questions using a computer are permitted to do.
4. The principal shall ensure that only school-owned computers that have no internet or external network access are used when administering extended written response achievement test questions.
5. The principal shall ensure that all computer equipment, applications, and printers used for test administration purposes are appropriately configured to safeguard test security, validity, and fairness, and to minimize distraction to students.
6. The principal shall ensure that all facilities and computer equipment that have been set up for test writing purposes are secured and remain secured until after the test writing session and follow-up administrative procedures are completed.
7. Before implementing the use of computers for writing achievement tests, the principal shall establish technical and test administration contingency plans and emergency procedures to address unexpected issues and problems that may arise.
8. The principal shall ensure that teachers who are designated to supervise the administration of achievement tests that are being written using computers are appropriately prepared for that role, including being aware of and able to implement contingency plans and emergency procedures, should the need arise.

Technical Personnel

1. Technical personnel shall configure all computers, word processing applications, and printers so as to ensure the security, validity, and fairness of the test administration (see *Rules and Procedures* below).
2. Technical personnel shall develop and implement a system testing plan prior to each test administration session to ensure that all equipment and processes function as required (see *Rules and Procedures* below).
3. In cooperation with the principal and test supervisors, technical personnel shall develop a **technical contingency plan** that can be implemented, as required, to address unexpected network, computer, or printer problems.
4. Technical personnel shall ensure that the facility and all designated and configured computers are secured until the time the scheduled test is written and, following the test writing, until all printed work is correctly stapled into the appropriate test booklets and **all computers are cleared of all student work**.

Test Supervisors

1. Teachers who are designated to supervise the administration of achievement tests that are being written using computers shall be familiar with and able to implement the guiding principles, directives, rules, and procedures related to the administration of achievement tests using computers.
2. Test supervisors shall develop and implement procedures for the pick-up and distribution of printing during and after the official scheduled test administration period. These procedures shall safeguard test security, validity, and fairness and minimize distraction to students.
3. In cooperation with the principal and technical personnel, test supervisors shall develop a **test administration contingency plan** that can be implemented, as required, to address unexpected issues or problems that arise while tests are being written using computers.
4. Test supervisors shall ensure that students are aware of and understand the rules and procedures for writing an achievement test using a computer, *and their responsibilities for implementing them*, prior to the commencement of the official scheduled test administration.
5. Test supervisors shall ensure that no student accesses the internet or other prohibited online or electronic resources while writing an achievement test using a computer.
6. Test supervisors shall ensure that *no student responses*, including rough work, *remain anywhere in the school's computer system* or in the school once students have stapled their printed copies into their test booklets.

Students

1. If a principal allows computers to be used for the writing of language arts achievement test written response questions, the decision to participate shall be the individual student's.
2. Students who choose to write achievement tests using a school's computers shall be proficient at using those computers and word processing applications as a normal means of producing written work.
3. Students who choose to write achievement tests using a school's computers shall be familiar with and *are responsible for implementing* all of required rules and procedures for writing an achievement test using a computer (see *Rules and Procedures* below).

RULES AND PROCEDURES

Technical and Administrative Set-Up

1. Prior to the commencement of the official scheduled test administration, all computers to be used for written response test writing purposes must be networked and configured to:
 - Enable secure and ready access to designated printers only, during and after the official scheduled test administration
 - Enable the saving of each student's written work in a manner and/or to a network location that ensures its security during, and permits school personnel to *readily access and remove those documents following*, the official scheduled test administration

- Disable access to the internet and other online or electronic resources that are **not** permitted
2. Prior to the commencement of the official scheduled test administration, all word processing applications to be used for test writing purposes must be configured to enable:
 - Automatic insertion of footers that include the student’s index number on each page of written work

Note: The index number (test booklet number) is the six digit number that appears in the bottom right corner of the student’s label. Unregistered students will not have an index number, so they must create a six digit number and place that number on the back of their test booklet.
 - Automatic and frequent saving of word documents to a designated location only
 - Access to routine tools, such as a spell checker, that are integrated into the software

Note: The “auto correct” and template features of these tools must be disabled.
 3. Prior to the commencement of the official scheduled test administration, all computers, printers, and word processing applications must be online and ready for use.

Test Administration

1. Students writing written response questions on computer must be given a paper form of the test prior to the commencement of the official scheduled test administration and must staple a hard copy of their word processed written work to that booklet at the end of the test session.
2. Students responding to written response achievement test questions using a computer may access all of the test materials that are available to students who respond to those questions by hand (e.g., print references such as an English dictionary or a thesaurus when writing a language arts test).
3. Students may revert to writing with pen or pencil at any time during the test administration.
4. Students may do rough work or planning in whatever manner they choose (i.e., either in the test booklet or on the computer).
5. Students may print interim hard copies of their written work at any time during the test administration.
6. Students may compose and edit their written work until the end of the official scheduled administration time.
7. Student may not access the internet or other prohibited online or electronic resources while writing an achievement test using a computer. To do so is a breach of security.

Preparation and Submission of Written Work

1. It is the **students’** responsibility to print and staple their final written response(s) to their test booklets. This includes verifying that the final printed hard copy of their writing is accurately and completely printed and attached to their booklet in proper page order. This step may occur after the officially scheduled time limit; however, this verification step does *not* allow any revision to finished work.

2. Students must clearly label each page of their finished work according to its assignment title or question number and must staple the work into the appropriate place(s) in the test booklet.
3. Each student must include his or her six-digit index number on every page of the finished work stapled into the test booklet.
4. Students must indicate in the space provided on the back cover of the test that they have attached word-processed pages to the test booklet.
5. Students must submit their final written work double-spaced and in an easy-to-read 12-point font (see the instruction page in the specific test for details).
6. Students must clearly label all word-processed rough work or early drafts as “rough” and must staple these documents into the test booklets on pages designated “Planning.”
7. Final printing and stapling of written responses may occur after the officially scheduled time for test writing, but **no** editing may be done after the scheduled time.

Note: Teachers may assist students with these tasks, particularly in the lower grades. However, *only those students who are able to complete these tasks and who know that they are expected to do so* should be permitted to use a computer when completing extended written response test questions.

GUIDELINES

1. Principals should consider allowing students to write extended written response achievement test questions using a computer only if:
 - the participating students normally compose extended written work on computer
 - each participating student knows how to use the school’s computer
 - each participating student understands and is able to implement the rules and procedures for writing extended written response test questions using a computer
 - technical expertise is available before, during, and after test writing to ensure smooth and secure system functioning
 - the security, validity, fairness, and confidentiality of student work and test materials will in no way be compromised
2. If a school that intends to permit the use of computers when writing achievement tests has more students than it has computers, the principal may submit a specific written proposal for meeting students’ test writing needs to his or her superintendent for approval, prior to the scheduled day of administration.
3. Students should be given sufficient time to log on to the computer system and review the rules and procedures for writing extended written response achievement test questions on computer in advance of the time scheduled to begin the test. (It is recommended that students be instructed to arrive at least 20 minutes early.)
4. In the event of an emergency or disruption, contact the Director, Exam Administration, immediately by telephone at (780) 427-0010, for a toll-free connection, dial 310-0000.

Writing Digital Format Achievement Tests Using Computers

BACKGROUND

Most grades 6 and 9 achievement tests are available in **digital** format. Digital format achievement tests are delivered and administered using school computers. Achievement tests in this format must be administered to students using Alberta Education's *Quest A+* locked browser application, which is available for download at: <https://questaplus.alberta.ca/help>.

The principles, directives, rules, and procedures that follow address the requirements associated with the use of computers to write digital format achievement tests.

GUIDING PRINCIPLES

The use of computers to administer digital format achievement tests must not compromise the security of the tests or the validity and fairness of their administration.

A school principal may allow a student who is proficient at using that school's computers to use one to write digital format achievement tests.

Students who choose to write digital format achievement tests are responsible for ensuring that they understand and follow all of the directives, rules, and procedures established for writing achievement tests in that format.

DIRECTIVES

Principal

1. The principal shall decide whether to provide the opportunity for students to write digital format achievement tests. This decision shall be based on the principal's certainty that the school can comply with all of the test administration directives and rules that are specified in this bulletin, including those that follow.
2. The principal shall communicate to students and teachers the availability of and requirements related to the use of computers to write digital format achievement tests.
3. The principal shall ensure that only those students who understand and are able to follow all of the directives, rules, and procedures established for writing a digital format achievement test are permitted to do.
4. The principal shall ensure that only those students who have done a practice test using Alberta Education's *Quest A+* browser application are permitted to write a digital format achievement test.
5. The principal shall ensure that only school-owned computers are used to administer digital format achievement tests.

6. The principal shall ensure that all computer equipment and the Alberta Education *Quest A+* browser application are appropriately set up and configured to safeguard test security, validity, and fairness, and to minimize distraction to students.
7. The principal shall ensure that all facilities and computer equipment that have been set up for test writing purposes are secured and remain secured until after the test writing session and follow-up administrative procedures are completed.
8. Before implementing the writing of digital format achievement tests, the principal shall establish technical and test administration contingency plans and emergency procedures to address unexpected issues and problems that may arise.
9. The principal shall ensure that teachers who are designated to supervise the administration of digital format achievement tests are appropriately prepared for that role, including being aware of and able to implement contingency plans and emergency procedures, should the need arise.

Technical Personnel

1. Technical personnel shall configure all computers and the *Quest A+* browser application to ensure the security, validity, and fairness of the test administration (see *Rules and Procedures* below).
2. Technical personnel shall develop and implement a system testing plan prior to each test administration session to ensure that all equipment and processes function as required (see *Rules and Procedures* below).
3. In cooperation with the principal and test supervisors, technical personnel shall develop a **technical contingency plan** that can be implemented, as required, to address unexpected network or computer problems.
4. Technical personnel shall ensure that the facility and all designated and configured computers are secured until the time the scheduled test is written and, following the test writing, until all administrative procedures are completed.

Test Supervisors

1. Teachers who are designated to supervise the administration of digital format achievement tests shall be familiar with and able to implement all of the test administration directives and rules that are specified in this bulletin, including those that pertain to the use of computers and the *Quest A+* browser application.
2. Test supervisors shall ensure that only those students who have done a practice test using the *Quest A+* browser application are permitted to write a digital format achievement test.
3. In cooperation with the principal and technical personnel, test supervisors shall develop a **test administration contingency plan** that can be implemented, as required, to address unexpected issues or problems that arise while digital format tests are being written.

4. Test supervisors shall ensure that students are aware of and understand the rules and procedures for writing a digital format achievement test, *and their responsibilities for implementing them*, prior to the commencement of the official scheduled test administration.
5. Test supervisors shall ensure that no student accesses the internet or other prohibited online or electronic resources while writing a digital format achievement test.
6. Test supervisors shall develop and implement procedures to ensure that test responses are appropriately submitted to Alberta Education following the scheduled test administration.

Students

1. If a principal allows digital format achievement tests to be written, the decision to participate shall be the individual student's.
2. Students who choose to write digital format achievement tests shall be proficient at using *Quest A+* and shall have completed a practice test prior to the scheduled test administration.
3. Students who choose to write digital format achievement tests shall be familiar with and *are responsible for implementing* all of the required rules and procedures for writing digital format achievement test (see *Rules and Procedures* below).

RULES AND PROCEDURES

Technical and Administrative Set-up

1. Prior to the commencement of the official scheduled test administration, all computers to be used for test writing purposes must be networked and must have the current version of *Quest A+ Locked Browser* and *Flash Player 10* installed, to enable secure access to the digital format achievement test.
2. Prior to the commencement of the official scheduled test administration, all computers must be online and ready for use.

Test Administration

1. Students writing digital format achievement tests must be given a paper form of the test prior to the commencement of the official scheduled test administration.
2. Students writing digital format achievement tests may access all of the test materials that are available to students who write paper forms of the tests (e.g., calculators, dictionaries).
3. Students writing a digital format achievement test may revert to writing the paper form of that test at any time during the officially allotted test administration period. If they do so, they must transfer all of their answers from the digital format test to the paper format answer sheet.
4. Students may not access the internet or other prohibited online or electronic resources while writing a digital format achievement test. To do so is a breach of security.

GUIDELINES

1. Principals should consider allowing students to write a digital format achievement tests only if:
 - each participating student knows how to use the school's computer
 - each participating student understands and is able to implement the rules and procedures for writing a digital format achievement test
 - technical expertise is available before, during, and after test writing to ensure smooth and secure system functioning
 - the security, validity, fairness, and confidentiality of student work and test materials will in no way be compromised
2. If a school that intends to administer digital format achievement tests has more students than it has computers, the principal may submit a specific written proposal for meeting students' test writing needs to his or her superintendent for approval, prior to the scheduled day of administration.
3. Students should be given sufficient time to log on to the computer system and review the rules and procedures for writing a digital format achievement test in advance of the time scheduled to begin the test. (It is recommended that students be instructed to arrive at least 20 minutes early.)
4. In the event of an emergency or disruption, contact the Director, Exam Administration, immediately by telephone at (780) 427-0010, for a toll-free connection, dial 310-0000.
5. Additional information regarding students writing digital format achievement tests can be found on the Alberta Education website at <https://questaplus.alberta.ca/help>.

***NEW** USE OF PERSONALLY OWNED DEVICES

Currently, schools are not permitted to allow students to use personally owned computers (PC or Mac OS) when writing achievement tests, unless specifically authorized by Examination Administration to do so. To be authorized to do so, schools must participate in a pilot project that involves the use of Alberta Education's *Quest A+* exam administration application. When used for examination writing purposes, *Quest A+* and its associated locked browser temporarily block access to hard drives, network drives, and the internet, but enable access to specified printers. For more information about this pilot project, contact Dan Karas, Senior Manager, Digital Systems and Services, by telephone at 780-415-0666 or by email at dan.karas@gov.ab.ca.